

Making Progress Toward Graduation

Evidence from the Talent Development High School Model

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Overview

In low-performing public high schools in U.S. cities, high proportions of students drop out, students who stay in school typically do not succeed academically, and efforts to make substantial reforms often meet with little success. The Talent Development High School model is a comprehensive school reform initiative that has been developed to address these challenges. Targeting some of the most troubled schools in the country, the model seeks to raise the expectations of teachers and students and to prepare all students for postsecondary education and employment.

MDRC, a nonpartisan, nonprofit education and social policy research organization, conducted an independent, third-party evaluation of Talent Development. This rigorous evaluation focuses on the first five high schools to begin using the model in the School District of Philadelphia. The evaluation follows 20 cohorts of ninth-grade students for up to four years of high school using a comparative interrupted time series research design.

Key Findings

- **Talent Development produced substantial gains in attendance, academic course credits earned, and promotion rates during students' first year of high school.** These impacts emerged in the first year of implementation and were reproduced as the model was extended to other schools in the district and as subsequent cohorts of students entered the ninth grade.
- **Talent Development's strong positive impacts during the first year of high school are consistent with the model's intensive initial focus on the ninth grade** and its emphasis on combining high-quality curricular and instructional enhancements with pervasive structural reforms aimed at building supportive and personalized learning environments.
- **The improvements in credits earned and promotion rates for ninth-graders were sustained as students moved through high school.** Improvements in student performance on the eleventh-grade state standards assessment began to emerge for later cohorts of students as the most intensive components of the model were extended beyond the ninth grade. There are also early indications that Talent Development is improving graduation rates.

The findings in this report provide encouraging evidence that real improvements can be made in some of the lowest-performing high schools in the country. Even with Talent Development's substantial and persistent positive impacts, however, large proportions of the students in these high schools are not making adequate progress toward graduation. Moreover, because this evaluation focuses on Talent Development's initial scaling-up effort in a single school district, it is not clear what would be required to produce the same effects in a larger number of schools or in other settings.

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Preface

The state of urban high schools in the United States — long a cause for concern — is now recognized as a national crisis. In too many city high schools in high-poverty neighborhoods, less than half of entering ninth-graders eventually graduate — and the students who do receive a diploma are often unprepared for work or postsecondary education. President Bush and state governors, among other leaders, are calling for change.

The Talent Development High School model is a reform initiative now being used in more than 80 schools in 20 districts nationwide. This report shows that the model made a positive difference in Philadelphia, where it was first brought to scale. Using an unusually rigorous research method, MDRC found that Talent Development improved first-time ninth-graders' attendance, accrual of academic credits (particularly in algebra), and promotion rates into tenth grade. Results from the first two schools to begin using the model suggest that Talent Development had a positive effect on graduation rates as well.

The best-implemented component of the intervention in Philadelphia seemed to be the Ninth Grade Success Academy, which transformed the ninth-grade experience in these schools. Ninth-graders were grouped together in small “learning communities” that were taught exclusively by a handful of dedicated teachers. They received instruction with specialized curricula in extended classes — with double doses of English and math.

The Talent Development schools benefited from extra funding and extensive technical assistance from the Center for Research on the Education of Students Placed At Risk (CRESPAR), the developer of the program model. However, it is important to note that these impressive results occurred without much institutional support from the school district itself.

While these findings are encouraging, they also highlight how far we still have to go. Even in the most successful Talent Development schools, large proportions of entering ninth-graders still do not graduate in four years.

Still, these findings provide some of the most reliable evidence available that change is possible in the nation's most troubled high schools. The challenge is to resist the temptation to look for silver bullet solutions — building instead on what we now know about what works.

Gordon L. Berlin
President

Acknowledgments

The authors of this report are especially grateful to the Philadelphia 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 administrators, teachers, students, Talent Development organizational facilitators, and curriculum coaches to share their time, classrooms, experiences, and perceptions.

The School District of Philadelphia has been very helpful in providing administrative data and other support for the research. The Philadelphia Education Fund has provided great assistance in understanding the context for Talent Development implementation and providing access to staff members who work closely with the schools. The authors are especially grateful to Ellen Eisenberg and Liza Herzog. Both were generous in providing answers, information, advice, and perspective on the school district and on the Talent Development process in Philadelphia.

At The Johns Hopkins University, Robert Balfanz, Nettie Legters, and James McPartland clarified the components and implementation of the Talent Development High School model and provided valuable comments on preliminary findings and early drafts of the report.

In her former role at the Philadelphia Education Fund, Ruth Curran Neild (now at the University of Pennsylvania's Graduate School of Education) provided assistance in data acquisition and in conceptualizing key issues in the analysis. Vaughan Byrnes at Johns Hopkins was also instrumental in acquiring student records data and in providing thoughtful feedback on preliminary analyses.

At MDRC, Laboni Rahman coordinated production of this report and prepared tables, figures, and other supporting documents. Nickisha Stephenson helped with the preparation of exhibits, and Laura Sztejnberg helped execute supplemental data analyses. Gordon Berlin, William Corrin, Fred Doolittle, Glee Holton, John Hutchins, Robert Ivry, Kristin Porter, and Janet Quint reviewed drafts and provided helpful guidance on the content and organization of the report. This report would not have been possible without the contributions of Howard Bloom and Jason Snipes, who developed its innovative analytic strategy.

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The Authors

Executive Summary

Low-performing public high schools in U.S. cities are often seen as places of little hope. High proportions of students drop out, many students who stay in school are not well prepared for college or the workforce, and efforts to make substantial improvements in ailing schools tend to meet with little success. Two recent trends offer some good news, however. Educators and policymakers — including President Bush, state governors, and foundation and business leaders — have recently recommitted themselves to addressing the challenge of reforming secondary education in urban settings. In addition, a number of comprehensive school reform models have been developed over the past ten years, and some have begun to show evidence of being effective.

This report offers encouraging findings on one such initiative: the Talent Development High School model. Talent Development, which targets some of the most troubled schools in the country, seeks to raise the expectations of teachers and students, with the ultimate goal of preparing all students for postsecondary education and employment. The evaluation took place in the School District of Philadelphia, using a particularly rigorous research design that provides a high level of confidence about Talent Development's effectiveness — essentially allowing researchers to conclude that changes in student engagement and performance are, indeed, due to Talent Development. In summary, the key findings of this final report from the study are:

- **Talent Development produced substantial gains in attendance, academic course credits earned, and promotion rates during students' first year of high school.** These impacts emerged in the first year of implementation and were reproduced as the model was extended to other schools in the district and as subsequent cohorts of students entered the ninth grade.
- **Talent Development's strong positive impacts during the first year of high school are consistent with the model's intensive initial focus on the ninth grade** and its emphasis on combining high-quality curricular and instructional enhancements (including offering transitional math and English courses, creating teaching teams, and providing ongoing coaching for teachers) with pervasive structural reforms (including developing small learning communities and using extended class periods) aimed at building supportive and personalized learning environments.
- **The improvements in credits earned and promotion rates for ninth-graders were sustained as students moved through high school.** Improvements in student performance on the eleventh-grade state standards assessment began to emerge for later cohorts. There are also early indications that Talent Development is improving graduation rates.

Even with Talent Development’s substantial and persistent positive impacts, the schools still have a long way to go to achieve the initiative’s vision of preparing all students for graduation, postsecondary education, and employment. For instance, even in the Talent Development schools in Philadelphia, more than half of first-time ninth-grade students will not be ready to graduate in four years. Also, because this evaluation focuses on Talent Development’s initial scaling-up effort in the School District of Philadelphia, it is not clear what would be required to produce the same effects in a larger number of schools and in more diverse contexts.

How Was Talent Development Implemented in Philadelphia?

Talent Development was initiated in 1994 through a partnership between the Center for Research on the Education of Students Placed At Risk (CRESPAR) and Patterson High School in Baltimore, Maryland. In 1998, CRESPAR, in collaboration with the Philadelphia Education Fund, a local educational intermediary organization, began Talent Development’s first and most ambitious scaling-up effort in Philadelphia.

Throughout the 1990s, nonselective high schools in Philadelphia faced a growing number of challenges. More than three-quarters of students in the district entered the ninth grade with reading and math skills below grade level, and over half could be considered chronic absentees (that is, students who miss an average of one of every five school days each year). Moreover, each year, fewer than two-thirds of ninth-graders were promoted to the tenth grade. For those who continued on to the upper grades, only about 10 percent performed at or above grade level on standardized state tests, and less than 40 percent were on schedule to graduate four years after starting high school.

As of the 2003-2004 school year, seven of the district’s 22 nonselective high schools were implementing the model. This report focuses on the five schools that began using the model first. Following are the key features of the scaling-up process in these five schools:

- **The Ninth Grade Success Academy was the most strongly and consistently implemented element of the Talent Development model.**

The schools and CRESPAR made immediate changes to both the structure and the instructional core of the entire ninth grade in each high school. This included relocating all ninth-grade classes to a single floor or wing and creating “learning communities” — small, self-contained academic teams of 100 to 125 students taught exclusively by the same four or five teachers. Each school modified its daily schedule to include blocks of four 80- to 90-minute classes and changed the sequence of courses to allow students to take “double doses” of math and English over the course of the school year (that is, to take CRESPAR’s first-term “transition” courses in math and strategic reading as electives in order to prepare for courses required in the second term, including

algebra and English language arts). Each school also provided students with a “Freshman Seminar,” developed by CRESPAR and designed to help students develop solid study skills and to focus on personal and social adjustment issues.

- **The schools made more limited progress in transforming the upper grades into Career Academy programs that were fully aligned with the principles and structures of the Talent Development model.**

During much of the period covered by this evaluation, CRESPAR and its partners worked to refine the model for students in grades ten through twelve — centered around Career Academies, which combine the structure of small learning communities with curricular choices built around broad career themes. While many of the high schools already had existing Career Academies, many did not have cohesive small learning communities, and the curriculum components were of uneven quality. Specialized courses in math and English, team-teaching, extra supports for struggling students, and teacher professional development were phased in and strengthened for the upper grades during the later stages of the follow-up period for this study.

- **Implementation teams at each school, professional development opportunities, and the expertise of CRESPAR’s staff were important facets of the implementation process.**

In each school, a small team consisting of a part-time coordinator and part-time curricular coaches helped establish and maintain the model. These teams were supported by a full-time coordinator for the district and by curriculum developers and school reform experts at CRESPAR.

- **Implementation of Talent Development was sanctioned by the district, but it received neither formal endorsement nor direct institutional support.**

The lack of formal district endorsement, along with variation in the context and in the operational support provided at individual schools, led to variation in the quality and depth of implementation of Talent Development across schools and over time. Nevertheless, each of the five schools that are the focus of this report was able to implement the model with a reasonable level of fidelity and intensity.

How Was the Impact of Talent Development Evaluated?

MDRC used a research method called a “comparative interrupted time series analysis” to estimate the effect of Talent Development on student outcomes. The first step in estimating impacts with this design is to measure the change at Talent Development schools in a given student outcome, after the school began using the model, relative to the average outcome during a pre-

implementation baseline period. This estimation represents how student performance changed in the presence of Talent Development. The next step is to measure the corresponding change during the same period for similar schools not implementing the model. This measurement provides an estimate of how student performance would have changed at the Talent Development schools in the absence of the reform. The *difference* between these two changes is an estimate of the impact of the intervention — what Talent Development caused to happen.

The design for this evaluation is particularly rigorous, addressing many concerns typically raised about research that does not use random assignment. While no quasi-experimental methodology irrefutably establishes causality, this version of the comparative interrupted time series method provides a strong basis on which to attribute changes in student performance to Talent Development.

Did Talent Development Make a Difference?

The report focuses on program impacts for three cohorts of first-time ninth-graders from each of five Talent Development high schools. It includes findings from these students' first year of high school and follows at least one cohort from each school for a full three years to the point at which they should be in eleventh grade and taking the state's standardized test in math and reading. The study was also able to follow ninth-graders from two of the schools through four years to examine Talent Development's impact on graduation rates. The findings presented in the report support the following conclusions:

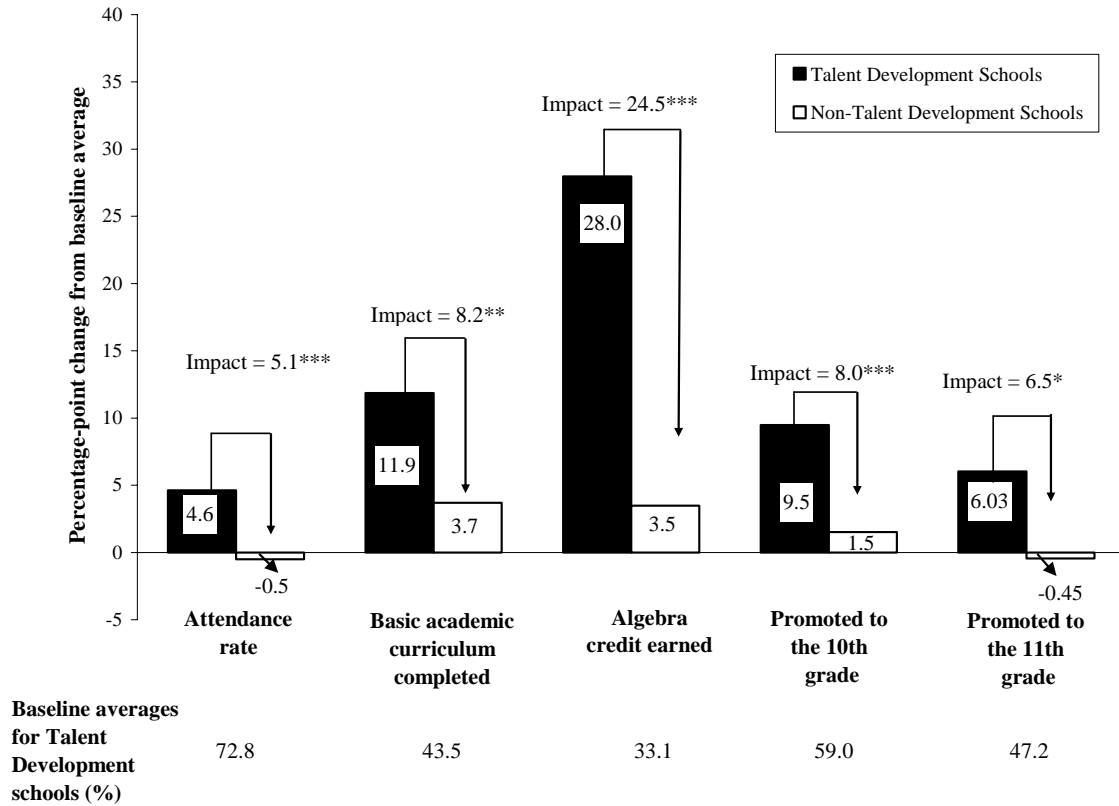
- **For first-time ninth-grade students, Talent Development produced substantial gains in attendance, academic course credits earned, and promotion rates during the students' first year of high school.**

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. The numbers below the bars represent the baseline averages for key outcomes (such as attendance rate and basic academic curriculum completed) for first-time ninth-grade students in Talent Development high schools — that is, the performance levels that Talent Development had to build upon.

The Talent Development Evaluation

Figure ES.1

Impacts on and Baseline Averages for Key Outcomes for First-Time Ninth-Grade Students



SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

Baseline averages for Talent Development schools show the average outcome levels for students in these schools during the three-year period prior to the implementation of Talent Development. Each bar in the graph represents the change from baseline averages in Talent Development and non-Talent Development schools. The estimated impact of Talent Development is the difference in deviations from the baseline average between the Talent Development and non-Talent Development schools. A two-tailed t-test was applied to the impacts at follow-up. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

The first set of bars in the figure shows that attendance rates in the Talent Development schools improved by an average of about 5 percentage points, while the rates remained constant in the comparison schools. Talent Development’s estimated impact on the attendance rates of first-time ninth-graders was 5 percentage points — or an average increase of about nine extra school days per year for each student in a Talent Development high school.

Beyond encouraging students to attend school more regularly, a major goal for Talent Development is to help ninth-graders complete a more rigorous complement of courses during their first year of high school. Figure ES-1 shows that the Talent Development schools consistently outpaced their non-Talent Development counterparts in increasing the percentage of students who completed what could be considered a basic academic curriculum: earning at least five credits during the school year, with three of those credits being in math, English, and science. On average, Talent Development increased the percentage of students completing a basic academic curriculum by about 8 percentage points over what was achieved in the non-Talent Development schools. Although not shown in the figure, Talent Development also increased total credits earned during the ninth grade by about two-thirds of a full-year credit.

Most notably, Talent Development produced a substantial increase in the proportion of students who earned a credit in algebra — nearly 25 percentage points. Algebra is a critical “gate-keeping” course, one that is usually required of students both for high school graduation and for admission to college. For a typical class of about 500 first-time ninth-graders, the estimated impact of nearly 25 percentage points means that Talent Development adds nearly 125 students to the rolls of those who earn a credit in algebra each year.

Finally, Talent Development also improved the rates at which students were promoted from the ninth grade to the tenth (including both end-of-year and mid-year promotions). Figure ES-1 shows that promotion rates in Talent Development schools rose by nearly 10 percentage points after the program began implementation. During the same time period, these rates rose by only about 2 percent in the comparison schools. The resulting impact of 8 percentage points on promotion to the tenth grade means that an additional 40 ninth-graders per school, per year, made the transition from the ninth to the tenth grade — which is generally considered the weakest point in the educational pipeline.

- **The impacts on credits earned and on promotion rates were sustained as first-time ninth-graders moved through high school.**

Figure ES-1 also shows that Talent Development improved the rate at which students were promoted to the eleventh grade by about 6 percentage points. Though not shown in the figure, Talent Development also sustained its impact on the accumulation of key academic course credits through the eleventh grade. The model produced a 10 percentage point increase

in the percentage of students who had earned a minimum of three math and three English credits — a key threshold for staying on course for graduation.

- **Talent Development produced marginal improvements in math test scores among early cohorts of eleventh-graders, but stronger improvements occurred for later cohorts of students who were exposed to a more intensive version of the model.**

For the first cohorts of eleventh-grade students in the Talent Development high schools, the model produced a modest increase of 6 percentage points in the percentage of students who scored at the basic level or above on the math portion of the state’s standardized assessment. For later cohorts of eleventh-grade students in two of the Talent Development high schools, the model substantially increased the average scaled scores in reading and math — by effect sizes of 0.38 and 0.65, respectively.

- **Based on evidence from only the first two schools to implement the model, Talent Development appears to have produced positive impacts on high school graduation rates.**

Because they had been working with Talent Development for a full five years, the first two high schools to implement the model provide the opportunity to examine impacts on high school graduation rates. For the first two cohorts of first-time ninth-graders in these high schools, Talent Development improved the likelihood of graduating on time by about 8 percentage points. In other words, for a typical entering ninth-grade class of 500 students, Talent Development was able to produce an average of about 40 new graduates per year.

- **Although the likelihood of repeating the ninth grade declined in Talent Development high schools (due to the model’s impact on promotion rates), the results for those students who did need to repeat the ninth grade were mixed.**

Prior to Talent Development, about one-third of the ninth-grade students in the study schools were repeating the grade for at least the first time. As noted above, Talent Development did increase the rate at which first-time ninth-graders were promoted to the tenth grade. Among those who still needed to repeat the grade, Talent Development produced an increase of more than 5 percentage points in average attendance rates. Also, the Talent Development high schools saw notable increases in the credits earned by repeating ninth-graders — yet these trends were present in the non-Talent Development schools as well. Overall, however, Talent Development actually increased the likelihood that students who repeated a full year of ninth grade would leave the school system before the end of their fourth year of high school.

Taking Stock of the Results

Talent Development produced substantial and pervasive improvements in outcomes for first-time ninth-grade students in very low-performing high schools. In a high school of 500 first-time ninth-graders, Talent Development adds about nine days of school attendance for each student and helps an extra 125 students pass algebra, an extra 40 students achieve promotion to the tenth grade, and an extra 40 students graduate on time.

Nevertheless, two important cautions are worth noting. First, the schools that have been using the model still have a great deal left to accomplish if they are to reach the model's aspiration of preparing all students for graduation, postsecondary education, and employment. Even in a Talent Development school, a typical ninth-grader will still miss about 40 days of school, nearly a third will not be promoted to the tenth grade, and more than half will not be ready to graduate within four years. Thus, even successful interventions like Talent Development still need much more power. Toward that end, the Talent Development model continues to evolve by strengthening the upper-grade components, particularly by extending curricular and instructional reforms to tenth and eleventh grades.

Second, achieving these initial positive results required significant extra funds and very demanding changes to school organization, instruction, and teacher support. The estimated additional cost of operating Talent Development is approximately \$250 to \$350 per student, per year. In Philadelphia, the costs were covered by federal grants, in-kind and direct contributions from the school district, and other funds available to CRESPAR. Despite the financial support for Talent Development from the district, however, these impressive results were accomplished without the district's formal endorsement and without deeper institutional support. The effectiveness of Talent Development and other comprehensive school reforms are likely to be enhanced and sustained when school districts focus staffing and leadership decisions on specific school improvement strategies and marshal the funding and resources to support them.

In conclusion, the findings in this report provide encouraging evidence that real improvements can be made in some of the lowest-performing high schools in the country — if there exists a sustained investment in developing the skills to deal with poorly prepared students and weak learning environments, and if that investment is built on reasonable fidelity to the tenets and components of a well-conceived reform approach.

Introduction

This report provides an independent assessment of the impact of the Talent Development High School model on student performance in five high schools in the School District of Philadelphia.¹ 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 Howard University, and Patterson High School in Baltimore, Maryland. In 1998, CRESPAR, in collaboration with the Philadelphia Education Fund, began Talent Development's first and most ambitious scaling-up effort in Philadelphia. As of the 2003-2004 school year, seven of the district's 22 nonselective high schools were implementing the model.² Nationwide, Talent Development is operating in 83 high schools in 32 school districts in 20 states, and CRESPAR is seeking ways to refine the model and expand it further.

The Talent Development model targets 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 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.

MDRC is conducting the independent, third-party evaluation of the model, funded by the U.S. Department of Education through its Institute of Education Sciences, as part of the Comprehensive School Reform Demonstration program.³ In 1999, CRESPAR received a grant from the Institute of Education Sciences (then called the Office of Educational Research and Improvement [OERI]) to "scale up" the Talent Development model in several school districts

¹The impact analysis in this report focuses on the first five high schools to adopt Talent Development in Philadelphia. The discussion of the implementation of Talent Development in Philadelphia discusses these five schools and another two high schools that adopted the model in the 2003-2004 school year. An eighth school adopted Talent Development in the 2002-2003 school year, but it has not been included in either analysis because it began the process of closing the following year.

²Nonselective schools typically enroll students from a nearby neighborhood and do not require them to meet academic or other performance standards for admission. To protect the anonymity of the schools highlighted in this report, letters are used to refer to specific schools.

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

around the country. A requirement of the OERI funding was that CRESPAR had to contract with an external evaluator to conduct an independent assessment of Talent Development's impact on student performance. Through a competitive proposal process, CRESPAR chose MDRC to conduct the evaluation. This is the final report from that evaluation.⁴

This report is being released as educators and policymakers (led by President George W. Bush), the state governors, and foundation and business leaders have turned the nation's attention to the problems facing low-performing high schools. So far, much of the attention has focused on framing the problem as a national "crisis," ratcheting up academic standards, and establishing assessment and accountability systems to monitor student performance and hold students and teachers accountable for results. To this point, little attention has as yet been paid to the challenges of equipping low-performing high schools with the tools needed to prevent students from dropping out, ensure that they have the support and basic skills they will need to complete high-level academic work, and teach them what they need to know to succeed on the high-stakes assessments. Fortunately, evidence about the effectiveness of particular approaches to these challenges is beginning to emerge. The Talent Development evaluation is one source of such evidence.

A preliminary report from MDRC's evaluation of the Talent Development High School model was released in June 2004. It focused primarily on Talent Development's effects on ninth-graders during the first three years of the model's implementation. The findings showed that, for first-time ninth-grade students, Talent Development produced substantial gains in academic course credits and promotion rates and modest improvements in attendance.

The current report provides a more detailed account of how Talent Development was implemented in Philadelphia and includes two additional years of follow-up data on student performance. The available data follows ninth-grade students through up to four years of high school, and the analysis examines the impact of Talent Development on attendance, course taking, and promotion outcomes. For the two high schools that began working with Talent Development first, the report provides some initial insights into the effect Talent Development may be having on the rate at which students are able to graduate on time.

The report is organized into six sections:

⁴See Kemple and Herlihy (2004) for the preliminary report on the Talent Development High School model. A Talent Development Middle School model also exists and also has been the subject of an MDRC evaluation. See Herlihy and Kemple (2004) for information about the effects of the Talent Development Middle School model.

- The first section provides evidence of the problems faced by the high schools in Philadelphia, where the Talent Development High School model not only began its scaling-up process but also has been used most pervasively.
- The second section describes the model itself, 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 implementation of Talent Development in Philadelphia, highlighting factors that appeared to have facilitated or hindered execution of the model.
- The fourth section provides an overview of the analytic strategies being used to estimate the impact of Talent Development — by comparing changes in student outcomes in Talent Development schools with changes in student outcomes in schools that did not implement Talent Development.
- The fifth section presents the findings from the analyses of Talent Development’s impact on student performance in the five high schools that began using the model first. It examines the model’s effect on ninth-graders’ attendance rates, promotion rates, and credits earned toward graduation. This section extends the impact analysis into students’ second, third, and fourth years of high school to assess the effect of Talent Development on course credits earned, promotion rates, test score performance, and on-time graduation rates.
- The final section discusses lessons that may be drawn from the analyses and attempts to put these findings in the context of research from other comprehensive school reform efforts.

In the sections that present findings on implementation and impacts, the report provides further information about the data sources and methods used in the analyses. Finally, the report includes an appendix with additional tables from the impact analysis.

The State of High Schools in Philadelphia

Low-performing high schools in many U.S. cities reflect some of the deepest problems in American education. Recent data show that, in nearly 20 percent of the nation’s 11,000 regular and vocational high schools, the number of enrolled students in an entering class of ninth-graders declines by nearly 40 percent during four years of high school. Such schools have been characterized as having “weak promoting power” and exhibit astonishing dropout rates and low performance even among their graduates. The number of these troubled schools increased by 60

percent between 1993 and 2002; the schools are concentrated in urban centers. In half of the nation's 100 largest cities, the majority of regular and vocational high school students are enrolled in schools where graduation is not the norm.⁵

Philadelphia provides a particularly rich and relevant context for a rigorous assessment of Talent Development. Its 22 nonselective high schools, and particularly the five that are the subject of this evaluation, 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. Most of these high schools have been identified as having weak promoting power,⁶ and together these schools exhibit the problems faced by many low-performing high schools across the country.

Table 1 presents descriptive information for the 22 nonselective, comprehensive high schools in Philadelphia. The table captures the state of these schools over the three school years — 1996-1997 through 1998-1999 — before Talent Development began scaling up its model in several of the high schools.⁷ During this period, the 22 high schools enrolled approximately 76 percent of the high school students in the district.⁸ Following is an overview of the context that Talent Development entered into when it began its scaling-up effort.

Getting a Poor Start in the Ninth Grade

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 1 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 attendance rates and high degree of chronic absenteeism (defined as having attendance rates of 80 percent or lower). The table shows that nearly 58

⁵See Balfanz and Legters, 2004.

⁶See Balfanz and Legters, 2004.

⁷Note that the sample of students that is the basis for the information in Table 1 excludes students who may have been listed in the district administrative records but who had not attempted at least one course credit. 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.

⁸Approximately 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.

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Table 1

**Characteristics of Students in Nonselective High Schools in
the School District of Philadelphia,
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		
Average Normal Curve Equivalent (NCE) score	36.6	NA
Percent scoring above grade level	23.4	NA
Math total		
Average Normal Curve Equivalent (NCE) score	35.3	NA
Percent scoring above grade level	16.9	NA
11th-grade state assessment scores ^c		
Reading Comprehension		
Average Normal Curve Equivalent (NCE) score	NA	27.0
Percent scoring above grade level	NA	10.2
Math total		
Average Normal Curve Equivalent (NCE) score	NA	26.9
Percent scoring above grade level	NA	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	NA
Promoted to 12th grade on time ^g	40.7	NA

(continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

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.

^aTypically, 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 1 (continued)

^bStudents 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.

^cState standards assessment test scores were available only for the 11th grade.

^dAttendance 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.

^eUntil the 1998-1999 school year, students in the district were required to earn four course credits in order to be promoted.

^fFor 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.

^gFor 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.

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.

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 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).⁹ 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.

Finally, Table 1 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 per-

⁹The 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.

cent 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.

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).¹⁰

Continued Problems in Upper Grades

The second column of Table 1 presents information about the attendance, test score averages, and promotion status of tenth- through twelfth-grade students. In short, the data in Table 1 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 1 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.¹¹ 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.

The Talent Development Model

Talent Development was conceived as a comprehensive paradigm for school reform, which asserts that all children can learn and will do so in an academic setting that is demanding and that expresses high expectations. From the beginning of Talent Development, its central

¹⁰The 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.

¹¹The averages presented in Table 1 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.

goals have been to help transform urban high schools into solid learning institutions that establish a strong, positive school climate for learning; promote high academic standards for all students, especially in core subjects such as English and mathematics; and provide professional development to support implementation of the recommended reforms. This section reviews the theoretical rationale for the model, and describes its key operational components.

Conceptual Framework

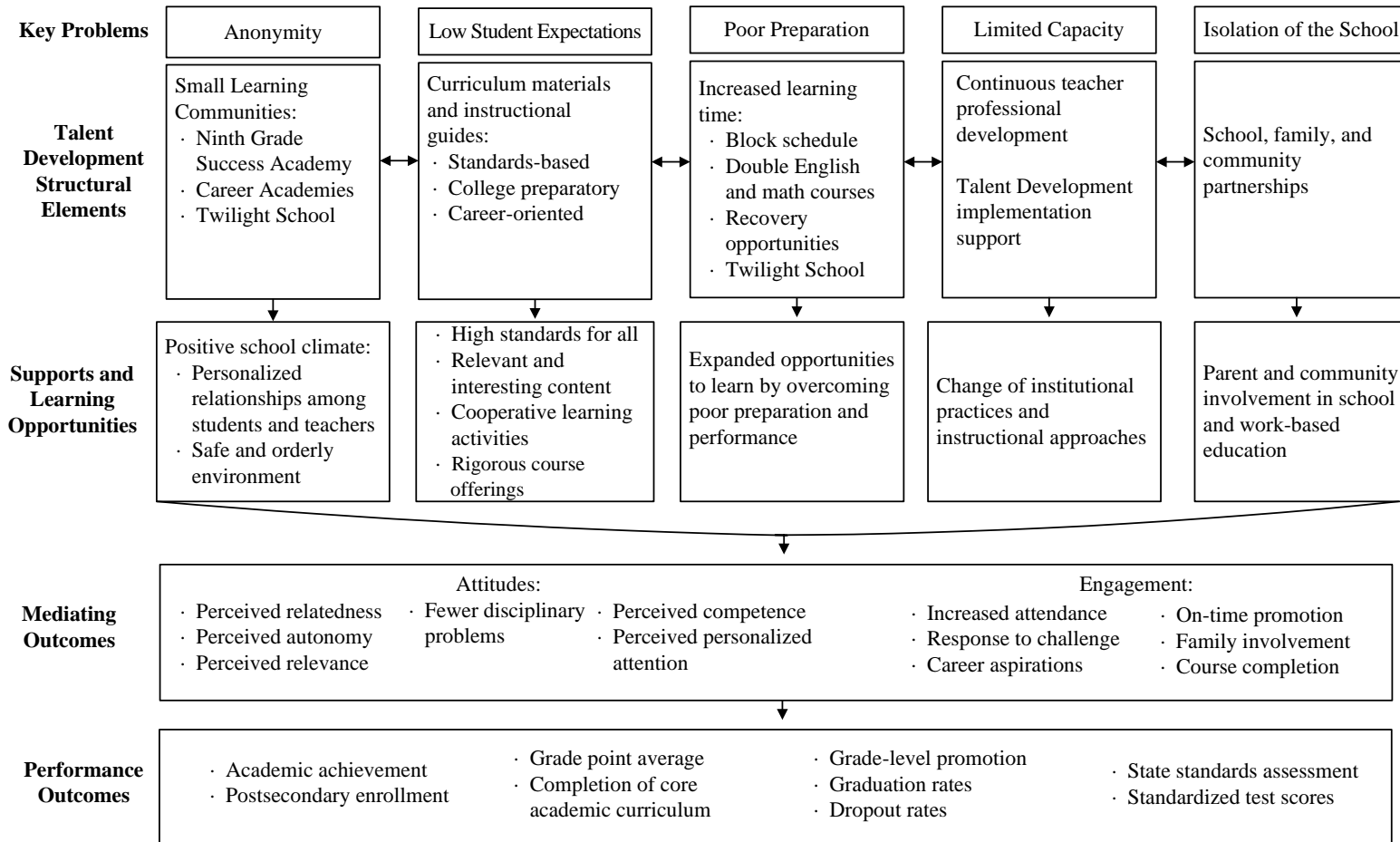
Figure 1 presents a summary version of the conceptual framework describing Talent Development's theory of change. This research-based theory identifies the problems Talent Development attempts to address, specifies the model's core elements, and defines the key goals and outcomes it is intended to accomplish. This is an idealized version of Talent Development, displaying all its intended attributes — but not always a reflection of how the model was actually implemented. Its key purpose in spelling out the theory of change is to make explicit the pathways through which the core components of the model are intended to improve school functioning and, ultimately, student outcomes.

The framework focuses on four successive and causally related phases in the Talent Development model; the hypothesis is that these phases, outlined below, will lead to improved student performance outcomes.

- **Structural elements:** The concrete changes that Talent Development seeks to implement include changes in schools' organization, policies, curriculum content, resource allocations, and relationships with external entities. These include five broad and mutually reinforcing elements: (1) reorganizing schools into small learning communities; (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; and (5) parent and community involvement activities that aim to encourage students' career and college development.
- **Supports and learning opportunities:** Implementation of structural elements in turn is expected to lead to improvements in school climate and functioning; positive changes in teacher and student behaviors, experiences, and expectations; and more productive use of internal and external resources.
- **Mediating outcomes:** Enhancement of supports and learning opportunities are hypothesized to produce mediating outcomes, including improvements in students' attitudes, levels of engagement, and sense of efficacy and

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



competence that will enhance their willingness and capability to perform more effectively as students.

- **Performance outcomes:** The mediating outcomes are then expected to lead to changes in performance, including positive changes in student achievement, progress toward graduation, and preparation for successful transitions to postsecondary education and employment.

These successive phases, again, represent an ideal trajectory, operating across the full range of possible interactions — one that is seldom completely experienced in practice. A more elementary and succinct version of Talent Development’s theory of change was presented by one of the model’s original designers: students find school more attractive and attend more frequently; they go to class, take and pass more courses, and tend to remain in school; as a result they are more likely to be promoted and eventually to graduate.

How Talent Development is Designed to Address Key Educational Problems

The structural elements listed above — essential building blocks of the Talent Development model on the ground — correspond to five key educational problems (shown in the top row of Figure 1) that Talent Development was designed to address.

Key Problem 1: Student Anonymity

A reason often given by students for dropping out of high school is that they feel distance and estrangement from teachers and administrators.¹² 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.¹³ Continuous changes in classroom composition and student peer groups also increase anonymity and diminish students’ sense of community.

To address this, Talent Development uses small learning communities as a means of building 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

¹²Altenbaugh, 1998.

¹³Sizer, 1984; Hill, Foster, and Gendler, 1990; Powell, Cohen, and Farrar, 1985.

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 are designed to 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.

Key Problem 2: Low Student Expectations

Adolescent students become bored, and their attendance and interests suffer when they are not drawn to their class work by the prospect of challenging and fulfilling content, or when they see no connections between learning tasks and their own interests and future goals. Many students also may develop lowered expectations if they find themselves tracked into lower-level courses aimed at students not expected to attend college. For all students in low-performing schools, there are usually few opportunities to explore how classroom skills are actually applied outside the classroom.¹⁴

The Talent Development model uses both 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:

- **Refocusing the curriculum.** As part of the Talent Development model, both the Success Academy and the Career Academies are designed to 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.
- **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:

¹⁴See, for example, Resnick, 1987a; Raizen, 1989; Stasz et al., 1993; and Grubb, 1995.

- The Ninth Grade Success Academy, by doubling the course offerings in English and math, aims to prepare students to succeed in their core courses; in addition, the ninth-grade roster includes the required science and social science courses;
- In the upper grades, Career Academies support a full four-year sequence in English and mathematics and offer science and social science courses at each grade level, along with career-pathway and other elective courses.¹⁵
- **Creating extended class periods.** Four 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 3: Poor Prior Student 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 provides a variety of techniques to help students develop studying, note-taking, and time-management skills, as well as the social relations skills required in their academic setting and their lives outside of school.
- **Extended 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) which makes possible “double doses” of English and math in both the ninth and tenth grades, intensifying the effects of classroom instruction through extended, well-structured classes.
- **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 during the first semester of both the ninth and tenth grades to prepare students to succeed in

¹⁵Legters and Morrison, 1999, pp. 2.5 and 2.51; Center for Social Organization of Schools, 2002b.

district-mandated courses, required for graduation, which they take during the second semester.

- **Twilight Academy.** 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.

Key Problem 4: Limited School 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 a multiyear implementation plan for phasing in the key components of the Talent Development model.
- **An implementation support team.** Each school is assigned a support team of Talent Development curriculum coaches, led by a school-based facilitator, who works with school leadership and other staff to implement the model, and curriculum coaches, who work with the teachers in the Success Academy teams and with other faculty in the schools. Ongoing technical assistance available to the schools could include teacher coaching, curriculum materials and other resources, workshops, and support for student-teacher meetings.
- **Professional development.** Since 1998, annual national conferences for Talent Development schools, and training institutes for their staff, have allowed the wider network of Talent Development schools and professionals to receive training, to share their experiences, and to learn from one another.

Key Problem 5: 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 (often restricted to notification of severe disciplinary and academic problems). Little effort is made to use the community as a re-

source for providing students with meaningful learning opportunities and a context for highlighting the potential relevance of what they are studying.

To address this problem, Talent Development seeks to develop school-family-community partnerships by working with the National Network of Partnership Schools.¹⁶ The goal is to enable families and communities to become informed about and involved in children's education and schools. Working together, Talent Development schools and facilitators from the Network employ a variety of strategies for increasing that involvement.¹⁷

Implementation of the Talent Development Model in Philadelphia

This section discusses how implementation of the Talent Development High School model actually unfolded in high schools within the Philadelphia School District (hereafter, the district). Its major focus is to characterize the progress and effectiveness of Talent Development implementation and particularly its status during the 2003-2004 school year, when the field research took place.¹⁸

The implementation findings are presented in the sections that follow. However, two general points should be stressed. First, the Philadelphia expansion of Talent Development marked the first time that CRESPAR had taken the model to a new urban school district. While CRESPAR staff (and those of the local intermediary with whom they partnered) were experienced, knowledgeable, and skilled in working with schools, and did succeed in getting the model into seven high schools, the Philadelphia expansion, as a new enterprise, naturally presented a series of challenges, stresses, and problems that were not all recognized by the implementers before they started. Understandably, the implementation process felt the effects of this.

Second, Talent Development's expansion in Philadelphia lacked the formal participation of the school district, a point whose positive effects are discussed immediately below. However, it seems fair to speculate that direct district support might have led to greater stability at the school leadership level (as it has for reform efforts in other districts); a more authoritative

¹⁶Center for Social Organization of Schools, 2002a.

¹⁷It should be noted that efforts to launch community partnerships were not undertaken in Talent Development schools in Philadelphia until the 2003-2004 school year, and had little visible effect on the quality of implementation.

¹⁸The field research consisted of interviews with principals in five of the seven Talent Development schools, which were implementing the model in the 2003-2004 school year; interviews with most Talent Development staff, including the director, the staff teams in the schools, other staff at the Center for Research on Students Placed At Risk (CRESPAR), the Philadelphia Education Fund (the local intermediary that shared implementation responsibilities with CRESPAR), and the School District of Philadelphia; review of existing reports, records, school schedules and other material; visits and observations at all of the schools, as well as attendance at professional development seminars in both Philadelphia and Baltimore.

(and less negotiated) role for the implementers; more consistent and predictable funding; greater technical support; and more timely assignment of teaching and other staff to the Talent Development schools — in short, to a better-supported implementation experience.

What instead happened was that the implementation process in Philadelphia was exposed to (and not shielded from) the effects of contextual factors normally found in large urban school districts: policy vagaries, inconsistencies, bureaucratic inflexibility, staff turnover, and organizational turbulence. Scheduling, resources, personnel, and degrees of participation by schools all were to some degree affected. It is, of course, not possible to gauge with precision how much of an effect this had. Yet any limitations in the success or variation in the quality of implementation need to be interpreted in light of the probable effects of the hands-off policy regarding Talent Development that the district chose to adopt.

Implementation Findings

- **Implementation of Talent Development was sanctioned by the district but received neither formal endorsement nor direct institutional support.**

By 1998, CRESPAR had begun looking for venues where it might expand the Talent Development model that had been created in Baltimore. Nearby Philadelphia represented one intriguing option. The superintendent of the School District of Philadelphia at that time had previously been an educational leader in Maryland and had personal relationships with CRESPAR staff. His then-primary emphasis in the district was reform efforts directed at younger children and lower grades. There was far more limited interest on the part of the district in the high schools; indeed, there was at that time no distinct office of secondary education in the district.

The superintendent thus positively greeted CRESPAR's proposal to introduce Talent Development into high schools in the city. However, the agreements that resulted were in many respects quite informal. The district would agree to sanction Talent Development's presence in the schools. This in fact fit in well with a district mandate (which was somewhat laxly enforced) that all failing high schools adopt some reform model. The district would also provide funding and support, on a school-by-school basis, for introduction of Talent Development (even as it would support other reform models).

But these agreements were not expressed in official contracts or agreements. There was no recognition by the district of Talent Development as a "model of choice" for improving high schools in Philadelphia. Nor was formal or clear institutional support provided by the district for implementation efforts on behalf of Talent Development; no written agreement between the district and CRESPAR was ever signed.

In the end, though, Talent Development did come to be implemented in schools in the district. The lack of official support notwithstanding, informality proved beneficial in the short run. It afforded latitude to the implementers to identify and work with individual high schools without the need to develop formal protocols or get procedural approvals from the district for how those contacts would be made. Though there were naturally some limitations, the implementation staff had something of a free hand in how it could operate, which schools it could choose to work with, and how it would carry out planning and implementation.

- **Talent Development implementation in Philadelphia was jointly carried out by CRESPAR and a local educational intermediary.**

To facilitate its work in Philadelphia, CRESPAR developed a collaborative relationship with the Philadelphia Education Fund (the local intermediary), a non-profit organization whose mission is improvement of education in the city, especially for low-income, underachieving young people. The local intermediary's capacities included research, advocacy, program design, and direct involvement in schools. It had worked collaboratively with the district for many years, was conversant with local school issues and district leadership, and had credibility in the local school community.

The partnership that emerged was informal. Staffing for the Talent Development effort was often shared between the two organizations, and the roles and interactions among CRESPAR, the Talent Development schools, and the local intermediary were extremely fluid, though again direct involvement with the district was limited. The funding agreements that underlay this setup were complex, and similarly informal. In all, the estimated additional cost of operating Talent Development is approximately \$250 to \$350 per student per year, which includes materials, technical assistance, and salaries for curriculum coaches and a part-time program facilitator. Four major sources of funding were used to underwrite the costs of the Talent Development initiative:¹⁹

1. Federal grant funds that supported Comprehensive School Reform Projects in the district;
2. Federal grant funds that supported Small Learning Communities in the district;
3. Funds available to CRESPAR that supported staffing, training and professional development, curricula, and other expenses related to the Philadelphia initiative;

¹⁹The costs discussed here are the incremental costs of implementing Talent Development, over and above the basic budgets that individual schools would receive based on their school enrollment and normal share of such special funding streams as Title I.

4. School district funds provided to the local intermediary for support of implementation activities beyond what the two federal sources would support.

In addition, the district provided additional teachers to the participating Talent Development schools needed to implement block-scheduling and team teaching (the latter described below); though supplied as staff, this was in effect an additional financial contribution by the district to the Talent Development effort.

The grant proposals for the federal funds were prepared on behalf of the participating high schools by CRESPAR and the local intermediary and formally submitted to the funding sources by the district. Through the 2003-2004 school year, the federal grant and district funds were also largely administered on behalf of the schools by the local intermediary, with limited input on the part either of the district or the schools.²⁰

What this meant was that the implementers could exercise considerable flexibility and creativity in going about their work. Given the informality of support from the district, this also meant that adequate funding for Talent Development in Philadelphia was a somewhat uncertain, year-to-year issue. However, even though a predictable and reliable base of support for Talent Development's continuation never was established, adequate funds to support the implementation process were available through the 2003-2004 school year.

- **An evolutionary process that did not directly involve the school district, the recruitment of Talent Development schools was guided more by the interest of individual schools than by use of objective selection criteria.**

There was no formal procedure for identifying and recruiting what eventually became the Talent Development schools. The issue of which schools and how many would participate appears not to have been addressed upfront in any systematic way. There was, of course, a guiding precept: Talent Development would seek out low-performing schools in the district since its intent and elements were directed toward changing outcomes in schools of that kind. But objective criteria for identifying and selecting the schools that eventually participated were never used.

Failing high schools in Philadelphia had been encouraged to seek out and adopt a reform model. They had latitude in which model they could adopt. Talent Development staff, having made some presentations and contacts in the city and at educational conferences, became known to several high school principals who had heard about the model and wanted to try it in their schools. Indeed, word-of-mouth was an important recruitment tool for the program.

²⁰Beginning in the 2004-2005 school year, participating schools took a much stronger role in determining how the funds would be programmed and used.

School principals usually reached out to Talent Development, rather than the other way around. There was no direct involvement by the school district in this process.

Recruitment of additional of Talent Development high schools thus took place on an ad hoc basis, without an overall plan for ramp-up or incorporation of new schools. By the start of the 2003-2004 school year, a total of seven schools were actively implementing the Talent Development model. (An eighth school, School F, began to close in the 2003-2004 school year and, thus, is not included in the analysis.) These schools had been brought into the process over a total of four years. Table 2 displays the sequence of implementation.

Adoption of Talent Development was designed to be a two-stage process. After initial interest was expressed, a high school would engage in a “planning year.” During this period, with assistance from CRESPAR and the local intermediary, school staff would familiarize themselves with the Talent Development model, in some cases visiting established Talent Development schools in Baltimore; develop a plan for implementing the model successfully in their school; and, after a formal vote by faculty, adopt the model.

It should be noted that the last two schools to join the Talent Development complement were only in their first year of implementation when the field research was undertaken, and when the final impact data were obtained. Therefore, while they figure in the general discussion that follows, their experience is not heavily weighted, nor are they included in the analysis of impacts later in this report.

- **There were variations in the intensity and quality of implementation across the Talent Development schools.**

Though Table 2 might suggest an adoption process that was repeated with consistency and uniformity in each school, this was not the case. Several factors combined to produce differences in the smoothness and intensity of the process in the seven high schools that came to adopt Talent Development.

First, the expansion process, especially in the early going, was evolutionary in nature. Its major steps were adapted from the experience in Baltimore, but the adaptation happened in real time — chiefly in the first two Philadelphia schools that initially chose to adopt. These schools benefited from the nearly full-time presence of an implementation manager who had had direct experience in the Baltimore pilot schools. But the rollout in these two schools was a

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Table 2

Implementation Time Line in Eight High Schools

	School Year					
	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
School A	Planning	Implementation Year 1	Implementation Year 2	Implementation Year 3	Implementation Year 4	Implementation Year 5
School B	Planning	Implementation Year 1	Implementation Year 2	Implementation Year 3	Implementation Year 4	Implementation Year 5
School C		Planning	Implementation Year 1	Implementation Year 2	Implementation Year 3	Implementation Year 4
School D			Planning	Implementation Year 1	Implementation Year 2	Implementation Year 3
School E			Planning	Implementation Year 1	Implementation Year 2	Implementation Year 3
School F				Planning	Implementation Year 1	NA
School G					Planning	Implementation Year 1
School H					Planning	Implementation Year 1

new experience, even though CRESPAR moved quickly to codify the planning process it had developed for use in subsequent district schools wishing to adopt the model.

Second, adopting schools were attracted to Talent Development for different reasons. Interviews suggest that principals in the earliest two schools to adopt the model clearly wanted to reform the overall high school. Within those schools there was a greater effort to make changes that would affect all grades. In others, the interests were somewhat less strategic, much more focused on addressing the needs of ninth-graders through installation of the Success Academy, and less so with the broader conception of school reform espoused by Talent Development.

Third, the complement and mix of Talent Development staff deployed by CRESPAR and the local intermediary to coordinate the implementation changed over time. Especially in the early years of implementation, when several schools were in the planning or early implementation phase, the staff who were implementing the program were stretched thin, often having to respond to needs in two schools at once. After the first two schools had begun implementation, CRESPAR and the local intermediary were able to deploy staff from those schools who had worked through the implementation process directly. Two such staff members, in fact, managed implementation at later-implementing schools and also worked as trainers for CRESPAR.

Fourth, the availability and “take-up” of training and professional development varied among schools. Teachers needed to become conversant with the Talent Development approach, the Talent Development curriculum, and also the use of the extended block schedule — for many a considerable change from their past experience and practice. While both CRESPAR and the local intermediary offered numerous professional development opportunities (as described below), participation by teachers was uneven.

School-specific factors sometimes played a part in implementation quality. At one school, Talent Development was adopted even though the faculty voted against the project; at another, Talent Development started up (that is, the Success Academy was installed) before the planning process was completed and faculty had voted (they did ultimately endorse implementation of the model). The quality and coherence of existing Career Academies and small learning communities also varied among (and within) the schools.

Finally, it should be noted that principal turnover was evident during the implementation process. Of the first five implementing schools, four experienced changes in leadership; in two cases, the change occurred within a year of the program having been adopted at the principal’s behest.²¹ These changes did not always affect Talent Development negatively — two of

²¹In only two of the seven schools that implemented Talent Development had the same principal been in place throughout the implementation process.

the successor principals were strong supporters of the program — but they did add a degree of uncertainty and turbulence to the adoption process.

- **The Success Academy was the most strongly and consistently implemented set of elements of the Talent Development model.**

The Talent Development strategies for addressing ninth-grade issues, embodied in the Success Academy, had five main features as implemented: 1) a restricted physical setting, in which the needs of the incoming freshman class could be met, and support provided, in a distraction-free, concentrated way; 2) a team-teaching structure designed to break the class into smaller, more intimate groups, identify specific youngsters needing assistance, and provide that assistance effectively; 3) a supportive environment that would encourage students to attend school regularly and achieve academically; 4) a curricular regimen built upon the extended block schedule, which was designed to help students overcome skill and knowledge deficiencies; and 5) the Twilight Academy, a specialized program for ninth-graders who failed, or experienced difficulty, in the normal school setting. The manner of their implementation is described in the following sections.

Setting

In all of the schools, a separate floor or wing of the school was designated as the Success Academy, with its own marked entrance wherever possible (not all schools had physical layouts that would allow this) and signs designating the area as the Success Academy. And while this physical rearrangement of space was an obvious logistical challenge, all of the Talent Development schools achieved it. This setup contrasted markedly with that of a traditional school in the district, where entering ninth-graders would join the entire student body and where their courses might be held anywhere in the building.

The incoming ninth-grade class in Talent Development schools was divided into three or four separate groups (depending on the size of incoming enrollment), usually of about 90 students each. An Academy Principal, with release time, directed the overall effort. The Talent Development implementation team (organizational facilitator and coaches, discussed further below) also was almost always located in the Success Academy floor or wing, helping to add to an environment that offered more personalized attention to the freshmen. This again contrasted with a traditional school setting, where ninth-graders were neither kept in small groups nor focused on distinctively as a freshman class.

Team-Teaching

Teaching these small groups of Talent Development ninth-grade students was the responsibility of teaching teams. Each team had a Team Leader who coordinated the team's work,

handled discipline problems that spilled out of classrooms, and was to receive a reduced teaching load. The rest of the team was comprised of a group of teachers who were to stay with their student group throughout the academic year. In addition, class schedules were set to ensure that the teams would have common planning times in which they could meet to discuss issues among their students, resolve disciplinary problems (which might involve meeting with students and their parents), and address curricular or teaching issues.

The structure generally worked, although the ideal team structure appears to have been achieved and continuously maintained in only one of the Talent Development schools. In others, the setup was achieved but not sustained, for two reasons. One was the difficulty in coordinating the schedules of each team staff (so they could meet regularly as a group), as well as ensuring that each team consisted of the right teachers for the ninth-grade curriculum. The expertise to handle the scheduling and rostering of students and staff was not always available in the Talent Development schools. The second reason was that the resources (monetary or teaching) to support the required release time for team leaders were not always made available. In those cases, the team leader role was not truly established, and the leader's normal responsibilities had to be shared among other teachers.

A related issue affecting the success of teaching teams was teacher experience. Experienced teachers were often reluctant to teach in the Success Academy because they did not want to deal exclusively with the challenge of teaching ninth-graders. Individual Talent Development schools struggled with the tension between assigning more experienced teachers there — where, arguably, their skills were more needed — or instead staffing the Success Academy with less experienced, or novice, teachers.²²

Supports for Students

The Success Academy also made use of incentives and recognition programs to encourage regular attendance at school. Prizes, pizza parties, and award ceremonies were directed at students who achieved perfect (and/or 90 percent) attendance during a given month, and also for students with high grades. Large attendance charts were created and posted throughout school hallways to reinforce the message that attending school was important; names of students with perfect attendance and outstanding grade performance were also displayed throughout the Academy space.

²²In one school, the principal made the plausible decision to reassign some of the more experienced staff, who had been in the Success Academy, to teach more eleventh-grade classes, reasoning that that might help boost scores on the Pennsylvania System of School Assessment (PSSA) test — the high-stakes test used to determine Adequate Yearly Progress under the federal No Child Left Behind Act.

Another key component of the Success Academy was the regular use of “report card conferences.” Small teams (sometimes supplemented by staff from CRESPAR or the local intermediary) would meet with each student each time report cards were issued, review the student’s grades, help the student assess progress toward promotion, and provide encouragement and support. This also became an opportunity for students to meet with individual teachers when they were experiencing problems with one of their courses.

Specialized Curriculum

The academic centerpiece of the Success Academy was the combination of extended block scheduling, “double-dosing” of key subjects and the CRESPAR Talent Development curriculum. CRESPAR’s curriculum was designed to let students catch up from low performance levels commonly found when they entered high school in the ninth grade and meet the academic requirements of subjects — math and English in particular — that they would be taking there.

The typical ninth-grade curriculum in a Talent Development school is summarized in Table 3. As the top half of this table shows, the first semester of ninth grade was pivotal in achieving the supportive academic “bridging” in the Success Academy. Both Transition to Advanced Mathematics and Strategic Reading were designed as preparatory “catch-up” courses that would enhance the skills of incoming freshmen and enable them to succeed in traditional ninth-grade algebra and English. Freshman Seminar, combining study skills, personal goal-setting, and social and group skills, was designed to prepare students more broadly for the demands of high school. In practical terms, this meant that ninth-graders were routinely scheduled to take algebra in Talent Development schools, whereas in traditional schools, students with inadequate background might take a year of a lower-level course during ninth grade, and then take algebra later.

The success of this course arrangement in the Success Academy rested on extended block scheduling.²³ In Talent Development schools, extended block scheduling worked as follows: Students were scheduled to take four courses per semester, each meeting for 90 minutes per day. Each one-semester course was worth a full credit toward graduation. By contrast, students in traditionally rostered schools would take six courses, each lasting two semesters and each worth one credit. The contrast between the two rostering arrangements is reflected in a comparison of the top and bottom sections of Table 3. The extended block schedule permitted

²³Though extended block scheduling was a critical feature of the Ninth Grade Success Academy, Talent Development schools in Philadelphia followed this schedule in all grades.

The Talent Development Evaluation

Table 3

**Typical Ninth-Grade Curriculum in Talent Development and
Non-Talent Development High Schools**

Talent Development High Schools	
<u>First Semester^a</u> Transition to Advanced Mathematics Strategic Reading Freshman Seminar Science	<u>Second Semester</u> Algebra English 1 Social studies/history Elective
Non-Talent Development High Schools	
<u>First Semester</u> English 1 Mathematics (algebra) ^b Social studies/history Science Physical education/health Elective	<u>Second Semester</u> English 1 Mathematics (algebra) Social studies/history Science Physical education/health Elective

NOTES:

^aThe first three courses in this box are CRESPAR curricula, regarded as electives by the district. All other courses for Talent Development and non-Talent Development schools are district courses.

^bEntering 9th-graders with adequate math background took algebra; others were assigned to general mathematics courses.

Talent Development to offer more concentrated instruction and more opportunities to earn course credits.

Cumulatively, this arrangement offered potential advantages to students in Talent Development schools: over a four-year period, they could potentially complete 32 credits, compared to 24 for students who attended schools with traditional rosters. It also permitted some flexibility in rostering students who failed courses and needed to repeat them, especially if the roster chair — the school staff person responsible for setting up the overall roster and schedule the school followed — was knowledgeable about how to use block-scheduling effectively. For ninth-grade stu-

dents in Talent Development schools, though, there was the opposite of flexibility; double-dosing and the CRESPAR curricula effectively locked their course choices for the first year.

By and large, extended block scheduling worked smoothly and was well-regarded by teachers. All of the schools were successful in putting it into place; in fact, three of the seven Talent Development schools either had implemented it before Talent Development or had previously experimented with it.²⁴ Since the CRESPAR courses were developed explicitly for use in that arrangement, and were also well-supported with printed materials and handouts, teachers found them easy to deliver.

Teachers generally judged Strategic Reading and Transition to Advanced Math to be of adequate quality and rigor. There was somewhat less agreement regarding Freshman Seminar. Taught mainly by social-science teachers (who in many cases would follow it in a second semester with their own history course), the Seminar was sometimes characterized as too “soft” and lacking in content. Some teachers taught only parts of it or began, late in the first semester, to work social science and history into the content. Not surprisingly, as implementation proceeded, other adaptations to the CRESPAR curriculum crept in. In one school — whose principal was a former English teacher — Strategic Reading in the ninth grade was dropped. In another, the course was adapted to include elements of the second-semester English I course.

One additional point should be noted: extended block scheduling, to work most effectively, requires teachers who have had training in how to use it well, dividing 90-minute segments into engaging and well-structured sub-units and activities. Otherwise — as teachers and administrators alike noted — blocked classes could become monotonous time-wasters for students. While Talent Development coaches were available to assist teachers, not all of them took advantage of that help; nor did teachers new to Talent Development schools routinely receive training in use of the block. Thus teacher turnover, which occurred in each of the Talent Development schools, added to the challenge of maintaining instructional quality in the extended block-roster setting.²⁵

The Twilight Academy

The Twilight Academy was designed as a special program for current and “repeater” ninth-graders who either needed special academic support or needed (for disciplinary or other reasons) to be placed outside the normal school environment. This program usually operated in

²⁴Indeed, the block schedule, though not widespread, was already in use in a number of high schools in Philadelphia.

²⁵In addition, during the Talent Development implementation period, the school district began to develop its own plans for high schools, including a standardized curriculum (discussed below), which led to further, ad hoc, adaptations of the idealized Talent Development course arrangement.

a separate section of the school and outside normal school hours — often later in the day so that some students could work or attend to family matters.

All but one of the Talent Development schools succeeded in putting this element of the model in place. The Twilight Academy was an important complement to the Success Academy. It provided flexible and tailored help to students who were struggling academically. They could, after they had completed missed work or failed courses, rejoin the main school. Just as important, though, was the Twilight Academy's value in providing a setting where potentially disruptive students could be placed, in lieu of suspending/expelling them or transferring them to one of the district's disciplinary schools.

Overall, it seems clear that the Success Academy, embodying Talent Development's strategies for ninth-graders, was the most strongly implemented element of the model in the Philadelphia schools. It achieved its major purpose: creation of a separate and supportive environment for ninth-graders that intensified the amount of attention they received, both academically and personally. Not all the pieces were equally well-established or maintained, but the basic structure was implemented and positively viewed by principals and teachers.

- **Talent Development had limited success in transforming the upper grades into Career Academy programs fully supportive of the model.**

The Career Academies were perhaps the most problematic element of the Talent Development model in Philadelphia. In the Talent Development context, these were intended to extend concepts of the Success Academy into the upper grades: small learning communities, each academically challenging, each with one or more career themes that would permit continued personal support to students, even in large high school settings, and prepare them for college.

In practice, they encountered a prior history of similar structures in Philadelphia, all of which were responding to changes in thinking on the part of the district. Before Talent Development, Philadelphia had a long history both of small learning communities and of Career Academies throughout its comprehensive high schools; indeed, several of Philadelphia's academies became models for national adoption.

Thus, in all the Talent Development schools, there already existed academy-like entities of varying quality and emphasis. Some schools had coherent and effective academies; in others they were weaker, and the quality of academies likewise varied within individual schools. Some of the small learning communities had consciously adopted career themes; others had not. Some were designated for higher-achieving, college-bound students. And some of what were desig-

nated as Career Academies were in fact not very different from traditional vocational education programs, and they often lacked the academic rigor of the ideal academy program.²⁶

Changing the existing patterns proved a difficult challenge for Talent Development's implementers. Their task in Philadelphia was not to create new structures, *de novo*, as was the case with the Success Academy. Instead, their challenge was to recast a collection of academy-like entities that had their own histories and in some cases their own rigidities as well. The changes desired by Talent Development staff in the existing academies were often subtle ones of philosophy and quality, which can be more difficult (and sensitive) to articulate and take longer to achieve. Schools who adopted the Talent Development model could, not without some justification, view the Career Academy component of the model as something they already had in place. It is likely, therefore, that the upper-grade experience of students in Talent Development schools did not greatly differ from that of students in non-Talent Development schools.

Complicating all this was an initiative by the school district to adopt formal criteria for designation of Career Academies. During the 2003-2004 school year, the district began, to require that, in each Career Academy, at least one faculty member have private-sector experience relevant to its theme in order for it to be officially recognized as an Academy. Talent Development schools (as well as other high schools in the district) thus were somewhat more concerned with working out which of their existing academies could be so designated than they were with aligning them with Talent Development standards.

By and large, therefore, the upper-level academies were only weakly associated with the Talent Development model. The existing academies (staff often referred to them interchangeably as academies and small learning communities) did not as a rule regard themselves as an element of Talent Development, which they often equated narrowly with the Success Academy. This was especially true in the eleventh and twelfth grades, which lacked both double-dosing of key subjects and any CRESPAR curriculum.²⁷ These upper grades had, in addition, markedly less contact with Talent Development staff and coaches.

Ninth-graders in the Success Academy were offered the opportunity to choose which upper-grade Academy they preferred to enter; first choices were honored as much as possible. Individual Academies offered orientation sessions and assemblies in which the career emphases and other features of the Academy were described. Success Academy faculty and the Talent Development team in each school helped plan and coordinate that effort.

²⁶In one school the academies were reorganized in an effort to eliminate implicit tracking, and to equalize their academic quality. The end result, whatever its effects on academic quality, produced a group of academies that had only limited coherence in terms of career themes.

²⁷Plans for the production of eleventh-grade "double-dosing" curriculum were not realized, though two schools in Philadelphia piloted a version of an eleventh-grade math curriculum produced by CRESPAR.

One important variation to the Talent Development model in the upper grades should be noted: the creation (in four of the seven Talent Development schools) of a “Tenth Grade Academy.” Two main reasons were cited for this variation. First, the evident effectiveness of the Ninth Grade Success Academy encouraged schools to extend the structure for another year. Part of this thinking appears to have been prompted by some increase in disciplinary problems observed among sophomores.²⁸ The second consideration, voiced by one principal, was that a more structured tenth grade might help boost students’ performance on the standardized test they would take the following year.

The Tenth Grade Academy was far less structured than its ninth-grade counterpart and still in a fairly evolutionary state. Extended double-dosing and the CRESPAR tenth-grade curricula were used in all the Talent Development schools. In only one school were sophomores located apart from other students.

The potential difference in schools using a Tenth Grade Academy was that Career Academies had to be set up somewhat differently. The arrangement adopted by one school was that students made a choice of upper-level Academy in ninth grade but did not actually begin a structured sequence of Academy courses until eleventh grade.

- **The presence of a Talent Development implementation team in each high school was instrumental in getting and keeping the model established.**

To make Talent Development work, a small implementation team (paid for centrally through the local intermediary and CRESPAR, rather than directly out of individual school budgets) was deployed in each of the schools. Its head was the Talent Development organizational facilitator, whose broad mission was to ensure that Talent Development implementation progressed smoothly and steadily within the school. In addition, each team was to have curricular coaches (for literacy, math, and freshman seminar), who would assist teachers in making effective use of the block schedule and in using the CRESPAR curricula successfully.

Putting these staff complements into place was the responsibility of CRESPAR and the local intermediary. Especially in the early implementation years, the staffing patterns were evolutionary, as would be expected with a new and expanding program pressed to find and deploy qualified staff. It was not until the 2003-2004 school year that all Talent Development schools came close to having the staff complement that had been anticipated.²⁹

²⁸This may have been due, in part, to the increased numbers of ninth-graders who reached the tenth grade.

²⁹Even in that year, organizational facilitators did not work full-time in some cases; some coaches split time between schools.

The organizational facilitator coordinated the Talent Development-related activities in the school: providing overall support for the Success Academy; ensuring that curricula and other materials were in place; overseeing the time and efforts of coaches; arranging report card conferences and incentive and award programs; and liaising with the principal and other senior staff in the schools.

The coaches worked one-on-one with teachers, helping them to use the Talent Development curriculum, modeling teaching approaches, sometimes team-teaching with teachers, and helping to support the classroom activities of teachers generally, especially in their use of the block schedule. In some cases, they also worked with small groups of teachers and provided help to individual students.

The use of coaching resources by faculty was entirely voluntary. Individual teachers were free to refuse offers of assistance and to refuse coaches entry into their classrooms; and some did. In addition, because CRESPAR curricula were limited to the lower (ninth and tenth) grades, so too by and large were the efforts and interactions of the Talent Development coaches. Uniformly, they reported only limited contact with upper-grade teachers. However, teachers at all grade levels who did make use of the coaches' advice, knowledge, and training generally had high praise for their contributions.

From one perspective, then, the roles of this core Talent Development team were clear: to solidify implementation of the model in the school, to engage school leadership in making needed changes, and to provide ongoing technical support, enrichment, and new pedagogical strategies to teachers in the school — particularly to teachers using the CRESPAR curricula. The team was there, in that sense, to bring about change within the school.

In practice, the roles were more diffuse. The Talent Development implementation team members had no mandate “from above” to aid them within their school. The purview and authority of team staff derived not from the school district (whose support for Talent Development was distant and unofficial) but rather from the principal. Principals, though they approved generally of Talent Development, quite understandably also viewed its implementation team as an open-ended resource to the school. The team members, in turn, recognized that they could not unilaterally set their own agendas but needed to support the principal's priorities.

Thus Talent Development's in-school team was heavily involved in standardized testing — a substantial and time-consuming priority in all the district high schools. Both organizational facilitators and coaches assisted with encouraging students to attend and take the test, with test prep, with follow-up testing, and with other logistical support. They were involved in identifying and setting up extra tutoring for eleventh graders who were expected to perform well on the state test. They assisted with efforts to identify and assist seniors who were “on track” to graduate on time.

Coaches sometimes represented Talent Development schools at training sessions mandated by the district, in support of its new curriculum. They then returned to train teachers within the schools. Organizational facilitators and coaches sometimes prepared and carried out training sessions during district-mandated professional development periods. They also sometimes dealt with disciplinary “pullouts” — students whose presence in a class was disruptive.

These activities did not conflict directly with Talent Development. But they did reflect the tension between the implementation team’s putative role as “change agent” and the natural tendency of the school to view its staff as building resources (a view the Talent Development staff themselves understood and responded to). They also diluted the energies that Talent Development staff could put to enhancing the “whole-school” nature of the model. While the staff was known to the entire school, the bulk of its interactions (not counting relationships with the principal) was with the Success Academy staff; coaches, as noted, found their efforts concentrated on ninth-grade teachers and those tenth-grade teachers using CRESPAR curricula.

- **Professional support for Talent Development schools and staff was adequate and supported the implementation process, but uneven utilization of training opportunities limited its overall effectiveness.**

Beyond the role of the coaches within the schools, both CRESPAR and the local intermediary had, from the beginning of the implementation process, ensured that opportunities for professional development would be available to the staff in Talent Development schools. CRESPAR was instrumental in arranging visits for staff from potential Talent Development schools to sites in Baltimore already implementing the model. It also instituted a set of summer training institutes to prepare Talent Development staff, coaches, and faculty for the challenges ahead.

Likewise, for staff and teachers at Talent Development schools, the local intermediary operated a series of training and orientation sessions held in Philadelphia in late summer, dealing with block scheduling, the use of CRESPAR curricula, and the roles of coaches and other Talent Development staff. The local intermediary and CRESPAR technical staff were also available by phone and e-mail to help with specific issues, and monthly technical assistance sessions were also held.³⁰

Teachers and staff who participated in any of these sessions found them to be relevant, constructive, and effective in preparing them for their work in the context of the Talent Development model. What limited the impact of these professional development opportunities was

³⁰There was some reduction in these latter activities during the 2003-2004 school year, due primarily to changes in staffing arrangements between PEF and CRESPAR.

that participation was inconsistent and limited, especially after the first two schools had implemented the model. There were several reasons for this. The most difficult-to-address issue concerned the district's routine for assigning new teachers to schools. As a rule, the staffing decisions were not made until summer (often late in the summer). As a result, teachers assigned to Talent Development schools (especially novice teachers) might not be informed of their assignments until after Talent Development training took place.

In addition, availability of funding to defray the cost of attendance at training sessions varied from year to year. It was sometimes provided through the local intermediary and CRESPAR and sometimes by the principals in their own budgets. Given teachers' (and administrators') summer schedules, which often conflicted with the schedule of trainings, the level and mix of attendance would also vary.

The result was that training and professional development were unevenly distributed among staff in the Talent Development schools. The schools in the early implementation wave appear to have had far higher participation in professional development activities. Among the later-implementing schools, there were more venues for training, but neither the impetus for participation nor the funding was as strong or consistent. And the structural problem — teachers assigned to Talent Development schools too late to be able to participate in professional development — was a consistent problem.

- **Though special settings and support for repeating ninth-graders were planned, these were never consistently implemented in Philadelphia.**

The mainstream Talent Development strategies for ninth-grade students were created largely to address the needs of first-time ninth-graders. Repeaters represented a special problem. They might have been in the school building before Talent Development's onset; they might also have a range of educational and social needs that the mainstream Talent Development model would not address.

The basic plan was for repeaters to be kept in distinct classes and for specialized assistance to be provided for them. In practice, none of the Talent Development schools achieved this. Schools instead looked at the overall course and promotion status of these students. Students who might be missing just one or two courses presented a different challenge than students who had failed three or four courses. As a consequence, repeating students found their way to three more or less distinct settings. They might be placed in Twilight Academy, the specially designed setting for students experiencing academic or disciplinary problems. Alternately, they might be placed into the overall ninth grade, perhaps retaking courses they had failed and needed for advancement. Finally, in cases where the student was only short one or two credits

for promotion to the tenth grade, the school might (provisionally) list the student as a tenth-grader, and roster the student into both tenth-grade courses and those ninth-grade courses necessary for promotion; once the student had passed the ninth-grade courses formally, the school would add the student to the tenth grade. Since these flexible arrangements frequently seemed to work in the best interests of students, schools preferred to use them rather than creating distinct sections and programs for repeating ninth-graders.

- **Major changes in leadership at the district level led to reduced interest and support for the Talent Development model.**

The evolving and unplanned nature of Talent Development implementation was gradually affected by a number of changes that unfolded at a district-wide level in Philadelphia. The most noteworthy were the changes in district management: a state takeover, creation of a School Reform Commission, and the swearing-in of a new superintendent in 2002.³¹ Within a year of his appointment, he brought on a new associate superintendent for secondary schools, who began to put his own imprint on high schools in the city.

Along with a more centralized interest in high schools, there was a newly designed standardized curriculum, developed to correspond closely to the educational objectives around which the Pennsylvania System of School Assessment (PSSA) test has been organized. The initial courses of this new curriculum were introduced during the 2003-2004 school year. Eventually the “core curriculum” is expected to encompass most subjects offered in the district.

The curriculum’s content is not viewed as inconsistent with the Talent Development arrangement. However, its structure and timing is built around a traditional (six-period) schedule, rather than the extended block scheduling structure, thus posing logistical problems for teachers in Talent Development schools. During the 2003-2004 school year, Talent Development literacy coaches had to make considerable adjustments to the timetable and instructional sequence for the district’s core course, set to be delivered over two semesters, so that it could be successfully delivered in the one-semester, 90-minute block found in a Talent Development school.

The district also has begun a policy of reducing the size and increasing the number of high schools within the city. As a result, some of the “feeder” middle schools that previously supplied Talent Development high schools with incoming ninth-graders changed status. Rather than moving ninth-graders on, they retained them, and, over several years, the feeder schools would themselves become high schools. As a result, the predictable sources of students for the Talent Development schools changed, as did the sizes of the incoming classes.

³¹Between the departure of the district superintendent with whom CRESPAR first made contact and the current superintendent’s appointment in 2002, the district has also had two temporary leaders.

Perhaps the most striking change to emerge was the district's intensive focus on state testing and the Adequate Yearly Progress designation it leads to for individual high schools that succeed in meeting requirements.³² One manifestation of this has been the mandatory use throughout the district's high schools of a set of "drill and practice" materials geared to the state test. Talent Development schools for the most part adapted them into their daily schedules as well as they could, although they were at times inconsistent with the emphases of the CRESPAR curricula and with the extended block schedule found in the Talent Development schools.³³

By the 2003-2004 school year, it was clear that the somewhat informal arrangements with the high schools that Talent Development had previously enjoyed would be constrained. The district was far less willing than in previous years to provide fiscal support (through the local intermediary) for an initiative such as Talent Development, the tenets of which were not wholly consistent with the directions the district seemed likely to follow. In addition, at the district level, there was concern both about the incremental school cost entailed in the extended block schedule and, more specifically, about the latitude that the local intermediary and CRESPAR had previously been afforded in pooling federal funds that were technically earmarked for individual schools. In summer of 2004, the district took further steps to signal its intended changes in direction.³⁴

The Analytic Approach and Data Sources of the Impact Study

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 a comparison of this estimate with 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

³²Given the low-performing nature of the schools to begin with, it is not surprising that five of the seven Talent Development schools were in one or more of the "deficient" categories defined by the Commonwealth of Pennsylvania in its No Child Left Behind standards.

³³This represented another claim on the time of Talent Development staff in the schools.

³⁴Individual Talent Development schools, somewhat with the encouragement of the district, increased direct control of the grant funds that were to be spent in their schools; in September 2004, the district insisted that all of Talent Development's Twilight Academy programs be shut down.

students. The analytic approach that is instead used represents an attempt to construct the best counterfactual possible in order to estimate the true impact of Talent Development.

In this report, impacts are measured using a comparative interrupted time series design (see Box 1).³⁵ 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 approach and to address the potential limitations of both. The comparative interrupted time series design compares changes or “deviations” from the historical patterns for the Talent Development high 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 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.

The Interrupted Time Series Methodology

The interrupted time series component of the analytic strategy assesses the extent to which measures of engagement and performance for students in Talent Development high 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 high schools experienced a deviation from their historical patterns in student outcomes that was coincident with the introduction of Talent Development (the “interruption” in the interrupted time series design). The projection of each school’s recent history into the period of Talent Development implementation 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). The use of a historical pattern as the counterfactual has the potential to control for both measurable and unmeasurable characteristics of a school.

³⁵A detailed description of the analytic approach is available online in the preliminary report’s Technical Resources (Unit 1: Analytic Appendix). See www.mdrc.org/publications/388/techresources.pdf.

Box 1

The Three Steps for Estimating Impacts with a Comparative Interrupted Time Series Research Design

- **Step 1: Estimating deviations from baseline in Talent Development schools.** 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 (this is referred to in the report as the “baseline average”).
- **Step 2: Estimating deviations from baseline in non-Talent Development comparison schools.** 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 school — are compared with the baseline averages in these schools before the Talent Development school implemented the reform.
- **Step 3: Estimating the impact of Talent Development.** Differences between the deviations from the baseline averages in the Talent Development schools and the deviations from the baseline averages in the non-Talent Development comparison schools are used to estimate the reform’s impact.

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 other 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 in course credits that were earned at schools in the district. An interrupted time series design alone 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.

The Comparison Schools Methodology

The use of non-Talent Development comparison schools helps to account for other factors in the broader school district that may influence school functioning and student engagement and performance. Each Talent Development school is matched with a set of non-Talent Development comparison schools that are similar on several dimensions. All Talent Development and comparison schools are nonselective, comprehensive high schools in a single school 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. In general, analysis indicates that the non-Talent Development comparison schools are similar to the Talent Development schools in terms of race/ethnicity, prior test scores, attendance rates, and promotion rates over the years leading up to Talent Development implementation. For most student outcomes, however, Talent Development schools have slightly lower baseline averages than their comparison schools. In general, Talent Development works with the lowest performing schools in the district, so any set of comparison schools is likely to be relatively higher performing when compared to the Talent Development schools.

Measures over time of student achievement, course credit attainment, and attendance at the comparison schools are another means of estimating what might have been observed in Talent Development schools in the absence of the intervention; that is, they can be part of 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 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. Suppose, at the same time, test scores for students attending similar schools in the district were actually 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 be observed only by comparing an interrupted time series for both Talent Development and non-Talent Development comparison schools — that is, by comparing changes over time in Talent Development schools with changes over time in non-Talent Development comparison schools.

Controlling for Changes in School Composition

This analysis takes into account the fact that Talent Development schools (and non-Talent Development 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, increasing attendance and reducing mobility and perhaps keeping lower-performing students in school longer. In order to help account for systematic changes in the characteristics of student groups over time, the analysis incorporates individual student characteristics into the analytic model. Specifically, the analytic model includes controls for race/ethnicity, seventh-grade test scores in reading and mathematics, and whether students have repeated a prior grade.

Analytic Assumptions

The goal of the comparative interrupted time series approach is to make the causal inference that Talent Development produced the observed changes, if any, in student outcomes. In other words, the analytic approach attempts to distill the impact of Talent Development from other factors that may affect student outcomes. In order to make this causal inference, several assumptions are made. Box 2 outlines these assumptions, and this section explores the assumptions and provides some context for their validity.

First, the causal inference is based, in part, on the assumption that the projected baseline average for an outcome is a reliable indicator of a given school's future performance in the absence of an intervention like Talent Development or some other event aimed at changing that outcome. Year-to-year stability of most outcomes in the baseline period provides some confidence that this is a reasonable assumption to make for the analysis. Neither Talent Development nor non-Talent Development schools displayed substantial positive or negative trends in key student outcomes prior to the implementation of the model.

Second, the causal inference is based, in part, on the assumption that schools with characteristics similar to Talent Development schools provide a reliable indicator of how student outcomes are likely to respond to districtwide policies or events during the Talent Development implementation period. Both the comparability of the characteristics of Talent Development and non-Talent Development schools and the year-to-year stability of baseline student outcomes in both sets of schools suggest that this is a reasonable assumption to make. Analysis indicates that Talent Development schools and their comparison schools served similar students with similar outcome levels in the baseline period.

Third, a necessary assumption is that background characteristics of students enrolling in the Talent Development and comparison schools do not change over the baseline and follow-up period, or that any changes can be controlled for in the statistical model used to estimate impacts. One competing hypothesis that might explain changes in student outcomes — other than the effects of an intervention — is that the composition of the student body changed from the baseline to the follow-up period. An intended effect of Talent Development could raise this issue; the intervention may deter students from dropping out of school. Such students may be less able or less motivated and thus lower the school's average test scores. This analysis assumes that variables included in multiple regression impact estimates adequately control for compositional changes in student characteristics. The analysis accounts for shifts in racial/ethnic composition and changes in levels of prior achievement (using seventh-grade test scores), as well as whether or not students have repeated a prior grade. There may be changes in other student characteristics that correlate with student outcomes — like student motivation — that are not included in the regression model because the data are unavailable or cannot be quantified.

Box 2

Analytic Assumptions of the Comparative Interrupted Time Series Research Design

- The projected baseline average for an outcome is a reliable indicator of a given school's future performance in the absence of an intervention like Talent Development or an event aimed at changing that outcome.
- Schools with characteristics similar to Talent Development schools provide a reliable indicator of how student outcomes are likely to respond to districtwide policies or events during the Talent Development implementation period.
- Background characteristics of students enrolled before Talent Development implementation are the same as those of students enrolled in Talent Development and comparison schools during implementation of the model (or statistical controls adequately account for such differences).
- The factors leading schools to decide to become Talent Development schools do not themselves affect student outcomes; for example, Talent Development does not attract schools that are already poised to improve student outcomes.

In short, the analysis in this report represents a very strong application of the comparative interrupted time series design. Data for three baseline years and up to five follow-up years are included in the analysis; impacts are pooled over five Talent Development schools; and between two and four comparison schools are matched with each Talent Development school. Talent Development and comparison schools are closely matched on demographic and student outcome measures. Also, student outcome levels are not so high or so low as to expect that impact estimates are prone to ceiling or floor effects; student-level covariates were used to control for changes in student composition; and the effects are large, consistent, and statistically not likely to be due to chance.

Yet, the findings are not based on an experiment, so even with the strength of this design, there may still be alternative explanations or other factors unrelated to Talent Development that contribute to the observed differences in student outcomes. For example, the analysis does not account for the process by which schools enter into the Talent Development network. Some may argue that schools with more entrepreneurial leaders — who are more likely to seek out a reform model like Talent Development — may experience improved student outcomes even in the absence of the intervention. The analysis is unable to rule out this possibility. Even recognizing the limitations of the comparative interrupted time series approach, this methodology offers an unusually reliable estimate of the impact of Talent Development in high schools in the district that should be interpreted in light of the previous implementation findings.

Analysis Sample and Data Sources

The analysis sample includes students who began ninth-grade in one of five Talent Development high schools or six non-Talent Development comparison high schools in the School District of Philadelphia. Students in the sample were included on the district's transcript and attendance records. The sample excludes students designated as English for Speakers of Other Languages (ESOL) or special education, and due to limitations in consistency of the data over time, the sample includes only students who attempted at least one course credit in the ninth grade.

Impact estimates are pooled across the five high schools that are the primary focus of this study. By pooling estimates, the analysis has a large enough sample to assess the likelihood that a nonzero impact results from chance. In general, the larger the number of schools that exhibit 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. Although the focus is on results from pooled estimates, results for a smaller subset of schools are also discussed in order to explore student outcomes through the fourth year of high school. It should be noted, however, that statistical significance,³⁶ which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the estimates pooled over five schools than with estimates pooled over two schools. Also, impact estimates for this smaller sample of schools may not be representative of the impact of Talent Development in all high schools in the district.

The primary sources of data for the impact 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 1995-1996 through 2003-2004. Box 3 defines several key outcomes included in the analysis.

³⁶Statistical significance is a measure of the degree of certainty that some nonzero deviation from the baseline average actually occurred. For example, if an impact estimate is statistically significant, then one may conclude with some confidence that the program really had an effect. If an impact estimate is not statistically significant, then the nonzero estimate is more likely to be the product of chance or random variation in the averages that were calculated across the schools and the years under study. Unless otherwise noted, the deviations from baseline averages and the Talent Development impacts discussed in this report are statistically significant at the 10 percent level or less; that is, there is no more than a 10 percent probability that the difference results only from chance or random variation.

Box 3

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 being enrolled.
- **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

- **Total credits earned:** A cumulative total of all the credits a student earned over the course of the first year of high school, the first two years of high school, the first three years of high school, and the first four years of high school.
- **Course credits earned:** Indicators of whether a high school student earned course credits in selected subject areas, including English, mathematics, science, and algebra.
- **Earned basic academic curriculum credits:** A designation indicating that a student completed a basic academic curriculum, earning at least 5 credits during the ninth grade with 3 of those credits being in mathematics, English, and science. Because this designation relied on the district 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.
- **Earned core graduation credits:** A designation indicating that a student completed an academic curriculum of at least 23.5 credits, earning at least 4 credits in English, at least 3 credits in math, at least 3 credits in science, and at least 3 credits in social studies. 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.

(continued)

Box 3 (continued)

Enrollment Status

- **Promotion and retention:** An indicator of whether or not a student was promoted on time to the tenth, eleventh, and twelfth grades. By looking ahead one year, it is possible to determine if a ninth-grade student is enrolled in the tenth grade or repeating the ninth grade by the end of that year. By looking ahead two years, it is possible to determine if a ninth-grade student is enrolled in the eleventh grade or repeating either the ninth or tenth grades. By looking ahead three years, it is possible to determine if a ninth-grade student is enrolled in the twelfth grade or repeating either the ninth, tenth, or eleventh grade.
- **Exited the school system:** A designation indicating that a student is no longer in district records in subsequent years. Students who exit the school system may have dropped out of school, transferred to a public school outside of the district, or transferred to a private school.

Pennsylvania System of School Assessment (PSSA)

- **Pennsylvania System of School Assessment (PSSA)** is a criterion-referenced test administered in grades 5, 8, and 11, which provides information on student performance on skills and content knowledge specified by the state.
 - ✓ Average scaled score: Indicators of scores received by students on state math and reading tests. The scaled score is based on the number correct but is transformed to remove the effect of test length and item difficulty. The scaled-score metric is anchored to the mean school-level scaled score for a base year and that point is arbitrarily labeled 1300.
 - ✓ At below-basic level: An indicator that a student received a score that corresponds to inadequate academic performance.
 - ✓ At basic level: An indicator that a student received a score that corresponds to marginal academic performance.
 - ✓ At or above proficient level: An indicator that a student received a score that corresponds to satisfactory or superior academic performance.

Impact Findings

There are three stories to tell in this final report. First, Talent Development produced strong impacts on credits earned, promotion rates, and attendance rates during the first year of high school. These effects extend to virtually all cohorts of first-time ninth-graders in the five high schools that are the focus of the evaluation.³⁷ Second, the improvements relative to the baseline for cohorts of first-time ninth-grade students in Talent Development high schools continue to outpace those seen in comparison school cohorts as they move through high school — earning more total credits and earning required credits in math and English. 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. Third, Talent Development had mixed results for students who were repeating the ninth grade.

The initial report in the Talent Development High School evaluation focused on the effects of the intervention on ninth-grade students. This final report estimates the impact of Talent Development on cohorts of ninth-grade students as they move through high school, primarily the first, second, and third year of high school. Table 4 shows that, as of the 2003-2004 school year, data are available for three cohorts of students in the baseline period (before Talent Development implementation) and up to five cohorts of students in the follow-up period (after Talent Development implementation) in each of five Talent Development high schools. The analysis equally weights each school and pools estimates across the schools, so that Implementation Year 1 Cohort (Year 1 Cohort, for short) includes students enrolled in the ninth grade during the first year of Talent Development implementation in their school, Implementation Year 2 Cohort (Year 2 Cohort, for short) includes students enrolled in the ninth grade during the second year of Talent Development implementation in their school, and the

³⁷As discussed in the third section of this report, three other high schools in Philadelphia began implementation of Talent Development during the time period included in this study. One high school in the district began implementation of Talent Development in 2002-2003 (and subsequently closed), and two high schools in the district began Talent Development in the 2003-2004 school year. Data are available only for one cohort of ninth-grade students in each of these schools. The present analysis attempts to capture the greatest number of cohorts common to the most schools and does not include the three schools that undertook Talent Development implementation most recently.

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Table 4

Implementation Cohorts of Ninth-Grade Students in Five High Schools

		School Year				
		1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
School A	Baseline Cohorts 1996-1997, 1997-1998, 1998-1999	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 4 Cohort	Year 5 Cohort
School B	Baseline Cohorts 1996-1997, 1997-1998, 1998-1999	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 4 Cohort	Year 5 Cohort
School C	Baseline Cohorts 1997-1998, 1998-1999, 1999-2000		Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 4 Cohort
School D	Baseline Cohorts 1998-1999, 1999-2000, 2000-2001			Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
School E	Baseline Cohorts 1998-1999, 1999-2000, 2000-2001			Year 1 Cohort	Year 2 Cohort	Year 3 Cohort

NOTE: Boxes with dashed edges denote baseline years. Boxes with solid edges denote years of Talent Development implementation. The impact analysis estimates impacts for the cohorts of entering students as they move through high school.

Implementation Year 3 Cohort (Year 3 Cohort, for short) includes students enrolled in the ninth grade during the third year of Talent Development implementation in their school.

For each group of ninth-graders, in both Talent Development and non-Talent Development schools, one-year, two-year, and three-year high school transcripts (grade-level promotion and credits earned in math, English, science, social studies, foreign language, and electives) have been assembled. Some students were able to progress through high school on time, reaching eleventh grade in three years, while many others were not. However, the analyses are able to gauge the progress of each student in accumulating credits in elective courses and courses required for grade-level promotion and eventual graduation. Students who no longer appear on school-district records after ninth grade are assumed to have earned no credits and to have exited the system, whether as dropouts or as transfers out of the district. For some cohorts, data is not available to create two- and three-year transcripts because data were collected only through the 2003-2004 school year. For example, impact estimates for outcomes in the second year of high school are not available for the Year 3 Cohort, and impact estimates for the third year of high school are not available for the Year 2 and Year 3 Cohorts.

The findings in this section are presented in two ways. First, summary tables show average impacts for multiple outcomes for three cohorts of ninth-grade students. Second, bar graphs show the deviations from baseline averages for these cohorts of students in both Talent Development and non-Talent Development schools. Impact estimates — which are featured in the summary tables and also indicated in the bar graphs — are defined as the difference between deviations from baseline for students in Talent Development schools and deviations from baseline for students in non-Talent Development schools.

As context, Table 5 shows the average outcome levels for cohorts of students in the baseline period in both Talent Development and non-Talent Development schools. The first two columns show outcome levels for first-time ninth-grade students and the last two columns show outcome levels for repeating ninth-grade students. As discussed in the previous sections, at the start of implementation, Talent Development schools tended to be the lowest-performing schools in the district. Therefore, it is not surprising that baseline outcome levels in Talent Development schools are slightly lower than baseline outcome levels in non-Talent Development comparison schools.

The findings are presented in an order that mirrors how one might expect Talent Development to affect student success: changes in attendance patterns, completion of academic courses in ninth-grade, grade-level promotion, completion of academic courses over two years of high school, and completion of academic courses over three years of high school. Impact findings for first-time ninth-grade students are presented first, followed by impact findings for repeating ninth-grade students, and findings for a subset of schools for which graduation data are available. Implications of these findings are discussed in the next section.

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Table 5

Baseline Outcome Levels for Ninth-Grade Students
in Talent Development and Non-Talent Development Comparison Schools

Outcome	First-Time Ninth-Grade Students		Repeating Ninth-Grade Students	
	Talent Development Schools	Non-Talent Development Schools	Talent Development Schools	Non-Talent Development Schools
	At the end of the first/second year of high school			
Attendance ^a (%)				
Attendance rate	72.8	76.6	56.0	58.1
Students with an attendance rate of:				
90% or higher	21.4	27.3	4.8	5.2
80% or lower	57.3	49.5	87.0	84.6
Course credits earned				
Total credits earned in first year	4.31	4.62	4.45	4.78
5 or more credits for the year ^b (%)	53.3	57.7	42.1	44.9
Basic academic curriculum ^c (%)	43.4	47.6	25.1	27.0
At least 1 English credit for the year (%)	65.7	67.9	51.4	53.4
At least 1 math credit for the year (%)	56.1	65.0	41.1	47.5
At least 1 algebra credit for the year (%)	33.1	45.2	22.0	26.9
At the end of the second/third year of high school				
Enrollment status ^d (%)				
Enrolled in the 10th grade	59.0	60.9	46.1	47.9
Enrolled in the 9th grade	39.1	36.9	46.0	40.9
Exited the school system	1.9	2.2	8.0	11.1
Course credits earned				
Total credits earned over first two years	8.28	8.68	6.59	6.79
At least 2 credits in English and at least 2 credits in math (%)	35.9	40.7	18.0	19.5
At the end of the third/fourth year of high school				
Enrollment status ^e (%)				
Enrolled in 11th grade	47.1	49.1	29.6	28.3
Enrolled in 9th or 10th grade	44.2	42.1	38.8	37.8
Exited the school system	8.7	8.8	31.7	34.0
Course credits earned				
Total credits earned over first three years	11.9	12.4	8.3	8.5
At least 3 credits in English and at least 3 credits in math (%)	30.7	33.6	16.0	16.1
At least 17.5 total credits ^f (%)	33.8	34.9	18.8	17.7

(continued)

Table 5 (continued)

Outcome	First-Time Ninth-Grade Students		Repeating Ninth-Grade Students	
	Talent Development Schools	Non-Talent Development Schools	Talent Development Schools	Non-Talent Development Schools
	11th-grade PSSA test score ^g			
Took the test on time (%)	37.1	40.0	NA	NA
For test-takers:				
Math				
Average scaled score	1,063.8	1,069.7	NA	NA
At below-basic level (%)	85.9	83.5	NA	NA
At basic level (%)	11.5	12.4	NA	NA
At or above proficient level (%)	2.6	4.2	NA	NA
Reading				
Average scaled score	1,036.5	1,045.2	NA	NA
At below-basic level (%)	75.7	74.0	NA	NA
At basic level (%)	18.5	19.1	NA	NA
At or above proficient level (%)	5.9	6.9	NA	NA

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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. 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.

The levels presented are averages taken over the three years preceeding the implementation of Talent Development in each Talent Development school and the same three years for the non-Talent Development comparison schools.

^aAttendance 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.

^bUntil 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. In recent years, the distributive requirement has been dropped.

^c"Basic academic curriculum" is a designation indicating that a student completed a basic 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.

^dFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year's administrative data file.

^eFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 11th grade if they were listed as 11th-graders in the administrative data file two years after the current year.

^fStudents are required to earn 17.5 credits in order to be promoted to the 12th grade.

^gPennsylvania System of School Assessment (PSSA) is a criterion-referenced test administered in grades 5, 8, and 11, which provides information on student performance on skills and content knowledge specified by the state.

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.³⁸ First-time ninth-graders made up approximately two-thirds of the ninth-grade class at each school included in the study, and they are the primary focus of Talent Development's Ninth Grade Success Academy. At the schools in the district, first-time ninth-graders received the most intense treatment of Talent Development, and there was the greatest "service difference" for these students between the Talent Development and non-Talent Development schools. As would thus be expected, Talent Development seems to have had the greatest impact on this group.

The findings below show Talent Development's impact on student outcome for the first three years of high school for each cohort of first-time ninth-grade students. Only about sixty percent of these students progress to tenth grade in two years, and about half progress to eleventh grade in three years. So, the first-time ninth-grade cohorts include students who reach eleventh grade in three years, as well as students who repeat a grade in the second or third year of high school.

Impacts During the First Year of High School

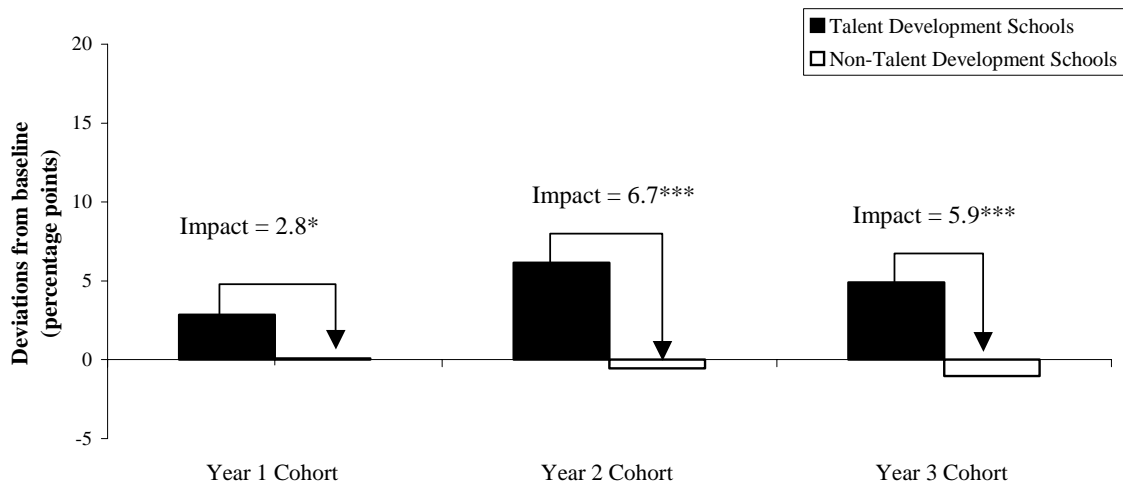
Table 5 shows that for cohorts of first-time ninth-grade students in the baseline period, the average attendance rate in Talent Development schools was 73 percent and the average rate in non-Talent Development comparison schools was 77 percent. The table also shows that less than a quarter of students in Talent Development schools regularly attended school as indicated by attendance rates of 90 percent or better. More than half were chronic absentees with attendance rates of 80 percent or lower, missing a total of more than seven weeks of school or an average of one day each week.

- **Talent Development improved the attendance rate for first-time ninth-grade students.**

Figure 2 shows the deviations from the baseline attendance rates for three cohorts of first-time ninth-grade students in Talent Development and non-Talent Development schools during the follow-up period. The black bars show deviations for Talent Development schools

³⁸In this analysis, ninth-grade students new to the school district were also included in the sample of first-time ninth-grade students. Also, first-time ninth-grade students who attend Twilight Academy are included in this sample.

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Figure 2
Impacts on Attendance Rates
for First-Time Ninth-Grade Students
in the First Year of High School



Baseline averages: Talent Development schools = 72.8; Non-Talent Development schools = 76.6

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The black bars represent the deviations from baseline of the Talent Development schools. The white bars represent the deviations from baseline of the non-Talent Development comparison schools. The deviations were calculated as the change in outcome level from the three-year pre-implementation baseline average.

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. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation. Year 3 Cohort includes students who began ninth grade during the third year of Talent Development implementation.

A two-tailed t-test was applied to the impacts. 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.

and the white bars show deviations for non-Talent Development comparison schools. For example, the average attendance rate of Talent Development students in the Year 1 Cohort improved by nearly 3 percentage points, while the average attendance rate of non-Talent Development students in the Year 1 Cohort improved by about one-tenth of one percentage point. The estimated impact of Talent Development is the difference between the deviation from baseline in Talent Development schools and the deviation from baseline in non-Talent Development schools. In this case, the estimated impact of Talent Development on attendance rates is 2.8 percentage points. Figure 2 also shows that first-year attendance rates improved for Talent Development students in the Year 2 and Year 3 Cohorts, while average attendance rates declined in non-Talent Development schools in these cohorts.

Across cohorts, Talent Development improved attendance rates by an average of 5 percentage points, which correspond to students attending nearly two more weeks of school each year. Further, Table 6, which summarizes impacts for several outcomes, shows that Talent Development increased, by an average of nearly 8 percentage points, the percentage of students with attendance rates of 90 percent or better and decreased, by an average of 11 percentage points, the percentage of students with attendance rates of 80 or lower.

- **Talent Development increased the total number of credits earned by first-time ninth-grade students.**

For groups of students in the baseline period in both Talent Development and non-Talent Development schools, the average number of total credits earned during the first year of high school was 4.5, which is just below the total credits required for promotion to tenth grade.³⁹ In the follow-up period, the average number of credits earned by Talent Development students in the Year 1 Cohort was 0.91 credits more than the baseline average, while the average number of credits earned by students in the comparison school cohort was 0.22 credits more than the baseline average. Thus, the impact of Talent Development is an increase of 0.69 credits, as shown in Table 6. There was a similar pattern of improvement for students in the Year 2 and Year 3 Cohorts. Across cohorts, Talent Development increased the total credits earned by about two-thirds of a credit, which represents about one-quarter of the student-level standard deviation for this outcome, and more importantly, raises the average level of this outcome beyond the total number of credits required for promotion. As noted earlier, the extended block schedule used in Talent Development schools provides the structure for students to attempt more credits per year than a traditional schedule. Talent Development makes use of this structure by scheduling two math and two English courses for ninth-grade students.

³⁹A minimum of five credits is the current requirement for grade level promotion from ninth to tenth grade. During the baseline and follow-up periods, the promotion requirements have changed from a minimum of four total credits to a minimum of five total credits. In some years, students were required to complete courses in math, English, and science as well as earn the total credit minimum.

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Table 6

Impacts on Outcomes for First-Time Ninth-Grade Students

Outcome	Impact at Follow-Up			
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Cross-Cohort Average
At the end of the first year of high school				
Attendance (%) ^a				
Attendance rate	2.8 *	6.7 ***	5.9 ***	5.1 ***
Impact effect size	0.09 *	0.22 ***	0.20 ***	0.17 ***
Students with an attendance rate of:				
90% or higher	4.9	8.8 **	9.2 ***	7.6 ***
80% or lower	-5.5	-13.4 ***	-14.1 ***	-11.0 ***
Course credits earned				
Total credits earned	0.69 *	0.58	0.74 **	0.67 ***
Impact effect size	0.26 *	0.22	0.28 **	0.25 ***
5 or more credits for the year ^b (%)	7.5 **	5.0	8.6 **	7.0 ***
Basic academic curriculum ^c (%)	9.7 **	6.5	8.2 **	8.2 ***
At least 1 English credit for the year (%)	9.4 **	7.9 **	8.5 **	8.6 ***
At least 1 math credit for the year (%)	11.5 **	10.8 **	12.4 ***	11.6 ***
At least 1 algebra credit for the year (%)	17.1 **	29.6 ***	26.8 ***	24.5 ***
At the end of the second year of high school				
Enrollment status ^d (%)				
Enrolled in the 10th grade	8.5 **	7.4 *		8.0 ***
Enrolled in the 9th grade	-9.5 **	-7.9 *		-8.7 ***
Exited the school system	0.9	0.5		0.7
Course credits earned				
Total credits earned over first two years	0.93 **	0.76 *		0.85 ***
Impact effect size	0.18 **	0.15 *		0.16 ***
At least 2 credits in English and at least 2 credits in math (%)	16.4 ***	10.9 ***		13.7 ***
At the end of the third year of high school				
Enrollment status ^e (%)				
Enrolled in the 11th grade	6.5 *			6.5 *
Enrolled in the 9th or 10th grade	-7.3 *			-7.3 *
Exited the school system	0.8			0.8
Course credits earned				
Total credits earned over first three years	0.92 *			0.92 *
Impact effect size	0.12 *			0.12 *
At least 3 credits in English and at least 3 credits in math (%)	10.5 ***			10.5 ***
At least 17.5 total credits ^f (%)	1.9			1.9

(continued)

Table 6 (continued)

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. In recent years, the distributive requirement has been dropped.

^c“Basic academic curriculum” is a designation indicating that a student completed a basic 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.

^dFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year’s administrative data file.

^eFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 11th if they were listed as 11th-graders in the administrative data file two years after the current year.

^fStudents are required to earn 17.5 credits in order to be promoted to the 12th grade.

^gPennsylvania System of School Assessment (PSSA) is a criterion-referenced test administered in grades 5, 8, and 11, which provides information on student performance on skills and content knowledge specified by the state.

The district changed its requirements for grade-level promotion over the years. During most of the baseline periods, ninth-grade students were required to earn four course credits in order to be promoted to the tenth grade. Early in the follow-up period, students were required to earn at least five credits, and, in some years, to also meet distributive requirements in math, English, and science. Two outcomes in Table 6 correspond to the most recent promotion requirements for ninth-grade students (five or more credits for the year and basic academic curriculum). In each case, Talent Development increased the percentage of students meeting the promotion requirements, and this improvement outpaced that at the comparison schools. Across cohorts, the average impact of Talent Development was an increase of about 7 to 8 percentage points in the percent of first-time ninth-grade students earning credits required for promotion to tenth grade.

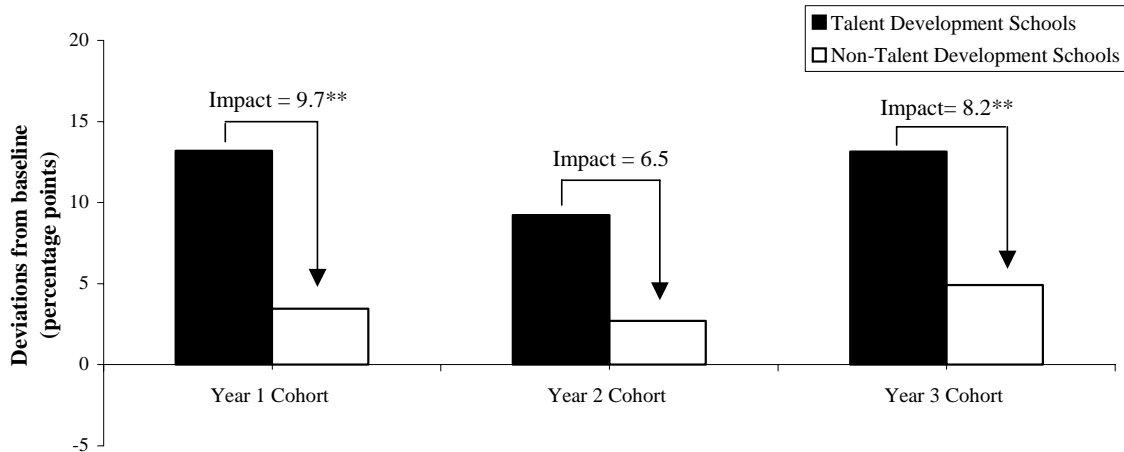
For example, the bottom of Figure 3 shows that in the baseline period, fewer than half of first-time ninth-grade students in Talent Development and non-Talent Development schools completed a basic academic curriculum, earning at least five credits during the year, with three of those credits being in math, English and science.⁴⁰ While average outcomes for cohorts of

⁴⁰“Basic academic curriculum” is a designation indicating that a student completed a basic 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 distributive requirements for promotion and graduation, but all of them counted toward total credits earned.

The Talent Development Evaluation

Figure 3

Impacts on the Percentage of Students Earning Basic Academic Curriculum for First-Time Ninth Grade Students in the First Year of High School



Baseline averages: Talent Development schools = 43.4; Non-Talent Development schools = 47.6

SOURCE: MDRC calculations from individual students’ school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The black bars represent the deviations from baseline of the Talent Development schools. The white bars represent the deviations from baseline of the non-Talent Development comparison schools. The deviations were calculated as the change in outcome level from the three-year pre-implementation baseline average.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation.

A two-tailed t-test was applied to the impacts. 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.

“Basic academic curriculum” is a designation indicating that a student completed a basic 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.

students in both sets of schools improved in the follow-up period, gains by students in Talent Development schools consistently outpaced gains made by students in comparison schools. In the Year 1 Cohort, the percentage of students in Talent Development who earned these credits increased by 13 percentage points above the baseline average, while the increase was only 3 percentage points in non-Talent Development schools. Therefore, the estimated impact of Talent Development is nearly 10 percentage points.

- **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.**

Because of the double-dose courses in English and math in Talent Development schools, ninth-grade students in Talent Development schools have more opportunities to earn academic course credits in the first year of high school. In Talent Development schools, first-semester catch-up courses, which count as elective courses, are designed to prepare students for English 1 and algebra, which are required for graduation. It is difficult to determine Talent Development's impact on the completion of English 1 because all English credits are similarly coded in the dataset. Impact estimates discussed below include both elective and required courses in English. However, completion of an algebra credit is more clearly discerned from the available data and, thus, discussed specifically.

Talent Development had a significant impact on the percentage of first-time ninth-grade students earning one or more credits in English and algebra. In the baseline period, about 65 percent of first-time ninth-grade students earned one or more credits in English. This percentage increased by 10, 9, and 14 percentage points for successive cohorts of ninth-grade students in Talent Development schools. At the same time, this percentage increased by only 1, 1, and 5 percentage points in successive cohorts of comparison schools. As Table 6 illustrates, this resulted in impacts of between 8 and 9 percentage points for each cohort of first-time ninth-grade students.

The estimated impact of Talent Development was greater for math credit outcomes, particularly algebra. In the baseline period, only 33 percent of students in Talent Development schools and 45 percent of students in non-Talent Development schools earned one or more credits in algebra. This percentage increased by an average of 28 percentage points for cohorts of students in Talent Development schools. At the same time, this percentage increased by an average of 4 percentage points in non-Talent Development schools. Resulting impacts ranged between 17 and 30 percentage points. These impacts represent a near doubling of the percentage of students who earned a credit in algebra in Talent Development schools — with levels of more than 60 percent in the follow-up period.

Impacts Beyond the First Year of High School

Looking ahead, for each ninth-grade student, enrollment data indicate whether or not the student progresses to the next grade, was retained, or left the district. Also, there is a cumulative record of the total credits earned over two and three years of high school. If students are not included in subsequent school record datasets provided by the district, the analysis was unable to add to their cumulative record but did not drop them from the sample. For these students, their two- and three-year cumulative records include only credits earned in the ninth-grade. Effectively, students earn zero credits during years they are not in the school system. However, since there has been little change in the percentage of students leaving the district,⁴¹ the following findings represent an estimate of Talent Development's impact on student progress through high school that does not appear to be driven by differential dropout rates in Talent Development and non-Talent Development schools.

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

Promotion to the tenth grade is defined in this analysis as the percentage of first-time ninth-graders who reached the tenth grade by the end of the following school year. It thus includes students promoted on-time, as well as students who may have been promoted mid-year.⁴² In the baseline period, the overall rate of promotion from ninth to tenth grade was about 60 percent for groups of students in both Talent Development and non-Talent Development schools. Figure 4 shows that in the follow-up period, the percentage of students promoted to tenth grade improved by 7 percentage points for Talent Development students in the Year 1 Cohort and 10 percentage points for Talent Development students in the Year 2 Cohort. At the same time, the promotion rate fell by 1 percentage point for students in comparison schools in the Year 1 Cohort, and rose by 3 percentage points for students in comparison schools in the Year 2 Cohort. Therefore, Talent Development improved the overall promotion rate from ninth

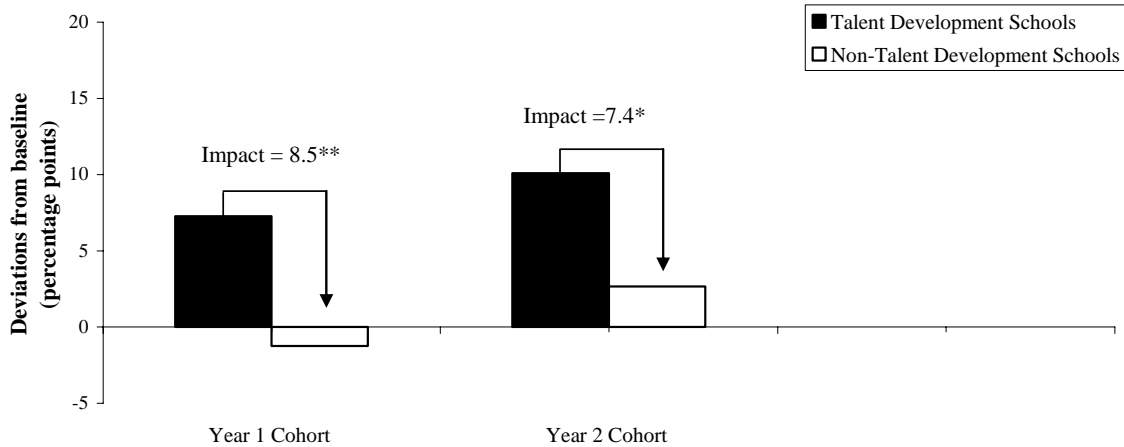
⁴¹There is no significant change in the percentage of first-time ninth-grade students who do not appear on the school districts' records after their first and second year of high school. Across the baseline and follow-up years, about two percent of first-time ninth-grade students in both Talent Development and non-Talent Development schools exited the school system after their first year of high school. Across the baseline and follow-up years, about 9 percent of first-time ninth-grade students in both Talent Development and non-Talent Development schools exited the school system after their second year of high school. This finding includes only ninth-grade students in the analysis sample. The sample excludes student classified as SPED or ESOL and students who did not attempt at least one credit during the school year.

⁴²Since 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.

The Talent Development Evaluation

Figure 4

Impacts on the Percentage of Students Promoted to Tenth Grade for First-Time Ninth-Grade Students at the End of the Second Year of High School



Baseline averages: Talent Development schools = 59.0; Non-Talent Development schools = 60.9

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The black bars represent the deviations from baseline of the Talent Development schools. The white bars represent the deviations from baseline of the non-Talent Development comparison schools. The deviations were calculated as the change in outcome level from the three-year pre-implementation baseline average.

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. (Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.)

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation.

A two-tailed t-test was applied to the impacts. 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.

For the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year's administrative data file.

to tenth grade by an average of about 8 percentage points across two cohorts of first-time ninth-grade students.⁴³

- **For first-time ninth-grade students in Talent Development schools, the intervention increased the total credits earned in the first two years of high school and improved overall promotion rates to the eleventh grade.**

Students who began ninth grade for the first time in a Talent Development high school earned more total credits by the end of their second year of high school than students in non-Talent Development comparison schools. In general, students needed at least 11 credits to be promoted to the eleventh grade.⁴⁴ For cohorts of students in the baseline period, the average number of total credits earned during the first two years of high school was about 8.5. In the follow-up period, the Talent Development students in the Year 1 Cohort earned 1.2 more credits than cohorts of students in the baseline period, while comparison school students earn 0.3 more credits than cohorts of students in the baseline period. The estimated impact of Talent Development was nearly one full credit (0.93 credits). The Talent Development impact was three-quarters of a credit (0.76 credits) for students in the Year 2 Cohort.⁴⁵ Though neither impact is large enough to raise the average credits earned above grade-level promotion requirements, the magnitude of the impact is close to one-fifth of the student-level standard deviation and exceeds the estimated impact on total credits during the first year of high school. Therefore, the Talent Development impact on credits earned seems to have persisted and grown somewhat during the second year of high school, which is consistent with double-dose curricular programs in math and English for tenth-grade students in Talent Development schools.

A greater percentage of students who began ninth grade for the first time in Talent Development schools earned two credits in math and two credits in English by the end of their second year of high school. This outcome is particularly important because students must earn four English credits and at least three credits in math to graduate from high school. In the baseline period, only about 40 percent of students had earned these credits by the end of the second year of high school. Figure 5 shows that the percentage of students earning two credits in math and two credits in English increased in both Talent Development and non-Talent

⁴³Promotion, retention, and exit data for all five schools are not available for the third cohort of ninth-grade students.

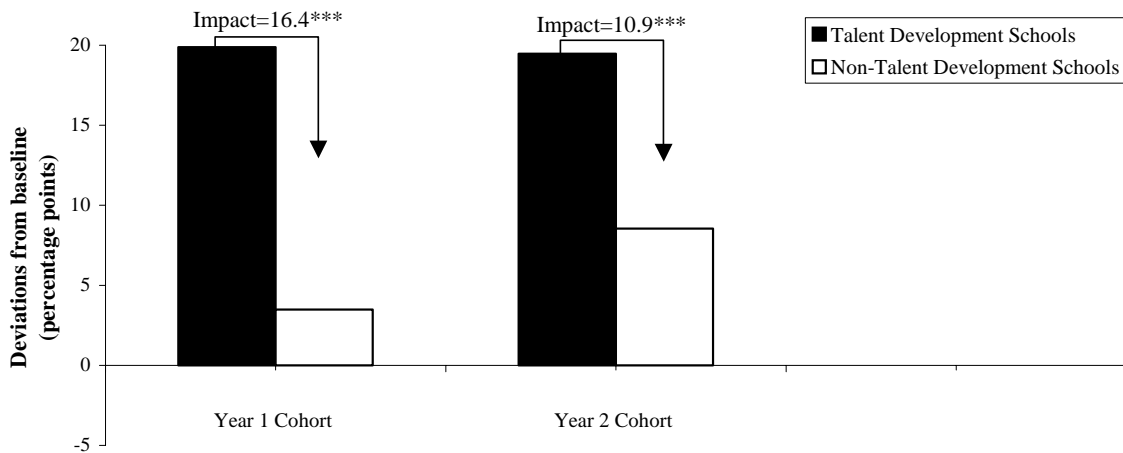
⁴⁴For students who entered high school during the 1998-1999 school year or later, 11 credits were needed for promotion from the tenth to eleventh grade, including two credits in English, one credit in social studies, two credits in math, two credits in science, and four elective credits. In recent years, the distributive requirements have been dropped.

⁴⁵At this point in the analysis, it is possible to assemble two-year transcripts for only two analysis groups of ninth-grade students in all five school clusters.

The Talent Development Evaluation

Figure 5

Impacts on the Percentage of Students Earning at Least Two Credits in English and at Least Two Credits in Math for First-Time Ninth-Grade Students at the End of the Second Year of High School



Baseline averages: Talent Development schools = 35.9 ; Non-Talent Development schools = 40.7

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The black bars represent the deviations from baseline of the Talent Development schools. The white bars represent the deviations from baseline of the non-Talent Development comparison schools. The deviations were calculated as the change in outcome level from the three-year pre-implementation baseline average.

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. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation.

A two-tailed t-test was applied to the impacts. 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.

Development schools. Across cohorts, Talent Development gains outpaced gains in the comparison school cohorts by 16 and 11 percentage points.

Improvements in course completion during the first two years of high school seem to have translated into impacts on rates of promotion to the eleventh grade, which is based on a student's enrollment status at the end of the third year of high school.⁴⁶ Though data are only available for students in the Year 1 Cohort, the findings show that the percentage of students promoted to eleventh grade rose by 6 percentage points in Talent Development schools (from 47 percent), while this percentage fell by half of one percentage point in comparison schools (from 50 percent). Therefore, Talent Development improved the overall promotion rate to eleventh grade by 6.5 percentage points.

- **For first-time ninth-grade students in Talent Development schools, the intervention increased the total credits earned in the first three years of high school.**

Currently in the district, students must earn 17.5 credits in order to be promoted to the twelfth grade. For cohorts of students in the baseline period, the average number of total credits earned during the first three years of high school was about 12. In the follow-up period, Talent Development students in the Year 1 Cohort earned 1.3 more credits than students in the baseline period, while comparison school students in the Year 1 Cohort earned 0.4 more credits than students in the baseline period. As a result, students who began ninth grade for the first time in a Talent Development high school earned more total credits by the end of their third year of high school than students in non-Talent Development comparison schools. The estimated impact of 0.92 is essentially the same as the impact on total credits earned after two years of high school. Therefore, the impact on credits earned that emerged after two years of high schools was sustained but did not increase in the third year of high school. This is consistent with Talent Development implementation, which does not include curricular components for eleventh grade.

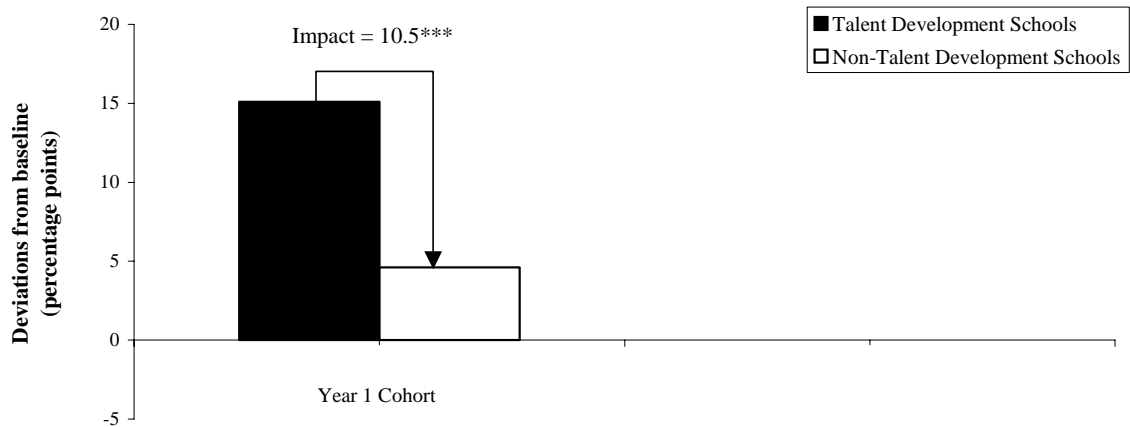
Talent Development also affected the percentage of first-time ninth-grade students who earned three credits in math and three credits in English by the end of their third year of high school. In the baseline period, only about a third of students earned these credits in both the Talent Development and non-Talent Development schools. Figure 6 shows that for the Year 1 Cohort, the percentage of students earning three credits in math and three credits in English rose by 15 percentage points (to 46 percent) in Talent Development schools and rose by 5 percentage points (to 38 percent) in non-Talent Development schools. While the gain in Talent

⁴⁶Since student records data are collected at the end of each school year, it is not possible to determine if students were promoted on time or were promoted mid-year. Therefore, promotion outcomes may be inconsistent with course-credit outcomes.

The Talent Development Evaluation

Figure 6

Impacts on the Percentage of Students Earning at Least Three Credits in English and at Least Three Credits in Math for First-Time Ninth-Grade Students at the End of the Third Year of High School



Baseline averages: Talent Development schools = 30.7; Non-Talent Development schools = 33.6

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The black bars represent the deviations from baseline of the Talent Development schools. The white bars represent the deviations from baseline of the non-Talent Development comparison schools. The deviations were calculated as the change in outcome level from the three-year pre-implementation baseline average.

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. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation. (The first calendar year of implementation varied by school cluster.)

A two-tailed t-test was applied to the impacts. 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.

Development schools outpaced the gain in the comparison schools by over 10 percentage points, this impact is smaller than reported for a similar outcome at the end of the second year of high school. Again, the Talent Development impact on course credits earned does not seem to grow during the third year of high school.

- **Talent Development produced slight improvements in student performance on the state standards assessment in math and produced no systematic change in reading scores.**

In recent years, the district has placed greater importance on the Pennsylvania System of School Assessment (PSSA) as a measure of student achievement and school success. The PSSA is administered to fifth-, eighth- and eleventh-grade students. The eleventh-grade PSSA test scores are available for students in the Year 1 Cohort who took the tests by the end of their third year of high school. The second page of Table 5 shows that less than 40 percent of first-time ninth-grade students took the eleventh-grade state standards assessments on time. Some non-test takers have exited the school system, either as dropouts or as transfers. Others have been retained in grade and will take the test in another year or were exempt from testing. In any case, the percentage of students taking the tests is increasing in both Talent Development and non-Talent Development schools. On average, improvement in the percentage of students taking the test on time in Talent Development schools has outpaced non-Talent Development schools by about 4 percentage points, but these differences are not statistically significant.

In general, this seems to be the pattern for each of the test score outcomes. The findings show improvement from the baseline averages in both Talent Development and non-Talent Development schools with few systematic differences between the two groups of schools. One exception is the percentage of students scoring at the “below basic” level in math. Since the vast majority of students who took the test scored in this category, any improvement should be seen as a decrease in the percentage of student in this group. In fact, the percentage of students in the below basic category in math decreased by 10 percentage points in Talent Development schools, while the percentage decreased by 4 percentage points in non-Talent Development comparison schools. The 6 percentage-point difference between these changes, which is the estimated impact of Talent Development, is small but statistically significant.

These test-score findings in the third year of high school seem somewhat inconsistent with substantial improvements in course credits earned and rates of promotion during the first two years of high school. One possible explanation is that the composition of students in Talent Development schools changed significantly due to the intervention. For example, lower-performing students who, without the intervention, may have dropped out of school have stayed in school and dampened potential test score gains. However, the findings do not indicate a significant increase in eleventh-grade test-takers or substantial change in the characteristics of test-

takers in Talent Development schools.⁴⁷ A second explanation is that, in the upper grades, the experience of students in Talent Development schools is not that different than the experience of students in the baseline period or the experience of students in comparison schools. This explanation seems more likely given Talent Development’s curricular focus in the ninth and tenth grades and given the fact that Career Academies (the primary intervention for upper grades) are in place in most high schools in the district. Alternatively, findings for the Year 1 Cohort, which includes students who began ninth grade in Talent Development schools during the first year of implementation, represent impacts for a relatively immature version of Talent Development in the upper grades.⁴⁸

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 ideal version of the model specifically targets students entering the ninth grade for a second time. As discussed earlier, the model calls for students who fall into this category to have their own team within the Ninth Grade Success Academy and to work to earn the course credits necessary for midyear promotion. However, in practice, repeaters were not given this high level of specialized support. Repeaters may have benefited from other aspects of the Ninth Grade Success Academy, including the double block schedule, which may facilitate catching up on credits. In general, Talent Development may have the largest impact on repeating ninth-grade students by reducing their numbers — that is, by reducing the percentage of first-time ninth-grade student who are retained in grade.

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.⁴⁹ About one-third of the ninth-grade students in the study’s sample meet these criteria and are included in the analysis for repeating

⁴⁷For students who took the eleventh-grade state standards assessment, Talent Development had a small but negative impact on eighth-grade test scores and eighth-grade attendance rates. However, the change in the characteristics of cohorts of test-takers in the follow-up period as compared to characteristics of test-takers in the baseline period and characteristics of test-takers in comparison schools is not statistically significant.

⁴⁸Findings for the Year 2 and Year 3 Cohorts are available for a smaller sample of two schools and are discussed at the end of this section.

⁴⁹It is difficult to determine the effectiveness of this intervention for all students who begin a second year of ninth grade, because the data only allow for analysis of students who repeated a full year or more. Repeating ninth-grade students promoted midyear to the tenth grade are classified as tenth-graders in school records data for the year in which they are promoted and are not part of the repeater sample. Data from their first year in ninth grade are captured in the ninth-grade sample one year earlier.

ninth-grade students. Most of these students were repeating the ninth grade for the first time, although some were repeating for the second or even third time.

- **In the pre-Talent Development baseline period, repeating ninth-grade students have lower attendance rates, are less likely to earn academic credits, and are less likely to be promoted to tenth grade than first-time ninth-grade students.**

Table 5 presents the average outcome levels for students in the pre-Talent Development baseline period. The first two columns contain averages for first-time ninth-grade students in Talent Development and non-Talent Development schools, respectively. The third and fourth columns contain averages for repeating ninth-grade students in Talent Development and non-Talent Development schools, respectively. There are two important comparisons. First, outcome levels in Talent Development schools tend to be lower than outcome levels in comparison schools. In general, Talent Development works with the lowest performing schools in the district. Second, outcome levels for repeaters tend to be significantly lower than outcome levels for first-time ninth-grade students. For example, the average attendance rate for first-time ninth-grade students in Talent Development schools is 73 percent. The attendance rate for repeating ninth-grade students is 56 percent. On average, repeaters miss 30 more days of schools (over 6 weeks) than first-time ninth-grade students. Repeaters are also less likely to earn academic credits and be promoted to tenth and eleventh grade.

- **Talent Development decreased the percentage of students who were repeating the ninth grade in the last two implementation cohorts. However, there was little change in the characteristics of repeating ninth-grade students in Talent Development schools.**

As expected, Talent Development did not change the percentage of students in the Year 1 Cohort who were repeating ninth grade. Upon entering ninth-grade, these students had not received any Talent Development treatment, and the percentage of repeaters in the full ninth-grade sample did not differ much from the percentage of repeaters in the baseline period or from the percentage in comparison schools. As discussed earlier, Talent Development had a positive impact on the percentage of ninth-grade students promoted to the tenth grade. Therefore, later cohorts of ninth-grade students in Talent Development schools experienced a small decrease in the percentage of students repeating the ninth grade.

Before looking at impacts for repeating ninth-grade students, it is important to assess whether or not their characteristics change due to Talent Development's impact on promotion. In fact, in Talent Development schools, there appears to be some change in the average characteristics of repeating ninth-grade students in the Year 2 Cohort. Based on middle school test scores and attendance rates, these repeating ninth-graders are somewhat lower-performing and may be less

engaged than repeaters in the baseline period and in comparison schools. For example, in the baseline period, the average NCE score on the seventh-grade reading assessment was about 30. In Talent Development schools, this average fell by 2 NCE points, while there was almost no change in non-Talent Development schools. At the same time, average eighth-grade attendance rates were 3 percentage points higher in non-Talent Development schools and increased by less than one percent in Talent Development schools. Similar changes in composition were not found in the Year 3 Cohort. Therefore, the findings discussed below do not seem to be driven by changes in the composition of cohorts of repeating ninth-grade students over time.

Impacts after the First Year of High School

By definition, repeating ninth-grade students have attended high school for more than one year. The attendance outcomes discussed below are based on data from the repeated ninth-grade year, which in most cases is the second year of high school.⁵⁰ Course credit outcomes are cumulative and include data from each student's first year in ninth grade, repeated year in ninth grade, and subsequent years in high school where applicable. Table 7 provides a summary of Talent Development's impact for students who repeated the ninth grade for a full year or more. The first panel of the table shows outcomes for their second year of enrollment in ninth grade.

- **Talent Development improved attendance outcomes for repeating ninth-grade students. But, on average, students still miss more than ten weeks of school.**

Talent Development appears to have a substantial impact on the attendance rates of repeating students in the Year 2 Cohort, which is associated with the second year of Talent Development implementation. These students have experienced Talent Development for two years — typically, once as a first-time ninth-grader and once as a ninth-grade repeater. In contrast, repeating students in the Year 1 Cohort only experienced Talent Development once. Students in the Year 3 Cohort also experienced Talent Development for two years, but Talent Development did not have the same impact on attendance rates for this cohort.

Figure 7 shows that for each cohort, average attendance rates improved as compared to baseline means in both Talent Development and non-Talent Development schools; both were below sixty percent. However, improvements in Talent Development schools exceed those in comparison schools. For the Year 2 Cohort, attendance rates for Talent Development students improved by 11 percentage points, while attendance rates for non-Talent Development students improved by 2 percentage points, which resulted in an estimated impact of 9 percentage points. Even with this improvement, attendance rates for repeating ninth-grade

⁵⁰A small percentage of repeating ninth-grade students are repeating the grade for a second time.

The Talent Development Evaluation

Table 7

Impacts on Outcomes for Repeating Ninth-Grade Students

Outcome	Impact at Follow-Up			
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Cross-Cohort Average
At the end of the second year of high school				
Attendance (%) ^a				
Attendance rate	3.0	9.3 ***	4.6	5.6 ***
Impact effect size	0.10	0.31 ***	0.15	0.19 ***
Students with an attendance rate of:				
90% or higher	0.0	3.9 *	0.9	1.6
80% or lower	-1.3	-9.5 **	0.1	-3.6
Course credits earned				
Total credits earned	-0.30	0.06	-0.45	-0.23
Impact effect size	-0.11	0.02	-0.17	-0.09
5 or more credits for the year ^b (%)	-7.3	-3.0	-8.1	-6.1 **
Basic academic curriculum ^c (%)	-5.2	-1.2	-5.6	-4.0 *
At least 1 English credit for the year (%)	-1.9	0.9	-1.9	-1.0
At least 1 math credit for the year (%)	-7.4	0.1	-0.6	-2.6
At least 1 algebra credit for the year (%)	-8.1	1.2	5.1	-0.6
At the end of the third year of high school				
Enrollment status ^d (%)				
Enrolled in the 10th grade	1.9	-2.3		-0.2
Enrolled in the 9th grade	-7.7	-2.8		-5.3
Exited the school system	5.7	5.1		5.4 **
Course credits earned				
Total credits earned over first two years	-0.79	-0.50		-0.65
Impact effect size	-0.15	-0.10		-0.12
At least 2 credits in English and at least 2 credits in math (%)	-4.2	-1.9		-3.1
At the end of the fourth year of high school				
Enrollment status ^e (%)				
Enrolled in the 11th grade	-7.7 **			-7.7 **
Enrolled in the 9th or 10th grade	-3.6			-3.6
Exited the school system	11.3			11.3
Course credits earned				
Total credits earned over first three years	-1.10			-1.10
Impact effect size	-0.14			-0.14
At least 3 credits in English and at least 3 credits in math (%)	-3.8			-3.8
At least 17.5 total credits ^f (%)	-4.3			-4.3

(continued)

Table 7 (continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began ninth grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began ninth grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began ninth grade during the third year of Talent Development implementation in their school.

The impact effect size was calculated for continuous variables 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.

A two-tailed t-test was applied to the impacts 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.

^aAttendance 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.

^bUntil 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. In recent years, the distributive requirement has been dropped.

^c“Basic academic curriculum” 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.

^dFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year's administrative data file.

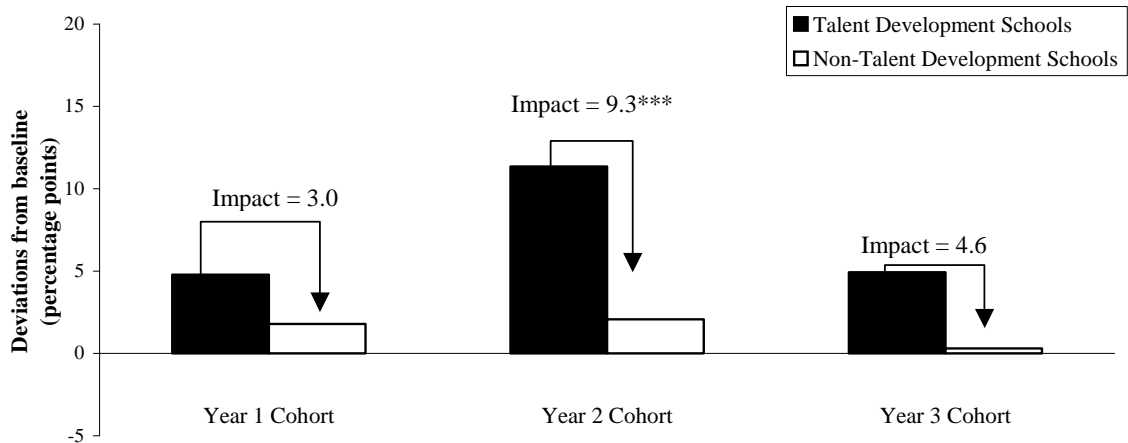
^eFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 11th if they were listed as 11th-graders in the administrative data file two years after the current year.

^fStudents are required to earn 17.5 credits in order to be promoted to the 12th grade.

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Figure 7

Impacts on Attendance Rates for Repeating Ninth-Grade Students at the End of the Second Year of High School



Baseline averages: Talent Development schools = 56.0; Non-Talent Development schools = 58.1

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The black bars represent the deviations from baseline of the Talent Development schools. The white bars represent the deviations from baseline of the non-Talent Development comparison schools. The deviations were calculated as the change in outcome level from the three-year pre-implementation baseline average.

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. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation.

A two-tailed t-test was applied to the impacts. 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.

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.

students are below 70 percent, which means students miss more than ten weeks of school each year. Given such low attendance rates, it seems unlikely that an in-school intervention, like Talent Development, would have much impact on course completion and promotion outcomes.

- **Though Talent Development did not produce impacts on credits earned or enrollment status, repeating ninth-grade students in both Talent Development and non-Talent Development schools earned more academic credits by the end of their second and third years of high school than students in the baseline period.**

Figure 8 illustrates the trend for most course credit outcomes. In the baseline period, fewer than 20 percent of students in Talent Development and non-Talent Development schools completed a basic academic curriculum — earning at least five credits with one credit each in math, English, and science. In the follow-up period, the percentage of students earning these credits increased in both Talent Development and non-Talent Development schools by between 1 and 10 percentage points. However, progress in Talent Development schools did not exceed progress in comparison schools. Figure 9 shows that there was little change in overall promotion rates to tenth grade for repeating ninth-grade students in both Talent Development and non-Talent Development schools. There was no significant difference between the change in promotion rates in Talent Development schools and the change in comparison schools.

- **For students who repeated the ninth grade in a Talent Development school, the intervention produced a negative impact on promotion rates to eleventh grade.**

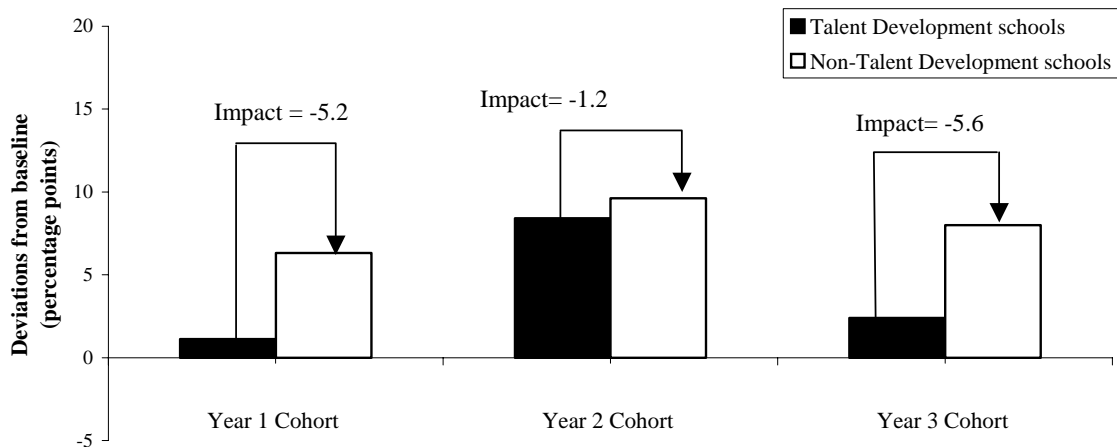
In the baseline period, about one-third of repeating ninth-grade students were in the eleventh grade at the end of their fourth year of high school. About one-third had exited the school system and another third were retained in grade. Data through the fourth year of high school are only available for the first cohort of students. Students in the Year 1 Cohort who can be followed through the third year of high school were exposed to Talent Development as repeating ninth-grade student but not as first-time ninth-grade students. For students in the Year 1 Cohort, the two-year promotion rate from ninth to eleventh grade declined by 6 percentage points in Talent Development schools and increased by 2 percentage points in non-Talent Development schools. Thus, the impact of Talent Development was an 8 percent point decrease in promotion to eleventh grade.

Over 90 percent of repeating ninth-grade students in Talent Development and non-Talent Development schools did not take the eleventh-grade state standards assessment test within four years of high school. Impact estimates cannot be reliably calculated for the small percentage of students that did take the assessments. The evaluation cannot assess the impact of

The Talent Development Evaluation

Figure 8

Impacts on the Percentage of Students Earning Basic Academic Curriculum for Repeating Ninth-Grade Students at the End of the Second Year of High School



Baseline averages: Talent Development = 15.4; Non-Talent Development = 17.3

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The black bars represent the deviations from baseline of the Talent Development schools. The white bars represent the deviations from baseline of the non-Talent Development comparison schools. The deviations were calculated as the change in outcome level from the three-year pre-implementation baseline average.

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. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation.

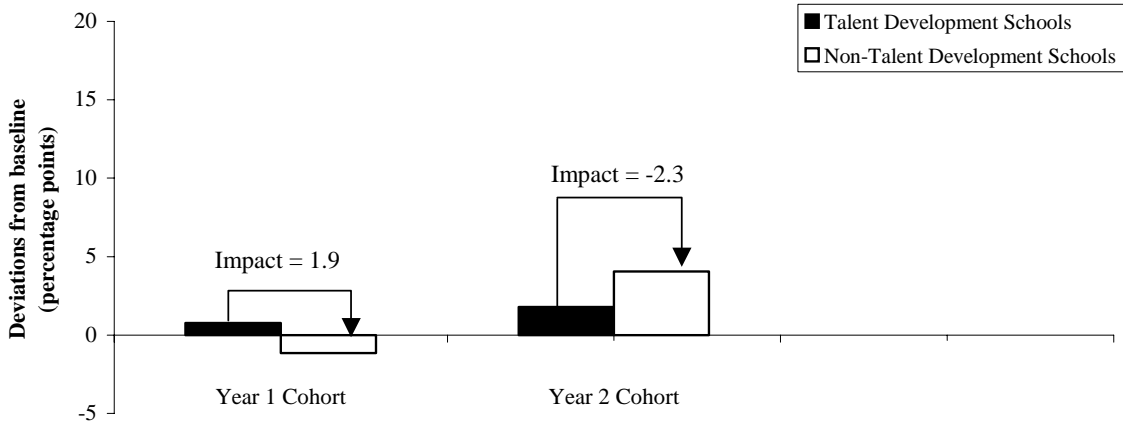
A two-tailed t-test was applied to the impacts. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

“Basic academic curriculum” is a designation indicating that a student completed a basic 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.

The Talent Development Evaluation

Figure 9

Impacts on the Percentage of Students Promoted to Tenth Grade for Repeating Ninth-Grade Students at the End of the Second Year of High School



Baseline averages: Talent Development schools = 46.1; Non-Talent Development schools = 47.9

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The black bars represent the deviations from baseline of the Talent Development schools. The white bars represent the deviations from baseline of the non-Talent Development comparison schools. The deviations were calculated as the change in outcome level from the three-year pre-implementation baseline average.

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. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation.

A two-tailed t-test was applied to the impacts. 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.

For the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year's administrative data file.

Talent Development on the eleventh-grade state standards assessment for repeating ninth-grade students.

A Look at Graduation: Impacts for Students in the Two Earliest-Implementing Talent Development High Schools

This section will discuss findings for students in the two earliest-implementing Talent Development high schools. Five years of follow-up data are available for these schools, which allows four- and five-year high school transcripts to be assembled for ninth-grade students in the earliest cohorts in these schools. The impact of Talent Development on credits required for graduation and graduation rates is assessed. Eleventh-grade test-score data are also available for three cohorts of students in the earliest-implementing schools. The findings provide some insight as to Talent Development's impact on graduation rates and offer another look at its impact on test scores, but they may not be representative of likely outcomes for other Talent Development schools in the district. The implementation history for these early-implementing schools shares much in common with the other Talent Development schools in the district, but there are some unique aspects to the reform's rollout in these schools. There also appears to be a somewhat different pattern of impacts for outcomes in the first three years of high school for students in this subset of schools as compared to the full sample of five schools.

- **The two earliest-implementing schools are similar to later-implementing Talent Development schools, but implementation of the reform in these schools benefited from intense support from the model developers and consistent leadership at the school level.**

Though these two schools are similar to later-implementing schools — low-performing high schools in low-income neighborhoods serving mostly poor students — their implementation histories differ somewhat from those schools that adopted Talent Development later. As the first two schools, in an implementation process that was evolutionary, they benefited from the undivided and intensive efforts of Talent Development implementers, particularly from some of the most experienced staff that had worked directly with the first implementing school in Baltimore. Though Talent Development implementation staff managed the planning and implementation process in all the Philadelphia schools, their presence in these two schools was probably more intensive and extended.

As noted earlier, the principals of these two schools, having long recognized the need for substantial changes, were quite open to the Talent Development concept of whole-school reform and made considerable efforts to install not just the ninth-grade elements, but also to institute changes in their existing upper-grade academies and small learning communities as well. Both schools also made extensive use of the professional development and training opportuni-

ties. Especially in the early going (before attrition and turnover somewhat weakened the effect), a comparatively high proportion of the faculty and staff working in these schools had been exposed to Talent Development institutes and conferences.

Finally, one of these two schools has had the same principal in place from the beginning of planning for Talent Development until the present. The other experienced changes in leadership but offset these changes somewhat by having the same Talent Development staff leader in place since the program was first implemented. In both cases, an important element of continuity probably contributed in some way to any differences in level of impacts that these schools produced.

- **The estimated impacts of Talent Development on attendance, course credit outcomes, and promotion outcomes in the first three years of high school for the two earliest-implementing high schools were greater than the estimated impacts for the sample of all five high schools.**

Table 8 shows the baseline levels for attendance, credits earned, enrollment status, and test scores for first-time ninth-grade students in the two earliest-implementing Talent Development schools.⁵¹ Comparing Table 8 with Table 5 illustrates that, in the baseline period, the outcome levels for cohorts of first-time ninth-grade students in the two earliest-implementing schools were similar to outcome levels for cohorts of first-time ninth-grade students in the full sample of five schools. However, in the follow-up period, the estimated impact of Talent Development on credits earned, promotion rates, and test scores in the first three years of high school appears to be greater in the earliest-implementing schools than for the full sample of five schools.

The first two pages of Table 9 provide a summary of the impact estimates for the first three years of high school for students in the two earliest-implementing schools. For this subset of schools as for the full sample, Talent Development produced consistently positive impacts on attendance, course credit, and promotion outcomes across several cohorts of first-time ninth-grade students. The estimated impact of Talent Development on attendance outcomes was similar across cohorts of students both in the earliest-implementing schools and in all five schools. However, impact estimates for credits earned in the first, second, and third year of high school are consistently larger for each of cohort of students in the two-school sample as compared to the five-school sample. The estimated impact of Talent Development on promotion from

⁵¹Findings for the two early-implementing schools focus on cohorts of first-time ninth-grade students because a very limited sample of repeating ninth-grade students was still in school after five years. Nearly 60 percent of repeating ninth-grade students had exited the school system without graduating by the end of the fourth year, and 80 percent had exited the school system without graduating by the end of the fifth year of high school.

The Talent Development Evaluation

Table 8

Baseline Outcome Levels for Ninth-Grade Students in Earliest-Implementing Talent Development and Non-Talent Development Comparison Schools

Outcome	First-Time Ninth-Grade Students		Repeating Ninth-Grade Students	
	Talent Development Schools	Non-Talent Development Schools	Talent Development Schools	Non-Talent Development Schools
At the end of the first year of high school				
Attendance ^a (%)				
Attendance rate	71.1	73.5	49.8	52.3
Students with an attendance rate of:				
90% or higher	19.7	23.4	2.3	3.7
80% or lower	58.7	54.9	92.2	89.1
Course credits earned				
Total credits earned	4.10	4.29	3.11	3.58
5 or more credits for the year ^b (%)	51.0	53.0	27.5	32.0
Basic academic curriculum ^c (%)	39.8	42.2	15.5	18.4
At least 1 English credit for the year (%)	64.0	63.7	38.5	43.4
At least 1 math credit for the year (%)	51.2	62.0	29.6	37.8
At least 1 algebra credit for the year (%)	24.1	31.9	12.1	14.5
At the end of the second year of high school				
Enrollment status ^d (%)				
Enrolled in the 10th grade	60.8	62.8	38.3	43.5
Enrolled in the 9th grade	37.4	34.9	55.8	44.2
Exited the school system	1.8	2.3	5.9	12.2
Course credits earned				
Total credits earned over first two years	7.96	8.04	4.57	5.17
At least 2 credits in English and at least 2 credits in math (%)	32.4	37.5	9.7	12.3
At the end of the third year of high school				
Enrollment status ^e (%)				
Enrolled in the 11th grade	45.9	47.3	19.6	21.2
Enrolled in the 9th or 10th grade	41.9	41.7	41.9	34.9
Exited the school system	12.1	11.0	38.4	43.8
Course credits earned				
Total credits earned over first three years	11.6	11.5	5.8	6.4
At least 3 credits in English and at least 3 credits in math (%)	28.5	29.9	7.8	9.5
At least 17.5 total credits ^f (%)	32.7	29.7	10.6	10.7

(continued)

Table 8 (continued)

Outcome	First-Time Ninth-Grade Students		Repeating Ninth-Grade Students	
	Talent Development Schools	Non-Talent Development Schools	Talent Development Schools	Non-Talent Development Schools
	11th-grade PSSA test score ^g			
Took the test on time (%)	34.9	35.4	NA	NA
For test-takers:				
Math				
Average scaled score	1,061.5	1,058.5	NA	NA
At below-basic level (%)	84.9	87.2	NA	NA
At basic level (%)	11.1	10.0	NA	NA
At or above proficient level (%)	4.0	2.9	NA	NA
Reading				
Average scaled score	1,017.1	1,025.0	NA	NA
At below-basic level (%)	78.5	78.9	NA	NA
At basic level (%)	16.1	16.3	NA	NA
At or above proficient level (%)	5.3	4.6	NA	NA
At the end of the fourth year of high school				
Enrollment status ^h (%)				
Graduated	33.6	34.9	5.4	6.8
Enrolled in the 12th grade but did not graduate	8.8	8.6	4.4	5.1
Enrolled in the 9th, 10th, or 11th grade	33.8	32.6	33.5	29.0
Exited the school system	23.8	23.9	56.7	58.9
Course credits earned				
Total credits earned over first three years	14.9	14.6	6.3	7.0
At least 4 credits in English and at least 4 credits in math (%)	27.2	26.1	3.3	3.6
At least 17.5 total credits ⁱ (%)	45.9	45.5	14.5	15.4
Earned core graduation credits ⁱ (%)	29.9	26.6	2.9	3.0

(continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia

NOTES: Sample includes 9th-grade students from two Talent Development high schools and six 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. 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.

The levels presented are averages taken over the three years preceeding the implementation of Talent Development in each Talent Development school and the same three years for the non-Talent Development comparison schools.

^aAttendance 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 8 (continued)

^bUntil 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. In recent years, the distributive requirement has been dropped.

^c“Basic academic curriculum” is a designation indicating that a student completed a basic 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.

^dFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year's administrative data file.

^eFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 11th if they were listed as 11th-graders in the administrative data file two years after the current year.

^fStudents are required to earn 17.5 credits in order to be promoted to the 12th grade.

^gPennsylvania System of Schools Assessment (PSSA) is a criterion-referenced test administered in grades 5, 8, and 11, which provides information on student performance on skills and content knowledge specified by the state.

^hFor the purposes of this analysis, 9th-grade students were considered to have graduated if so indicated on administrative records. Ninth-grade students were considered to have been promoted to 12th grade and not graduated if they were listed as 12th-graders in the administrative data file three years after the current year but did not have graduate status for that year.

ⁱ“Earned Core Graduation Credits” is a designation indicating that a student completed an academic curriculum of at least 23.5 credits, earning at least four credits in English, at least three credits in math, at least three credits in science, and at least three credits in social studies. 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.

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Table 9

Impacts on Outcomes for First-Time Ninth-Grade Students in Earliest-Implementing Schools

Outcome	Impact at Follow-Up					Cross-Cohort Average
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 4 Cohort	Year 5 Cohort	
At the end of the first year of high school						
Attendance ^a (%)						
Attendance rate	4.31	3.68	4.37	7.00 **	7.15 **	5.3 ***
Impact effect size	0.14	0.12	0.15	0.23 **	0.24 **	0.18 ***
Students with an attendance rate of:						
90% or higher	5.0	7.5	8.1	13.5 ***	15.7 ***	10.0 ***
80% or lower	-10.1 *	-6.5	-6.8	-16.7 ***	-19.4 ***	-11.9 ***
Course credits earned						
Total credits earned	0.83	0.88	0.91	1.44 **	0.85	1.0 ***
Impact effect size	0.31	0.33	0.34	0.54 **	0.32	0.37 ***
5 or more credits for the year ^b (%)	10.2	7.0	8.9	18.2 **	9.3	10.7 ***
Basic academic curriculum ^c (%)	13.6 **	9.3	13.5 *	23.3 ***	10.0	13.9 ***
At least 1 English credit for the year (%)	8.5	6.2	10.7	10.4	2.2	7.6 **
At least 1 math credit for the year (%)	18.5 **	17.3 **	22.7 ***	25.5 ***	15.7 *	19.9 ***
At least 1 algebra credit for the year (%)	33.6 ***	32.8 **	37.2 ***	41.2 ***	10.9	31.1 ***
At the end of the second year of high school						
Enrollment status ^d (%)						
Enrolled in the 10th grade	14.8 *	9.2	11.4	15.8 *		12.8 ***
Enrolled in the 9th grade	-16.6 **	-9.7	-13.9 *	-16.0 **		-14.1 ***
Exited the school system	1.8	0.5	2.4	0.1		1.2

(continued)

Table 9 (continued)

Outcome	Impact at Follow-Up					Cross-Cohort Average
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 4 Cohort	Year 5 Cohort	
Course credits earned						
Total credits earned over first two years	1.36 *	0.84	1.38 *	1.97 ***		1.4 ***
Impact effect size	0.26 *	0.16	0.26 *	0.38 ***		0.27 ***
At least 2 credits in English and at least 2 credits in math (%)	22.8 ***	9.1	21.2 ***	20.7 ***		18.4 ***
At the end of the third year of high school						
Enrollment status^e (%)						
Enrolled in the 11th grade	9.0	-0.8	9.6			5.9
Enrolled in the 9th or 10th grade	-8.5	-1.3	-12.3 **			-7.3 **
Exited the school system	-0.5	2.1	2.7			1.4
Course credits earned						
Total credits earned over first three years	1.31 *	1.04	1.91 **			1.4 ***
Impact effect size	0.17 *	0.13	0.25 **			0.18 ***
At least 3 credits in English and at least 3 credits in math (%)	13.5 ***	5.3	16.6 ***			11.8 ***
At least 17.5 total credits ^f (%)	3.5	2.4	6.2			4.0
11th-grade PSSA test score^g						
Took the test on time (%)	5.9	0.3	6.7			4.3
For test-takers:						
Math						
Average scaled score	28.7	29.9	79.0 ***			45.9 ***
Impact effect size	0.24	0.25	0.65 ***			0.38 ***
At below-basic level (%)	-7.5	-8.8 *	-15.6 ***			-10.6 ***
At basic level (%)	3.8	7.1 *	3.4			4.8 **
At or above proficient level (%)	3.6	1.4	12.3 ***			5.8 ***
Reading						
Average scaled score	-24.5	16.4	48.7 **			13.5
Impact effect size	-0.16	0.11	0.32 **			0.09
At below-basic level (%)	5.0	-4.2	-5.2			-1.4
At basic level (%)	-3.6	6.6	-2.7			0.1
At or above proficient level (%)	-1.5	-2.3	7.8 ***			1.3

(continued)

Table 9 (continued)

Outcome	Impact at Follow-Up					Cross-Cohort Average
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 4 Cohort	Year 5 Cohort	
At the end of the fourth year of high school						
Enrollment status ^h (%)						
Graduated	8.2 *	6.9				7.5
Enrolled in the 12th grade but did not graduate	-4.1	-2.9				-3.5
Enrolled in the 9th, 10th, or 11th grade	-4.9	-8.4				-6.7
Exited the school system	0.8	4.5				2.7
Course credits earned						
Total credits earned over first four years	1.48 **	1.44 *				1.5 ***
Impact effect size	0.28 **	0.28 *				0.28 ***
At least 4 credits in English and at least 4 credits in math (%)	9.2	9.8				9.5 **
At least 17.5 total credits ^f (%)	3.1	4.0				3.5
Earned core graduation credits ⁱ (%)	3.7	3.9				3.8

(continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from two early-implementing Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation in their school. Year 4 Cohort includes students who began 9th grade during the fourth year of Talent Development implementation in their school. Year 5 Cohort includes students who began ninth grade during the fifth year of Talent Development implementation in their school.

The impact effect size was calculated for continuous variables 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.

Table 9 (continued)

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.

A two-tailed t-test was applied to the impacts 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.

^aAttendance 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.

^bUntil 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. In recent years, the distributive requirement has been dropped.

^c“Basic academic curriculum” is a designation indicating that a student completed a basic 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.

^dFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year’s administrative data file.

^eFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 11th grade if they were listed as 11th-graders in the administrative data file two years after the current year.

^fStudents are required to earn 17.5 credits in order to be promoted to the 12th grade.

^gPennsylvania System of School Assessment (PSSA) is a criterion-referenced test administered in grades 5, 8, and 11, which provides information on student performance on skills and content knowledge specified by the state.

^hFor the purposes of this analysis, 9th-grade students were considered to have graduated if so indicated on administrative records. Ninth-grade students were considered to have been promoted to 12th grade and not graduated if they were listed as 12th-graders in the administrative data file three years after the current year but did not have graduate status for that year.

ⁱ“Earned Core Graduation Credits” is a designation indicating that a student completed an academic curriculum of at least 23.5 credits, earning at least four credits in English, at least three credits in math, at least three credits in science, and at least three credits in social studies. 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.

ninth to tenth grade is also larger for cohorts of students in the two early-implementing schools, though promotion rates to eleventh grade are of similar magnitude to those for the full sample of five schools.

- **Talent Development improved eleventh-grade math and reading test scores for cohorts of students in the two earliest-implementing schools.**

Test-score data were only available for one cohort of students in the full sample of schools. For this cohort, Talent Development reduced the percentage of students scoring in the bottom performance category on the state standards assessment in math but did not have an impact on scores on the reading assessment. For the two earliest-implementing schools, data are available for three cohorts of first-time ninth-grade students. As with the full sample, a little more than one-third of first-time ninth-grade students in the baseline period took the eleventh-grade PSSA by their third year of high school. In the earliest-implementing schools, this percentage improved in both Talent Development and non-Talent Development schools in the follow-up period, but gains in test-taking rates were greater in Talent Development schools. For example, the percentage of test-takers rose from 35 percent to 49 percent for students in Talent Development schools in the Year 3 Cohort, while the percentage rose from 35 percent to 43 percent for students in comparison schools.⁵²

As with the full sample of schools, most impact estimates for the first cohort of students in the earliest-implementing schools are small and not statistically significant. However, across the three cohorts, Talent Development improved the average scaled score on the eleventh-grade state assessment in math by 46 points. This represents an effect size of 0.38, or 38 percent of the student-level standard deviation for this outcome. At the same time, Talent Development decreased the percentage of students scoring in the bottom performance category by 11 percentage points and increased the percentage of students scoring at or above proficient by 6 percentage points. The pattern of impacts in reading was not as consistent. For students in the Year 3 Cohort, Talent Development seems to have improved outcomes on the state standards assessment in reading, but there is not significant change for students in the first two cohorts. These findings seem to show that with consistent and sustained implementation of the model, Talent Development can have a positive impact on student achievement in the upper grades of high school.

- **Talent Development improved graduation rates for cohorts of students in the two earliest-implementing schools.**

⁵²Test-taking rates did not improve greatly by the end of the fourth year of high school. At the end of the fourth year of high school, only 37 percent of first-time ninth-grade students in the baseline period had taken the eleventh-grade PSSA test.

In the baseline period, only one-third of first-time ninth-grade students in the earliest-implementing schools graduated on time. By the fourth year of high school, 24 percent of students had withdrawn from the school system. The remaining students had been retained in grade or had reached the twelfth grade but had not earned the credits necessary for graduation. Their comparison schools had a similar baseline pattern.

In the follow-up period, graduation rates improved by about 4 percentage points for students in the Year 1 Cohort in the earliest-implementing Talent Development schools, while graduation rates declined by about 4 percentage points for students in comparison schools. The difference in these deviations from the baseline period average (8 percentage points), which is the estimated impact of Talent Development on graduation rates for the first cohort of students, is statistically significant. A similar pattern of findings is found for the Year 2 Cohort, but the estimated impact of nearly 7 percentage points is not statistically significant. Talent Development also has a positive impact on graduation rates by the end of the fifth year of high school, but graduation rates for first-time ninth-grade students in Talent Development and comparison schools do not exceed 42 percent even with an extra year of high school. By the fifth year, an equal percentage of students have withdrawn from the school system without graduating.

Lessons and Implications

The impacts reported here are promising because they show that Talent Development has positive and significant impacts on a range of important outcomes for first-time ninth-graders in some of the lowest-performing schools in Philadelphia. Notably, these effects persisted into the upper grades as students progressed toward graduation.

Talent Development improved the attendance rates for first-time ninth-grade students by 5 percentage points. A greater percentage of first-time ninth-graders regularly attended school, and a lower percentage were chronic absentees. Increased attendance seems to have led to higher course completion rates. Not only did students in Talent Development schools earn more total credits in their first year of high school, but also a greater percentage of Talent Development students earned credits in algebra, which is a critical gate-keeping course that is often required for both graduation and admission to college. By helping students earn more credits, Talent Development had a positive impact on promotion rates from ninth to tenth grade. Gains in Talent Development schools exceed those in non-Talent Development comparison schools by 8 percentage points.

Course-credit gains made by students in the first year of high school were sustained through students' second and third years of high school. Again, gains in Talent Development schools outpaced gains in comparison schools on indicators of progress toward graduation — earning two English and two math credits by the end of the second year of high school and

earning three English and three math credits by the end of the third year of high school. Still, these schools had much room for improvement. Only about half of first-time ninth-grade students were promoted to eleventh grade on time in both Talent Development and non-Talent Development schools, and more than three-quarters of students fell into the bottom category on the Pennsylvania System of School Assessment (PSSA) in math or reading.

Talent Development schools also did a better job of improving promotion rates to eleventh grade than their matched comparison schools, and, for a subset of schools, they did a better job of improving four-year graduation rates as well. However, only about one-third of students who began ninth grade in these low-performing high schools graduated on time. Further, it is not clear that, even with Talent Development, students graduate with the skills they need for work and college. Talent Development did reduce the percentage of students in the bottom category of the PSSA in math, but fewer than 10 percent of students who took the tests were considered proficient at math or reading.

The pattern of results in this report stands out from other research on high school reforms because the impacts are consistently positive across several outcomes; they emerged in the first year of implementation; they are sustained for successive cohorts of students; and they were found across five high schools. These findings are unique in that the impact of the program is assessed as cohorts of students move through high schools, and the study follows ninth-grade students through four years of high school. Impacts are estimated using a particularly strong methodology that compares the performance of cohorts of students in Talent Development schools not only to the performance of past cohorts of students in the same school, but to gains made by cohorts of students in similar schools. All these factors lead to confidence in the findings, but there are still questions:

- How can the magnitude of Talent Development’s impact on student outcomes be assessed?
- What might explain the impacts for first-time ninth-grade students?
- Why are impacts not as pronounced for upper-grade students?
- Why do higher rates of course completion fail to lead to greater achievement gains?
- Why is there no impact on students who repeat ninth grade for a full year?
- How generalizable are these findings to other schools and other districts?

The Magnitude of Talent Development's Impact

The magnitude of the impacts outlined above can be evaluated in several ways. Effect sizes show each impact as a proportion of the student-level standard deviation for each outcome. For example, the impact of Talent Development on credits earned in the first year of high school is two-thirds of a credit. This corresponds to an effect size of 0.25, or one-quarter of the student-level standard deviation for this outcome in the pre-Talent Development period. The effect sizes reported for first-time ninth-grade students range between 0.04 and 0.25, with somewhat higher effect sizes, ranging between 0.09 and 0.38, reported in findings for the two earliest-implementing schools.

Although no absolute standard exists to define whether a specific effect size is large or small, there are some traditional guidelines. They suggest that the effect sizes in this report fall in the small-to-moderate categories. More recent analyses suggest that this categorization may be too conservative for educational outcomes. It is possible for small-to-moderate effect sizes to have substantial significance in education settings. For example, for a typical class of about 500 first-time ninth-grade students, Talent Development's 25 percentage-point impact on students earning a credit in algebra means that the intervention adds 125 students from each high school each year to the rolls of those who reach this critical milestone. Also, the 8 percentage-point impact on graduation rates translates into 40 more of the 500 ninth-graders in each Talent Development school earning a high school diploma each year.

Further, the findings for student achievement appear to be comparable with or to exceed results found in other third-party evaluations of Comprehensive School Reform (CSR) that have strong evidence of effectiveness. 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 a comparison group design, and to 0.09 when a third party conducts the evaluation.⁵³ In this report, the eleventh-grade math achievement effect size was 0.12 for the full sample of schools and 0.38 for the two earliest-implementing schools.

Even successful interventions like Talent Development still need much more power if they are to achieve the goal of preparing all students for graduation, postsecondary education, and employment. Even with the gains described in this report, in a high school of 500 first-time ninth-graders, the average ninth-grader will still miss about 40 days of school, 150 students will not be promoted to the tenth grade on time, and more than half will not be ready to graduate within four years.

⁵³Borman, Hewes, Overman, and Brown, 2003.

Impacts for First-Time Ninth-Grade Students in the First Year of High School

First-time ninth-grade students seem to derive the greatest benefit from the Talent Development model. They have better attendance rates and more credits earned, partly because of the special focus of the Ninth Grade Success Academy. While Talent Development's impact on attendance for first-time ninth-graders is straightforward, interpreting course credit findings is more complex.

The extended block schedule used in Talent Development schools provides ninth-grade students the opportunity to earn eight credits in their first year of high school. A more traditional schedule, common to most other high schools in the district, allows students to earn six or seven credits in their first year of high school. This difference in opportunity is clearly part of the positive effect Talent Development had on credits earned in the first year of high school. The question, then, seems to be whether the extra two-thirds of a credit earned in Talent Development schools really was worth something or whether it translated to just more "seat time" (that is, unproductive classroom time) for students?

The answer may lie in the greater percentage of students earning academic credits, particularly in algebra. The extended block schedule accommodates double-dosing of English and math for ninth-grade students in Talent Development schools. The Talent Development catch-up courses scheduled in the first semester are designed to prepare students for English 1 and algebra in the second semester. The catch-up courses, though electives, count toward total credits. The impacts on credits earned in English and math would be less impressive if they simply reflected students passing these transitional courses, rather than courses that meet distributive requirements for graduation. However, the large impacts on the percentage of students earning a credit in algebra, as well as improved attendance rates, imply a more promising story. Not only did Talent Development provide more opportunities to earn credits, the intervention also provided higher-quality learning opportunities that led to students meeting promotion and graduation requirements.

Limitations in the Upper Grades

The relatively modest impacts for upper-grade students in the Philadelphia schools may arise from two factors. First, as discussed in the implementation findings of the report, the upper grades, with their history of pre-existing academies and small learning communities, proved more resistant to the implementation efforts of Talent Development; fewer changes at that level were achieved. It may be that the intended effects of Talent Development were not produced because implementation in the upper grades was not as robust as at the ninth-grade level, where the Success Academies were successfully put into place. The implementation changes at the lower grades

produced a greater difference in services between the Talent Development and comparison schools. Thus, the measured impacts at the upper grades would have appeared smaller.

The second factor may be that the strong effects that Talent Development produced on attendance, course-taking, and promotion in lower grades worked to hold more students in school for a longer period of time, students who otherwise might have underperformed, stopped coming to school, or not been promoted on time. Thus in Talent Development schools, the mix of upper-grade students would be more heavily weighted with students who, in non-Talent Development schools, would likely have left or not been promoted. The net result would presumably be somewhat more challenging upper-grade students whose overall performance might be expected to be lower than in a non-Talent Development school, where more of the challenging students would have already left. By virtue of the effects of Talent Development at lower grades, the upper-grade populations in Talent Development schools might have had lower comparative performance simply because they ended up with a higher percentage of lower-performing students.

Achievement Gains

Given the relatively large gains in course credits, the student achievement findings seem surprising. For the full sample of schools, average scaled scores on the eleventh-grade PSSA did not significantly improve. Nor was there great change in the percentage of students at the below-basic, basic, and at-or-above-proficient performance levels, which are based on the scaled scores. The largest impact for the full sample was a 6 percentage-point reduction in the percentage of students scoring in the below-basic category in math. There is some precedent for the failure of high levels of course-taking to translate to high-proficiency scores.⁵⁴ However, the explanation is likely a combination of several factors.

First, it is important to keep in mind that about 85 percent of students in Talent Development and non-Talent Development schools scored in the below-basic category on the PSSA in math and about 75 percent scored in the below-basic category in reading. The PSSA became an increasingly high-stakes test in the district, and all schools — both Talent Development and non-Talent Development — were under considerable pressure to improve test scores. In fact, the district provided all schools with materials to help students prepare for the PSSA. Low-performing high schools were encouraged to identify students on the cusps of proficiency levels — particularly, from basic to proficient — to help boost school-wide performance. Given similar test-prep treatments across schools, it may not be so surprising that the difference in gains between Talent Development and non-Talent Development schools (which is the estimated impact of the intervention) is small.

⁵⁴Lee, Croninger, and Smith, 1997.

Second, the full sample findings are for only one cohort of students — the cohort that consisted of first-time ninth-graders during the first year of Talent Development in their schools. Upper-grade components of the model, which are not as extensive as the ninth-grade components even when fully implemented, may not have been well-instituted in Talent Development schools as the first cohort moved into tenth and eleventh grade. Findings for the two earliest-implementing schools have more promising results on the PSSA, particularly for the third cohort to move through Talent Development schools. These two schools had stronger implementation histories and consistent school leadership, so their results may be a combination of better Talent Development implementation and school effects.

Repeating Ninth-Grade Students

During the baseline period prior to Talent Development implementation, about one-third of ninth-grade students in the analysis were repeating the grade for at least the first time. Many of these students were chronic absentees, missing an average of more than 80 days of school per year. The average repeating ninth-grader had less than a 50 percent chance of being promoted to the tenth grade the following year. For this group, Talent Development produced more than a 5 percentage-point increase in average attendance rates. Also, the Talent Development high schools saw notable increases in the credits earned by their repeating ninth-graders, although these trends were present in the non-Talent Development schools as well. Overall, however, Talent Development actually increased the likelihood of a repeating ninth-grader leaving the school system before the end of his or her fourth year of high school.

The mixed results for repeating ninth-grade students may be an artifact of two interacting phenomena. First, as discussed earlier, Talent Development produced an increase in the rate at which first-time ninth-graders were being promoted to the tenth grade. This reduced the population of repeaters in the Talent Development schools. The remaining group of repeaters might have been somewhat more disadvantaged than the typical repeater in the baseline period or in the comparison school in a way not easily measured and, on average, was likely to require more intensive services to help them get promoted. At the same time, the implementation analysis indicated that, in Philadelphia, Talent Development did not execute specialized interventions to meet the needs of repeating ninth-grade students.

Generalizability

Since the findings in this report reflect just five schools in one city, the question of how generalizable they are — how much they might reflect implementation of the Talent Development model in other high schools in other cities — cannot be answered definitively. That is particularly true because of several distinctive features that characterized the implementation process in Philadelphia. First, the school district at that time took a mostly hands-off posture with

respect to Talent Development. They sanctioned the adoption of the model by high schools, but provided no official support or recognition. The potential advantages of official recognition — greater authority to institute changes in the schools, control staffing and leadership, and command funding and resources — were thus not available to the implementers in Philadelphia.

This limitation was offset by two factors. Implementers had a comparatively free hand in how they went about their work. Also, particularly in the early stages, the staff at CRESPAR and the local intermediary could concentrate their efforts on the implementation process in an unusually intensive way. It is certainly also true that implementation in Philadelphia, which was a sort of test case city for expansion of the Talent Development model, had an evolutionary character, and that some unevenness in the process across schools resulted as CRESPAR and the local intermediary worked to codify and routinize the process of new school implementation.

The fair conclusion seems to be that the responses to school district disinterest and the challenges of new city expansion of the model, effective as those responses were in Philadelphia, can probably be equaled or bettered in other cities. CRESPAR can now bring the lessons and experience of Philadelphia to bear in other communities. If the Philadelphia experience is any indication, other communities would, in all likelihood, benefit from the direct support of school district leadership.

It is important to remember that the initial positive results from Talent Development required significant extra funds and very demanding changes to school organization, instruction, and teacher support. It is not clear that the results from Philadelphia can be duplicated or sustained without these important elements. However, with a sustained investment in specific expertise for dealing with poorly prepared students and weak learning environments, built on reasonable fidelity to the tenets and components of Talent Development, it is reasonable to expect that some real progress can be made in some of the lowest-performing high schools in the country.

Appendix A

Tables for First-Time Ninth-Grade Students

The Talent Development Evaluation
Appendix Table A.1
Outcome Levels and Impacts on Outcomes
Measured at the End of the First Year of High School
For First-Time Ninth-Grade Students, Follow-Up Year by Cohort

Outcome	<i>I. Outcome Levels Compared with Baseline Average</i>					
	Talent Development Schools			Non-Talent Development Schools		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
Attendance ^a (%)						
Attendance rate	75.6	78.9	77.7	76.6	76.0	75.5
Deviation from baseline	2.8 **	6.1 ***	4.9 ***	0.1	-0.5	-1.0
Students with an attendance rate of:						
90% or higher	26.5	26.8	27.5	27.4	23.9	24.1
Deviation from baseline	5.0 *	5.4 *	6.0 *	0.1	-3.3 **	-3.2 *
80% or lower	51.4	47.1	46.6	49.0	52.6	52.8
Deviation from baseline	-6.0 *	-10.2 ***	-10.7 ***	-0.5	3.2 *	3.4 *
Course credits earned						
Total credits earned	5.22	5.07	5.29	4.84	4.79	4.85
Deviation from baseline	0.91 ***	0.76 **	0.98 ***	0.22	0.18	0.23
5 or more credits for the year ^b (%)	63.5	59.2	63.7	60.4	58.6	59.4
Deviation from baseline	10.2 ***	5.8 *	10.3 ***	2.6	0.9	1.7
Basic academic curriculum ^c (%)	56.6	52.7	56.6	51.1	50.3	52.5
Deviation from baseline	13.2 ***	9.2 ***	13.1 ***	3.5 *	2.7	4.9 **
At least 1 English credit for the year (%)	76.1	75.0	79.2	68.9	69.3	72.9
Deviation from baseline	10.4 ***	9.3 ***	13.5 ***	1.0	1.4	5.0 **
At least 1 math credit for the year (%)	71.6	71.0	74.1	69.1	69.1	70.6
Deviation from baseline	15.5 ***	14.9 ***	18.1 ***	4.0 *	4.1 *	5.6 **
At least 1 algebra credit for the year (%)	57.4	61.7	64.1	52.4	44.3	49.5
Deviation from baseline	24.3 ***	28.6 ***	31.0 ***	7.2 *	-1.0	4.2

(continued)

Appendix Table A.1 (continued)

Outcome	<i>II. Impact of Talent Development</i>		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
Attendance ^a (%)			
Attendance rate	2.8 *	6.7 ***	5.9 ***
Students with an attendance rate of:			
90% or higher	4.9	8.8 **	9.2 ***
80% or lower	-5.5	-13.4 ***	-14.1 ***
Course credits earned			
Total credits earned	0.69 *	0.58	0.74 **
5 or more credits for the year ^b (%)	7.5 *	5.0	8.6 **
Basic academic curriculum ^c (%)	9.7 **	6.5	8.2 **
At least 1 English credit for the year (%)	9.4 **	7.9 **	8.5 **
At least 1 math credit for the year (%)	11.5 **	10.8 **	12.4 ***
At least 1 algebra credit for the year (%)	17.1 **	29.6 ***	26.8 ***

(continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation in their school.

Panel I: Each outcome has two rows of data. The first row shows the average level for that outcome in each cohort. The second row shows the outcome level's average deviation from the three-year pre-implementation baseline average in each cohort.

Panel II: Each outcome has a single row of data that shows the estimated impact of Talent Development for each cohort. 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.

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.

Appendix Table A.1 (continued)

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

^aAttendance 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.

^bUntil 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. In recent years, the distributive requirement has been dropped.

^c“Basic academic curriculum” is a designation indicating that a student completed a basic 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.

The Talent Development Evaluation
Appendix Table A.2
Outcome Levels and Impacts on Outcomes
Measured at the End of the Second Year of High School
for First-Time Ninth-Grade Students, Follow-Up Results by Cohort

Outcome	<i>I. Outcome Levels Compared with Baseline Average</i>					
	Talent Development Schools			Non-Talent Development Schools		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
Enrollment status ^a (%)						
Enrolled in the 10th grade	66.3	69.1		59.7	63.6	
Deviation from baseline	7.3 **	10.1 ***		-1.2	2.7	
Enrolled in the 9th grade	31.3	29.3		38.5	35.0	
Deviation from baseline	-7.8 **	-9.8 ***		1.6	-1.9	
Exited the school system	2.4	1.6		1.8	1.4	
Deviation from baseline	0.5	-0.3		-0.4	-0.8	
Course credits earned						
Total credits earned over first two years	9.51	9.47		8.97	9.11	
Deviation from baseline	1.23 ***	1.19 ***		0.29	0.43 **	
At least 2 credits in English and at least 2 credits in math (%)	55.8	55.3		44.2	49.3	
Deviation from baseline	19.9 ***	19.5 ***		3.5 **	8.5 ***	
	<i>II. Impact of Talent Development</i>					
Outcome	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort			
Enrollment status ^a (%)						
Enrolled in the 10th grade		8.5 **		7.4 *		
Enrolled in the 9th grade		-9.5 **		-7.9 *		
Exited the school system		0.9		0.5		
Course credits earned						
Total credits earned over first two years		0.93 **		0.76 *		
At least 2 credits in English and at least 2 credits in math (%)		16.4 ***		10.9 ***		

(continued)

Appendix Table A.2 (continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation in their school.

Panel I: Each outcome has two rows of data. The first row shows the average level for that outcome in each cohort. The second row shows the outcome level's average deviation from the three-year pre-implementation baseline average in each cohort.

Panel II: Each outcome has a single row of data that shows the estimated impact of Talent Development for each cohort. 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.

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.

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

^aFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year's administrative data file.

The Talent Development Evaluation
Appendix Table A.3
Outcome Levels and Impacts on Outcomes
Measured at the End of the Third Year of High School
for First-Time Ninth-Grade Students, Follow-Up Results by Cohort

Outcome	<i>I. Outcome Levels Compared with Baseline Average</i>					
	Talent Development Schools			Non-Talent Development Schools		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
Enrollment status ^a (%)						
Enrolled in the 11th grade	53.2			48.6		
Deviation from baseline	6.0 *			-0.4		
Enrolled in the 10th grade	39.2			44.4		
Deviation from baseline	-5.0			2.3		
Exited the school system	7.6			7.0		
Deviation from baseline	-1.0			-1.8		
Course credits earned						
Total credits earned over first three years	13.2			12.8		
Deviation from baseline	1.3 ***			0.4 *		
At least 3 credits in English and at least 3 credits in math (%)	45.8			38.2		
Deviation from baseline	15.1 ***			4.6 ***		
At least 17.5 total credits ^b (%)	38.5			37.7		
Deviation from baseline	4.7 *			2.8 *		
Outcome	<i>II. Impact of Talent Development</i>					
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort			
Enrollment status ^a (%)						
Enrolled in the 11th grade		6.5 *				
Enrolled in the 10th grade		-7.3 *				
Exited the school system		0.8				
Course credits earned						
Total credits earned over first three years		0.9 *				
At least 3 credits in English and at least 3 credits in math (%)		10.5 ***				
At least 17.5 total credits ^b (%)		1.9				

(continued)

Appendix Table A.3 (continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation in their school.

Panel I: Each outcome has two rows of data. The first row shows the average level for that outcome in each cohort. The second row shows the outcome level's average deviation from the three-year pre-implementation baseline average in each cohort.

Panel II: Each outcome has a single row of data that shows the estimated impact of Talent Development for each cohort. 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.

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.

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

^aFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 11th grade if they were listed as 11th-graders in the administrative data file two years after the current year.

^bStudents are required to earn 17.5 credits in order to be promoted to the 12th grade.

The Talent Development Evaluation

Appendix Table A.4

Outcome Levels and Impacts on Test Score Outcomes
Measured at the End of the Third Year of High School
for First-Time Ninth-Grade Students, Follow-Up Results by Cohort

Outcome	<i>I. Outcome Levels Compared with Baseline Average</i>					
	Talent Development Schools			Non-Talent Development Schools		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
11th-grade PSSA test score ^a						
Took the test on time (%)	45.3			44.7		
Deviation from baseline	8.1 ***			4.7 ***		
For test-takers:						
Math						
Average scaled score	1,097.5			1,089.3		
Deviation from baseline	33.6 ***			19.6 ***		
At below basic level (%)	75.8			79.6		
Deviation from baseline	-10.1 ***			-3.9 **		
At basic level (%)	16.1			13.8		
Deviation from baseline	4.7 **			1.4		
At or above proficient level (%)	8.0			6.6		
Deviation from baseline	5.4 ***			2.4 **		
Reading						
Average scaled score	1,048.0			1,062.9		
Deviation from baseline	11.5			17.7 **		
At below basic level (%)	70.5			68.4		
Deviation from baseline	-5.2			-5.5 **		
At basic level (%)	21.2			21.5		
Deviation from baseline	2.6			2.4		
At or above proficient level (%)	8.4			10.1		
Deviation from baseline	2.5			3.2 ***		

(continued)

Appendix Table A.4 (continued)

Outcome	<i>II. Impact of Talent Development</i>		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
11th-grade PSSA test score ^a			
Took the test on time (%)	3.5		
For test takers:			
Math			
Average scaled score	14.1		
At below-basic level (%)	-6.2 *		
At basic level (%)	3.2		
At or above proficient level (%)	3.0		
Reading			
Average scaled score	-6.2		
At below-basic level (%)	0.4		
At basic level (%)	0.3		
At or above proficient level (%)	-0.7		

(continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation in their school.

Panel I: Each outcome has two rows of data. The first row shows the average level for that outcome in each cohort. The second row shows the outcome level's average deviation from the three-year pre-implementation baseline average in each cohort.

Panel II: Each outcome has a single row of data that shows the estimated impact of Talent Development for each cohort. 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.

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.

Appendix Table A.4 (continued)

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

^aPennsylvania System of School Assessment (PSSA) is a criterion-referenced test administered in grades 5, 8, and 11, which provides information on student performance on skills and content knowledge specified by the state.

Appendix B

Tables for Repeating Ninth-Grade Students

The Talent Development Evaluation
Appendix Table B.1
Outcome Levels and Impacts on Outcomes
Measured at the End of the Second Year of High School
for Repeating Ninth-Grade Students, Follow-Up Results by Cohort

Outcome	<i>I. Outcome Levels Compared with Baseline Average</i>					
	Talent Development Schools			Non-Talent Development Schools		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
Attendance ^a (%)						
Attendance rate	60.8	67.4	60.9	59.9	60.2	58.4
Deviation from baseline	4.8 *	11.4 ***	4.9 *	1.8	2.1	0.3
Students with an attendance rate of:						
90% or higher	5.8	8.5	5.2	6.2	5.0	4.6
Deviation from baseline	1.0	3.7 **	0.3	1.0	-0.2	-0.6
80% or lower	82.6	76.3	86.1	81.5	83.5	83.7
Deviation from baseline	-4.4	-10.7 ***	-0.9	-3.1	-1.1	-0.9
Course credits earned						
Total credits earned	4.82	5.36	4.32	5.44	5.62	5.10
Deviation from baseline	0.37	0.91 **	-0.13	0.67 ***	0.85 ***	0.32
5 or more credits for the year ^b (%)	42.3	49.0	38.3	52.4	54.7	49.2
Deviation from baseline	0.2	6.8	-3.8	7.5 ***	9.8 ***	4.3 *
Basic academic curriculum ^c (%)	26.3	33.6	27.5	33.3	36.6	35.0
Deviation from baseline	1.1	8.4 **	2.4	6.3 ***	9.6 ***	8.0 ***
At least 1 English credit for the year (%)	55.9	62.2	59.0	59.9	63.4	62.9
Deviation from baseline	4.5	10.8 ***	7.6 *	6.4 ***	10.0 ***	9.5 ***
At least 1 math credit for the year (%)	44.5	54.4	52.8	58.2	60.7	59.8
Deviation from baseline	3.4	13.3 ***	11.7 ***	10.8 ***	13.2 ***	12.3 ***
At least 1 algebra credit for the year (%)	26.9	37.2	39.2	39.9	41.0	39.0
Deviation from baseline	4.9	15.2 ***	17.2 ***	13.0 ***	14.1 ***	12.1 ***

(continued)

Appendix Table B.1 (continued)

Outcome	<i>II. Impact of Talent Development</i>		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
Attendance ^a (%)			
Attendance rate	3.0	9.3 ***	4.6
Students with an attendance rate of:			
90% or higher	0.0	3.9 *	0.9
80% or lower	-1.3	-9.5 **	0.1
Course credits earned			
Total credits earned	-0.3	0.1	-0.4
5 or more credits for the year ^b (%)	-7.3	-3.0	-8.1 *
Basic academic curriculum ^c (%)	-5.2	-1.2	-5.6
At least 1 English credit for the year (%)	-1.9	0.9	-1.9
At least 1 math credit for the year (%)	-7.4	0.1	-0.6
At least 1 algebra credit for the year (%)	-8.1	1.2	5.1

(continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation in their school.

Panel I: Each outcome has two rows of data. The first row shows the average level for that outcome in each cohort. The second row shows the outcome level's average deviation from the three-year pre-implementation baseline average in each cohort.

Panel II: Each outcome has a single row of data that shows the estimated impact of Talent Development for each cohort. 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.

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.

Appendix Table B.1 (continued)

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

^aAttendance 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.

^bUntil 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. In recent years, the distributive requirement has been dropped.

^c“Basic academic curriculum” is a designation indicating that a student completed a basic 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.

The Talent Development Evaluation
Appendix Table B.2
Outcome Levels and Impacts on Outcomes
Measured at the End of the Third Year of High School
for Repeating Ninth-Grade Students, Follow-Up Results by Cohort

Outcome	<i>I. Outcome Levels Compared with Baseline Average</i>					
	Talent Development Schools			Non-Talent Development Schools		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
Enrollment status ^a (%)						
Enrolled in the 10th grade	46.9	47.9		46.7	51.9	
Deviation from baseline	0.8	1.8		-1.1	4.1	
Enrolled in the 9th grade	43.6	44.4		46.3	42.2	
Deviation from baseline	-2.4	-1.6		5.3 **	1.2	
Exited the school system	9.5	7.7		6.9	5.8	
Deviation from baseline	1.5	-0.3		-4.2 **	-5.3 ***	
Course credits earned						
Total credits earned over first two years	6.8	7.3		7.8	8.0	
Deviation from baseline	0.2	0.7		1.0 ***	1.2 ***	
At least 2 credits in English and at least 2 credits in math (%)	20.7	27.1		26.4	30.6	
Deviation from baseline	2.7	9.1 **		6.9 ***	11.0 ***	
	<i>II. Impact of Talent Development</i>					
Outcome	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort			
Enrollment status ^a (%)						
Enrolled in the 10th grade		1.9		-2.3		
Enrolled in the 9th grade		-7.7		-2.8		
Exited the school system		5.7		5.1		
Course credits earned						
Total credits earned over first two years		-0.8		-0.5		
At least 2 credits in English and at least 2 credits in math (%)		-4.2		-1.9		

(continued)

Appendix Table B.2 (continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation in their school.

Panel I: Each outcome has two rows of data. The first row shows the average level for that outcome in each cohort. The second row shows the outcome level's average deviation from the three-year pre-implementation baseline average in each cohort.

Panel II: Each outcome has a single row of data that shows the estimated impact of Talent Development for each cohort. 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.

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.

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

^aFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 10th grade if they were listed as 10th-graders in the next year's administrative data file.

The Talent Development Evaluation
Appendix Table B.3
Outcome Levels and Impacts on Outcomes
Measured at the End of the Fourth Year of High School
for Repeating Ninth-Grade Students, Follow-Up Results by Cohort

Outcome	<i>I. Outcome Levels Compared with Baseline Average</i>					
	Talent Development Schools			Non-Talent Development Schools		
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort
Enrollment status ^a (%)						
Enrolled in the 10th grade	23.3			29.8		
Deviation from baseline	-6.3 **			1.4		
Enrolled in the 10th grade	44.6			47.2		
Deviation from baseline	5.8			9.4 ***		
Exited the school system	32.1			23.1		
Deviation from baseline	0.4			-10.9 ***		
Course credits earned						
Total credits earned over first three years	8.39			9.67		
Deviation from baseline	0.07			1.17 ***		
At least 3 credits in English and at least 3 credits in math (%)	16.9			20.8		
Deviation from baseline	0.9			4.7 ***		
At least 17.5 total credits ^b (%)	17.9			21.0		
Deviation from baseline	-0.9			3.3 **		
Outcome	<i>II. Impact of Talent Development</i>					
	Year 1 Cohort	Year 2 Cohort	Year 3 Cohort			
Enrollment status ^a (%)						
Enrolled in the 10th grade		-7.7 **				
Enrolled in the 9th grade		-3.6				
Exited the school system		11.3				
Course credits earned						
Total credits earned over first three years		-1.10				
At least 3 credits in English and at least 3 credits in math (%)		-3.8				
At least 17.5 total credits ^b (%)		-4.3				

Appendix Table B.3 (continued)

SOURCE: MDRC calculations from individual students' school records from the School District of Philadelphia.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and six 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.

The impacts at follow-up were calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools. Impacts are pooled across five clusters of Talent Development schools and their matched comparison schools.

Year 1 Cohort includes students who began 9th grade during the first year of Talent Development implementation in their school. (The first calendar year of implementation varied by school cluster.) Year 2 Cohort includes students who began 9th grade during the second year of Talent Development implementation in their school. Year 3 Cohort includes students who began 9th grade during the third year of Talent Development implementation in their school.

Panel I: Each outcome has two rows of data. The first row shows the average level for that outcome in each cohort. The second row shows the outcome level's average deviation from the three-year pre-implementation baseline average in each cohort.

Panel II: Each outcome has a single row of data that shows the estimated impact of Talent Development for each cohort. 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.

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.

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

^aFor the purposes of this analysis, 9th-grade students were considered to have been promoted to 11th grade if they were listed as 11th-graders in the administrative data file two years after the current year.

^bStudents are required to earn 17.5 credits in order to be promoted to the 12th grade.

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