# THE TALENT DEVELOPMENT MIDDLE SCHOOL MODEL

## Context, Components, and Initial Impacts on Students' Performance and Attendance

Corinne M. Herlihy | James J. Kemple

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BUILDING KNOWLEDGE TO IMPROVE SOCIAL POLICY

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# Overview

The Talent Development Middle School model is a whole-school reform approach designed to improve student achievement in urban middle schools that serve high-poverty populations. The model includes a systematic reorganization of schools into small learning communities, in which teachers are part of interdisciplinary teams that share the same students and have common planning time. The model also offers an academic curriculum based on nationally recognized standards, professional development opportunities for teachers, the use of curriculum coaches to help support teachers on an ongoing basis, and extra help for students struggling in mathematics or reading.

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

Covering the first three years of Talent Development's operation in six middle schools as well as up to two additional years of follow-up for a subset of the schools, this report focuses on student achievement and attendance outcomes for seventh- and eighth-graders. It also describes the context in which Talent Development operates, and it reviews the model's components and implementation. In general, the findings shed light on the effectiveness of an early phase of Talent Development's expansion.

## Key Impact Findings

- Talent Development had a positive impact on math achievement for eighth-grade students, which emerged in the third year of implementation and then strengthened during the next two years in the schools for which data are available.
- Talent Development schools exhibited modest impacts on eighth-grade attendance rates.
- The model produced an inconsistent pattern of impacts on eighth-grade reading achievement: Modest improvements occurred in some years but not in others.
- Talent Development did not produce a consistent pattern of impacts, positive or negative, on seventh-grade math or reading achievement or attendance.

Taking the strengths and limitations of the model into account, and given the small number of schools in the analysis and the limited follow-up period for most of the schools, it is important to be cautious about drawing definitive conclusions about the effectiveness of the model for this interim report.

A subsequent report will examine, among other questions, whether impacts on mathematics achievement can be sustained after the initial implementation phase and whether greater effects on reading achievement and attendance emerge as the model matures. The report will also include findings for five additional later-implementing middle schools whose progress can provide an indication of the model's capacity to scale up effectively in a large urban district.

# Contents



## Technical Resources

Elaborating on the research method used in this report and on the findings, the Analytic Appendix and the supplementary tables are available only on the Web at www.mdrc.org/publications/400/techresources.pdf.

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**Table**

## Table



## Figure

# Preface

Middle schools have been called the "weak link" in American education, and, for students in urban, low-income communities, this crucial phase between elementary school and high school is especially tenuous. Such students face significant obstacles to acquiring the foundation of knowledge and the skills that are required for success in high school and beyond. Yet even though the challenges that these students face are well documented, there is little rigorous research on interventions designed to improve the outcomes for middle school students.

The Talent Development Middle School model was created to make a difference in struggling urban middle schools. The model is part of a trend in school improvement strategies whereby whole-school reform projects aim to improve performance and attendance outcomes for students through the use of major changes in both the organizational structure and the educational processes of middle schools. The models that function in this way — broadly referred to as "comprehensive school reform (CSR) models" — have been developed both nationally and locally, and they receive support from a combination of federal, state, and local funding as well as from private foundations.

Talent Development has been a key target of federal resources earmarked for expanding the use of CSR initiatives in middle schools. The model reflects many of the core principles embedded in the CSR movement. School-level structural changes, for example, create more personalized learning environments for students and teachers; curricular changes improve the rigor of coursework and raise teachers' and students' expectations; and professional development for teachers fills gaps in both content knowledge and pedagogy.

The findings in this report — which offers an initial assessment of the first and most intensive effort at scaling up the use of the Talent Development Middle School model — indicate that Talent Development had a positive impact on eighth-grade math achievement and exhibited modest impacts on attendance rates. At the same time, the model produced an inconsistent pattern of impacts on eighth-grade reading and had few significant impacts on outcomes for seventh-grade students. This assessment is based on an innovative analytic methodology that relies on a combination of before-and-after and comparison-schools methods.

Although the findings offer hope that the Talent Development model can improve academic outcomes, at least in math, for middle school students, more data collection and analysis are needed before definite conclusions can be drawn. A subsequent report will track outcomes for two additional years of implementation and will provide a clearer picture of the potential for improvements in middle school achievement to lead to greater persistence in high school and, eventually, to graduation.

Gordon Berlin
President

# Acknowledgments

The authors are especially grateful for the participation of the urban school district to which the schools in this study belong. Although the district and its schools are left anonymous in the report and we are unable to thank each person individually, we want to acknowledge the helpfulness of district staff in providing administrative data and other support for the research. An independent nonprofit organization whose mission is to help improve the quality of public education for all children in the district has provided invaluable assistance in helping us understand the context in which Talent Development has been implemented.

At the Center for Research on the Education of Students Placed At Risk (CRESPAR) — based at The Johns Hopkins University in Baltimore, Maryland — Robert Balfanz, Doug Mac Iver, and Allen Ruby clarified the components and implementation of the Talent Development Middle School model and provided valuable comments on the findings and early drafts of the report. Funding for this project was provided by the U.S. Department of Education's Institute of Education Sciences (IES), through CRESPAR, and we are grateful to IES for its support.

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

At MDRC, Melissa Velez helped execute the initial data analyses and prepared tables and figures for this report. Laboni Rahman coordinated production of the report and prepared the final versions of tables, figures, and other supporting documents. Vivian Mateo and Nickisha Stephenson helped with report production and fact-checking. Gordon Berlin, Fred Doolittle, Glee Holton, John Hutchins, and Janet Quint reviewed drafts of the report and provided helpful guidance on its content and organization. The report would not have been possible without the work of Howard Bloom and Jason Snipes, who helped develop and refine its innovative analytic strategy.

Finally, we thank Amy Rosenberg and Robert Weber for their skillful editing of the report, and we are grateful to Stephanie Cowell for preparing the final version for publication.

The Authors

# Executive Summary

Middle schools (grades 5 or 6 through grade 8) stand at a crucial intersection in American public education systems. They are charged with the responsibility of building on the basic literacy and numeracy skills that students learn in elementary school and with helping students master those skills if they have fallen behind. They must be prepared to nurture the physical, social, and intellectual growth that students undergo in their early adolescent years. Moreover, they are expected to provide students with the habits of mind and behavior that they will need to make healthy transitions to high school and young adulthood.

Yet too many middle schools are failing. In particular, schools that serve high-poverty student populations face significant obstacles that can keep them from providing adequate opportunities for teaching and learning. Many students enter middle school, for example, with poor preparation in reading, writing, and mathematics, and the schools never succeed in narrowing the gap as students approach high school. The size and complexity of many middle schools make them ill-equipped to deal with discipline problems that interfere with effective teaching and learning. Patterns of poor attendance and weak study habits often begin for students during the middle grades and become established behavior patterns. Nonselective middle schools in the urban district that is the focus of this report exemplify these problems.[1] During the 1990s, for example, more than 75 percent of the seventh- and eighth-grade students in these schools had reading and math skills below grade level, and more than 25 percent could be considered chronic absentees (students with attendance rates of 80 percent or lower).

Given these challenges, many students leave middle school to enter high school without the foundation of skills and work habits that they need for academic success. Throughout the 1990s, for example, almost all eighth-grade students in the district were promoted to the ninth grade on time. Yet only about 60 percent of those students were promoted to the tenth grade a year later, and less than 50 percent were on schedule to graduate four years after starting high school.

The Talent Development Middle School model is a comprehensive reform initiative designed to help transform the structure and curriculum of large middle schools in urban districts, with the aim of improving students' levels of achievement and raising teachers' and students' expectations. The model includes a systematic reorganization of each school into small learning communities, organized around interdisciplinary teacher teams that share the same students and have common planning time. It infuses the curriculum with academic courses in English, lan-

[1]In order to preserve the anonymity of the subjects in this study, the report refers to the participating school district as "the district." The district includes 38 nonselective schools. The term "nonselective" refers to schools that typically enroll students from a nearby neighborhood and do not require them to meet academic or other performance standards for admission.

guage arts, mathematics, science, and U.S. history that are based on nationally recognized standards. Teachers receive professional development on the use of the curriculum and accompanying instructional practice, and each school employs the services of curriculum coaches to help support teachers on an ongoing basis. The model provides catch-up opportunities during the school day to students who are struggling with mathematics or reading.

Talent Development was created by practitioners and researchers at the Center for Research on the Education of Students Placed At Risk (CRESPAR), based at The Johns Hopkins University; the model operates in 21 middle schools nationwide. MDRC is conducting an independent, third-party evaluation of Talent Development, funded by the U.S. Department of Education's Institute of Education Sciences, through CRESPAR. The evaluation and CRESPAR's efforts to expand the use of Talent Development are part of the U.S. Department of Education's Comprehensive School Reform Demonstration (CSRD) program. An earlier report by MDRC looked at the Talent Development High School model.[2]

This report focuses on preliminary findings for the impact of Talent Development on six nonselective, comprehensive middle schools that implemented the model in a northeastern, urban school district. (This district is the locus of Talent Development's initial and most extensive scaling-up effort.) The six schools began working with Talent Development between 1996-1997 and 1998-1999 and are referred to throughout the report as "early-implementing schools." As of the 2001-2002 school year, all six of the early-implementing schools had at least three years of implementation experience; four of these schools had four years of implementation experience; and two of those four schools had five years of implementation experience. Within each school, introduction of the core Talent Development components was usually a three- or four-year process. (The report also includes limited analysis for the first year of implementation in another five middle schools that began implementing the model in the district more recently.)

In addition to assessing Talent Development's impacts on seventh- and eighth-grade students' achievement and attendance, the report describes the context in which the Talent Development middle schools in the district operate, explains the model's core components, and outlines the initial implementation of those components in the district.

## A Rigorous Approach to Assessing Impacts

There are few rigorous studies of the effectiveness of comprehensive middle school reform interventions. Because such reforms affect an entire school, the challenge in evaluating their impact lies in identifying a group of similar students in similar schools that did not experi-

[2]James J. Kemple and Corinne M. Herlihy, *The Talent Development High School Model: Context, Components, and Initial Impacts on Ninth-Grade Students' Engagement and Performance* (New York: MDRC, 2004).

ence the intervention being tested and can provide a reliable "comparison" to tell evaluators what would have happened if business continued as usual. This type of comparison is important because many factors cause student outcomes (such as test scores, attendance rates, and grade promotion) to differ from school to school and from year to year. Rigorous comparison should determine how much variation was caused by a particular intervention — that is, what the impact of the intervention was over and above what would have occurred without the intervention. While a random assignment design — considered "the gold standard" of research evaluation — was not feasible for this study, the analytic approach used here includes a combination of two particularly strong quasi-experimental evaluation methods: an interrupted time series analysis and a comparison schools technique. The study relies on the strengths of each method to address the limitations that each one might have alone.

In this report, two interrupted time series analyses are performed. The first compares student performance in Talent Development schools with the performance of similar students in the *same* schools prior to Talent Development's implementation. The difference between performance levels in the two groups is referred to as a "deviation from the baseline." Many factors — some related to Talent Development and some not — may have contributed to the deviations from the baseline that emerged through this evaluation. In order to account for the factors that were unrelated to Talent Development, a second interrupted time series analysis was conducted for non-Talent Development schools, a group of comparison schools in the same district that have characteristics similar to those of the Talent Development schools. The difference between the deviations from the baseline in the Talent Development schools and the deviations from the baseline in the non-Talent Development schools represents the estimated impact of Talent Development.[3]

## Key Impact Findings

The eighth grade marks the culmination of students' middle school experiences and the start of a critical transition period, and eighth-graders' engagement and performance levels are key indicators of their readiness for the challenges of transitioning successfully to high school. For these reasons, the impact analysis in this report focuses first on outcomes for eighth-grade students. We also focus there because the model's estimated impact on the engagement and performance of eighth-grade students represents Talent Development's cumulative effect on the middle school experience. In other words, in the first year of Talent Development's implementation,

[3]It should be noted, however, that even this combination of approaches may not control for all factors that may confound causal inferences about the effects of Talent Development on student performance. For example, the analytic approach may not account for systematic differences in school leadership's motivation to undertake a school change process and the influence that that may have had on both school functioning and student achievement, even without Talent Development's components and supports.

eighth-grade students will have experienced only one year of the model; in the third year, some eighth-graders will have been exposed to the model in the sixth, seventh, and eighth grades.

The findings for the study cover a five-year follow-up period. Because all six early-implementing schools had been using Talent Development for at least three of the follow-up years, the three-year follow-up results are the most reliable. The four-year follow-up results are based on the experiences of four of the early-implementing schools, and the five-year follow-up results are based on the experiences of just two of the schools. This means that, even though some of the impacts in Years 4 and 5 are promising, they may not be statistically significant because they are based on a smaller sample of schools. Years 4 and 5 of the follow-up period are important to the story of Talent Development, however. Implementation may need two or more years to gain enough traction to produce significant results, and eighth-graders in these later years may have benefited from cumulative years of exposure to Talent Development.

- **Talent Development had a positive impact on math achievement for eighth-grade students, which emerged in the third year of implementation and then strengthened during the next two years in the schools for which data are available.**

Eighth-grade math achievement in both Talent Development and non-Talent Development schools improved during the follow-up period, relative to a common baseline period. Improvements in the Talent Development schools began to outpace those in the comparison schools in Year 3. For example, during a three-year baseline period, eighth-grade students in the Talent Development schools scored at about the 23rd Normal Curve Equivalent (NCE) on the state standards assessment.[4] Students in the comparison schools scored at about the 24th NCE during the same period. In Year 3, average math scores improved to the 29th NCE in the Talent Development schools (a deviation of 6 NCE points), compared with the 28th NCE in the comparison schools (a deviation of 4 NCE points). The difference of 2 points in deviations from the baseline is statistically significant and represents the impact of Talent Development. Among the schools for which data are available, this impact on math NCE scores grew to 4 points in both Years 4 and 5.

More meaningful, perhaps, is Talent Development's impact on reducing the percentage of eighth-grade students who scored in the bottom quartile for the state as a whole. In the pre-Talent Development period, about 83 percent of students in Talent Development schools and 81 percent of students in non-Talent Development comparison schools fell into this category. By

[4]The Normal Curve Equivalent (NCE) is a way of measuring where a student falls along the normal curve for the statewide population of test-takers. The NCE score ranges from 1 to 99 and has a statewide average of 50, which indicates that a student is performing at grade level. Less than 20 percent of students across the state have NCE scores below 30.

Year 3, this percentage dropped to 72 percent in the Talent Development schools (an 11 percentage point deviation) and to 74 percent in the comparison schools (a 7 percentage point deviation). The difference of 4 points in deviations from the baselines represents the impact of Talent Development. Although this impact is not statistically significant, it is part of a clear trend that grew over time to produce impacts of 12 percentage points in Year 4 and 11 percentage points in Year 5 among the schools for which data are available.[5]

- **Talent Development produced an inconsistent pattern of impacts on eighth-grade reading achievement over the follow-up period.**

Talent Development's impact on reading achievement was much less consistent than its impact on math achievement. The analysis found statistically significant and positive impact estimates for eighth-grade reading achievement in the second year of Talent Development implementation — an improvement of almost 3 NCEs on average reading achievement and a reduction of nearly 6 percentage points in the percentage of eighth-graders scoring in the bottom quartile on the state reading assessment. However, these impacts dropped in Years 3 and 4 and then rose again in Year 5 for the two schools for which data are available. Only the impacts in Year 2 are statistically significant.

- **In general, Talent Development schools modestly outpaced their comparison schools on eighth-grade attendance.**

During most years of follow-up, average eighth-grade attendance rates improved in both Talent Development and non-Talent Development comparison schools. Statistically significant impact estimates of about 2 percentage points are found in Years 2 and 3. Overall attendance rates averaged between 85 percent and 88 percent in both sets of schools during the five years of follow-up.

- **Talent Development did not produce a consistent pattern of impacts, positive or negative, on seventh-grade math achievement, reading achievement, or attendance rates during the five-year follow-up period.**

During most of the follow-up period, there was no systematic change, relative to the baseline period, in test scores or attendance rates among seventh-graders in the Talent Development schools. In some years, the Talent Development schools exhibited marginal improvements in math achievement, reading achievement, or attendance rates. In other years, there was no change, or even a slight decline in outcomes. These patterns were virtually the same for the non-Talent

[5]It is important to note that, for the first three years of Talent Development implementation, the pattern for the schools with data from Years 4 and 5 is the same as that for the other schools. This suggests that the findings in Years 4 and 5 are not simply driven by changes in the sample of schools included in the analysis that occurred after Year 3.

Development comparison schools. Overall, therefore, Talent Development did not produce impacts, positive or negative, on most of the test-score and attendance measures that were examined for seventh-graders. The one exception to this occurred in math problem-solving for seventh-graders. Here, during the last two years of the follow-up period, improvements in test scores for the Talent Development schools outpaced the more modest improvements in those scores for students in the non-Talent Development schools.

## Sizing Up the Results

Taken together, what do these findings suggest about the Talent Development Middle School model? Two important patterns emerge: (1) The most prominent impacts occurred in mathematics achievement among eighth-grade students; and (2) the strength of impacts seems to be associated with the timing and intensity of Talent Development's implementation.

The most significant impacts were found for math achievement among eighth-grade students and were particularly strong in the later years of implementation. This pattern may reflect a combination of factors: Eighth-graders in these later years may have benefited from cumulative years of exposure to Talent Development, and implementation may need two or more years to gain enough traction to produce significant results. Also, the development of math impacts before impacts in reading seems to be consistent with the nature of the curricular materials and teacher training in math, which focused on grade-specific content units and were readily transferable to classroom practice.

The presence of Talent Development impacts seems to correspond with whether and when key components of the model were implemented. The components of the model were phased in over three years in the six schools that are the focus of this report. The impact analysis shows that improvements in student achievement, at least in math, began to emerge in Years 3 and 4 of implementation.

Although the early impact findings in this report should be considered preliminary — because this study focuses on only six middle schools with three to five years of follow-up data — they are encouraging, particularly for math achievement among eighth-grade students. The magnitude of the impacts reported here is, by traditional research standards, considered to be small to moderate.[6] However, the impacts are comparable to achievement impacts found in rigorous evaluations of other notable models of comprehensive school reform and to impacts found in the

[6]J. Cohen, *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed (Hillsdale, NJ: Lawrence Erlbaum Associates, 1998); Howard S. Bloom, Sandra Ham, Laura Melton, and Julieanne O'Brien, *Evaluating the Accelerated Schools Approach: A Look at Early Implementation and Impacts on Student Achievement in Eight Elementary Schools* (New York: MDRC, 2001); Mark Lipsey, *Design Sensitivity: Statistical Power for Experimental Research* (Newbury Park, CA: Sage Publications, 1990).

Tennessee class-size experiment.[7] Finally, it is possible for small-to-moderate effect sizes to have substantial educational significance. For example, if all 38 nonselective middle schools in the district attained the most promising impacts on math achievement described in this report, more than 1,200 eighth-grade students could move out of the bottom quartile in math achievement each year.

## Next Steps

Overall, the findings in this report suggest that the Talent Development Middle School model has positive and significant impacts on certain measures, particularly when key components have been adequately implemented. This may offer promise that the model will have positive and significant impacts on other outcomes in the future, but more data collection and analysis need to be done.

A subsequent report from MDRC on the Talent Development Middle School model will track outcomes for two more years of implementation in the six early-implementing schools and for three years of implementation in the five later-implementing schools in an effort to answer remaining questions, including:

- Will the improvements in eighth-grade mathematics be strengthened over time? Will the impacts continue to be sustained in early-implementing schools, and will those impacts eventually accrue in later-implementing schools and for students in other grade levels?
- Will a more consistent pattern of impacts on eighth-grade reading achievement, and on seventh-grade math and reading achievement, emerge in later follow-up years?
- Will improvements in achievement during middle school years translate into students' greater persistence in high school and their eventual graduation?

The upcoming report, due in 2005, will be produced in the context of a range of comprehensive school reform research sponsored by the U.S. Department of Education. Taken together, this research has the potential to deliver a powerful message to policymakers, researchers, and practitioners about what interventions help to improve student performance and attendance in low-performing secondary schools.

[7]Geoffrey D. Borman, Gina M. Hewes, Laura T. Overman, and Shelly Brown, "Comprehensive School Reform and Achievement: A Meta-Analysis," *Review of Educational Research* 73 (2): 125-230; Jeremy D. Finn and Charles M. Achilles, "Tennessee's Class Size Study: Findings, Implications, Misconceptions," *Educational Evaluation and Policy Analysis* 21 (2): 97-109.

## Introduction

Large numbers of this nation's secondary schools serving high-poverty student populations are overwhelming failures. High proportions of students enter middle school (grades 5 or 6 through grade 8) with poor preparation in reading, writing, and mathematics, and most do not narrow these gaps as they approach high school entry. Discipline problems with significant proportions of the early adolescent students in middle grades can create troubles that interfere with the general learning environment for all. Patterns of poor attendance and lack of attention to schoolwork and homework often begin for students during the middle grades and become established behavior patterns. In short, low-performing middle schools provide few opportunities for teaching and learning, and if students have not already reached the legal age for dropping out, they move to the next level without the foundation of skills and attitudes needed for success in high school.

The Talent Development Middle School model is a comprehensive reform model for large middle schools that face serious problems with student attendance, discipline, and achievement. The model requires that schools reorganize into small learning communities and teaching teams. Schools adopt standards-based curricula in mathematics, language arts, science, and history, which are supported by ongoing, on-site professional development for teachers. Each of these changes is aimed specifically at enhancing student attendance in school, improving student academic achievement, and preparing students for the transition to high school. The model began its first and most ambitious scaling-up effort in the large urban school district that is the focus of this report.[1]

The Talent Development Middle School model was designed by researchers, educators, and curriculum writers at the Center for Research on the Education of Students Placed At Risk (CRESPAR), based at The Johns Hopkins University, in collaboration with middle school practitioners. CRESPAR began work on the Talent Development Middle School model in 1995. The core features of the model were developed and pilot tested in a single middle school in the district beginning in the 1995-1996 school year.[2] The model has expanded to 21 middle schools in five states.[3] MDRC is conducting an 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

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

[2]Due to data constraints and its status as a pilot school, this school was not included in the current analyses.

[3]Center for Social Organization of Schools/Talent Development Middle Schools Web site.

Comprehensive School Reform Demonstration program. An earlier report by MDRC looked at the Talent Development High School model and focused on the same district.[4]

This report provides a preliminary assessment of Talent Development's impact on key outcomes for middle school students. It presents impact findings from Talent Development's first five years of operation in 11 middle schools in a single school district (which serves more than 200,000 students). It focuses on student outcomes that are likely to be in greatest proximity to the early phases of Talent Development's implementation: daily attendance, reading and math test scores (particularly for seventh- and eighth-grade students), and grade-level promotion through the first year of high school.

- The report is organized into six sections: The first section provides evidence of the educational challenges faced by the middle schools in the large urban district where Talent Development began its work and where the middle school model has been used most pervasively.
- The second section describes the Talent Development Middle School model, focusing on the features and components aimed at helping schools attack the problems they face as directly and immediately as possible.
- The third section describes the implementation of the Talent Development Middle School model in 11 schools in the district that are the subject of the impact analysis.
- The fourth section provides an overview of the data sources and analytic strategies being used to estimate the impacts that Talent Development has on a range of student outcomes.
- The fifth section discusses the results that have emerged from analyses focused on six early-implementing Talent Development middle schools, along with preliminary findings for the first year of implementation in five other Talent Development middle schools in the same district.
- The final section discusses conclusions that may be drawn from the analyses, attempts to put these findings in the context of other comprehensive school reform models, and highlights upcoming research.

[4]Kemple and Herlihy, 2004.

## The State of Middle Schools in the District

The middle schools in the district are typical of the types of schools that Talent Development was specifically designed to help. Following is an overview of the characteristics of nonselective,[5] comprehensive middle schools in the district under study, just before Talent Development began its work there.

### Large Populations of Minority and Low-Income Students

Table 1 presents information for the group of 38 nonselective, comprehensive middle schools in the district. The table captures the state of these schools in the 1996-1997 school year — a year before Talent Development began to scale up the implementation of its model in several of the middle schools. At the time, these 38 nonselective middle schools enrolled nearly 33,000 students in grades 6, 7, and 8, representing nearly 80 percent of the students in these grades throughout the district.[6] The table shows that about 71 percent of the students were black; 13 percent were white; 12 percent were of Hispanic origin; and the remaining students were of other racial/ethnic groups. About 8 percent of the students were classified for special education services. Over three-quarters were eligible for the federal free or reduced-price lunch program — an indication that these schools were predominantly serving students from low-income families.

### Low Student Attendance Rates

Table 2 lists several indicators of school engagement and performance. These suggest that the schools faced high absentee rates, low levels of student achievement, and significant numbers of students failing to progress from one grade level to the next. The table shows that, among eighth-grade students, attendance rates averaged about 84 percent, indicating that the typical student was absent approximately 30 days during the 180-day school year. Over one-quarter of eighth-grade students might be classified as chronic absentees, having attendance rates of 80 percent or lower for the year.

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

[6]Approximately 16 percent of the district's sixth- through eighth-grade students attended schools covering grades 1 through 8, and about 3 percent attended "selective" middle schools that admit students on the basis of prior academic performance. About 1 percent of the students in these grades attended schools serving children with special needs.

**The Talent Development Evaluation**

## Table 1

## Characteristics of Nonselective Middle Schools in a Large, Urban School District, School Year 1996-1997

| Characteristic | Nonselective Middle Schools |
|---|---|
| Average number of students | 797 |
| Average number of students per grade[a] | |
| 6th grade | 250 |
| 7th grade | 269 |
| 8th grade | 278 |
| Race/ethnicity (%) | |
| Black | 70.9 |
| White | 13.0 |
| Hispanic | 12.2 |
| Other | 3.8 |
| Gender (%) | |
| Male | 50.7 |
| Female | 49.3 |
| Classified for special education (%) | 8.4 |
| Eligible for free/reduced-price lunch (%)[b] | 76.5 |
| Total number of schools | 38 |

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

NOTES: Sample includes students from 38 nonselective, comprehensive middle schools. Students in the sample were included on the district's test score records or were enrolled for at least 145 days during a given school year.

[a]Several middle schools also serve students in the 5th grade. These students are not included in the table.

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

**The Talent Development Evaluation**

## Table 2

## Characteristics of Students in Nonselective Middle Schools in a Large, Urban School District, School Year 1996-1997

| Characteristic | 6th-Grade Students | 7th-Grade Students | 8th-Grade Students |
|---|---|---|---|
| Overage for grade[a] (%) | 20.7 | 19.8 | 22.5 |
| Attendance rate[b] | 87.5 | 85.6 | 83.9 |
| Attendance rate of 90% or higher (%) | 56.4 | 50.4 | 46.8 |
| Attendance rate of 80% or lower (%) | 19.2 | 25.2 | 28.8 |
| SSA test scores[c] | | | |
| Math | | | |
| Normal Curve Equivalent (NCE) score | NA | NA | 25.7 |
| Percentage scoring in the bottom quartile | NA | NA | 75.2 |
| Percentage scoring at or above grade level | NA | NA | 7.9 |
| Reading | | | |
| Normal Curve Equivalent (NCE) score | NA | NA | 29.3 |
| Percentage scoring in the bottom quartile | NA | NA | 66.3 |
| Percentage scoring at or above grade level | NA | NA | 12.4 |
| SAT-9 test scores[d] | | | |
| Math total | | | |
| Normal Curve Equivalent (NCE) score | NA | 35.6 | 35.7 |
| Percentage scoring in the bottom quartile | NA | 56.8 | 61.3 |
| Percentage scoring at or above grade level | NA | 18.4 | 17.2 |
| Reading comprehension | | | |
| Normal Curve Equivalent (NCE) score | NA | 36.3 | 37.0 |
| Percentage scoring in the bottom quartile | NA | 51.0 | 48.9 |
| Percentage scoring at or above grade level | NA | 24.3 | 25.0 |
| 6th-grade promotion status[e] | | | |
| 7th grade in 1997-1998 school year (%) | 95.5 | NA | NA |
| 8th grade in 1998-1999 school year (%) | 87.6 | NA | NA |
| Transfer status | | | |
| Present in same school in 1998-1999 school year (%) | 72.0 | NA | NA |
| 7th-grade promotion status[e] | | | |
| 8th grade in 1997-1998 school year (%) | NA | 96.1 | NA |
| 9th grade in 1998-1999 school year (%) | NA | 89.6 | NA |
| 8th-grade promotion status[e] | | | |
| 9th grade in 1997-1998 school year (%) | NA | NA | 97.3 |
| 10th grade in 1998-1999 school year (%) | NA | NA | 62.1 |
| 12th grade in 2000-2001 school year (%) | NA | NA | 49.3 |

(continued)

**Table 2 (continued)**

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

NOTES: Sample includes students from 38 nonselective, comprehensive middle schools. Students in the sample were included on the district's test score records or were enrolled for at least 145 days during a given school year.

[a]Typically, students who were overage for grade were retained in the current grade or a prior one. "Overage for grade" means a student turned 12 before the start of the 6th grade, 13 before the start of the 7th grade, or 14 before the start of the 8th grade.

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

[c]State Standards Assessment (SSA) test scores were available only for the 8th grade.

[d]SAT-9 test scores were available only for the 7th and 8th grades in the 1996-1997 school year.

[e]Promotion status was calculated only for students who were listed on the district's administrative records in the 1997-1998 school year. Students were considered to be promoted if they were listed in the administrative file for the year indicated and were enrolled in the grade indicated.

### Poor Progress Through School

Perhaps more distressing are the low rates at which students were progressing through school. In the 1996-1997 school year, about 12 percent of sixth- and seventh-grade students were not promoted to the next grade. Nearly 23 percent of the eighth-graders were overage for their grade, indicating that they had already been retained in their current grade or a previous one. Of the eighth-grade students who enrolled in a public high school in the district, 97 percent were promoted to ninth grade, but only 62 percent had been promoted to the tenth grade by the end of 1998-1999 school year. By the 2000-2001 school year — the year when this cohort of students was scheduled to graduate — less than 50 percent of these students were still enrolled in one of the district's high schools as twelfth-graders.

### Student Achievement Below Grade Level

All eighth-grade students in the district are required to take the State Standards Assessment (SSA) test to determine their levels of proficiency in reading and math. The SSA is normed based on the performance of all students in the state. Table 2 indicates that the average eighth-grade student in the district's nonselective middle schools scored at the 26th Normal Curve Equivalent (NCE) in math and at the 29th NCE in reading; the statewide average for both

tests is the 50th NCE.[7] Among the eighth-grade students, 8 percent scored at or above the state's grade-level average in math, and only 12 percent scored at or above grade level in reading. A large majority of eighth-grade students scored in the bottom quartile in both math and reading.

Table 2 also shows eighth-grade students' performance on the Stanford Achievement Test, Version 9 (SAT-9) — a standardized test whose scores are based on the performance of students nationally. The table indicates that eighth-grade students in the district's middle schools performed somewhat better when compared with other eighth-graders nationally than when compared with their peers in the state. The average scores for eighth-graders were about the 36th NCE in math and the 37th NCE in reading comprehension; the average nationally for both tests is the 50th NCE. Among eighth-grade students, 61 percent scored in the bottom quartile in math, and about 17 percent scored at or above the national grade-level average. In reading, about 49 percent of eighth-grade students scored in the bottom quartile, and 25 percent scored at or above the national grade-level average. In short, the data suggest that students in nonselective, comprehensive middle schools in the district are at high risk of leaving school with very low levels of literacy and numeracy.

### High Student Mobility

Compounding the district's low levels of student achievement and poor attendance are high rates of student mobility. The transfer status of sixth-graders provides an indication of student mobility: More than one-quarter of the district's sixth-grade students in the 1996-1997 school year were no longer enrolled in the same school two years later, and sixth-graders had transferred at least once to another public middle school in the district. This degree of student mobility amplifies the challenges that schools face in attempting to provide students with a stable learning environment and consistent curricula and sets of instructional strategies.

Finally, the averages presented in Tables 1 and 2 mask the variation among middle schools in the district, some of which serve somewhat more affluent communities and enable somewhat higher percentages of students to make adequate progress through school. As discussed below, Talent Development aims specifically to serve students in the lowest-performing schools, many of which fall below the averages presented in Table 2.[8]

[7]The Normal Curve Equivalent (NCE) is a way of measuring where a student falls along the normal curve. The normalized test score, which ranges from 1 to 99 with a mean of 50, allows for comparisons 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 comparisons of groups of students or schools.

[8]Table 3 presents the mean characteristics of the district's Talent Development middle schools.

## How Talent Development Aims to Improve Middle Schools

The researchers, educators, and curriculum writers who designed the Talent Development Middle School model conceived of a comprehensive paradigm for school reform that seeks to replace the common "talent-sorting" model of schooling, which classifies and tracks students based on demonstrated achievement. The Talent Development model asserts that all children can learn and must do so in an academic setting that is demanding and expresses high expectations. In the words of Wade Boykin, CRESPAR's co-director, the model is aimed at "maximizing every child's potential for academic development."[9]

From the beginning, Talent Development's central goals have been to help transform urban middle schools into strong learning institutions that provide every student with a standards-based education and every teacher with the training, support, and materials needed to deliver that. Ultimately, students are expected to achieve at "world class levels" and teachers to deliver "standards-based instruction in every lesson, every day"; specifically, after three years of implementation, the aim of the Talent Development Middle School model is "to have every eighth grader studying algebra, reading and analyzing great literature, performing hands-on science experiments, and interpreting original documents from our nation's history."[10]

To reach these goals, the Talent Development Middle School model addresses several key problems of high-poverty urban middle schools: the absence of strong curricula and the lack of well-prepared teachers; low expectations among students and their disengagement from school; poor academic performance, including students' testing two or more years below grade level in reading and math; and the lack of supportive school-family and school-community relationships. Overcoming these challenges in the middle years is important because up to half of students in large urban districts are unable to make a successful transition through the first years of high school.[11]

### The Talent Development Middle School Model: Conceptual Framework

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

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[9]Boykin, 2000, p. 7.
[10]Center for Social Organization of Schools, 2002a.
[11]See Neild and Weiss, 1999; Wilson and Corbett, 1999.

Figure 1 presents a simplified version of this framework. At the top of the figure are elements of local contexts that are theorized to shape the ways that the Talent Development approach has been adapted and sustained over time. These contextual elements include the policies and administrative practices of states, school districts, and host schools, including funding and school finance structures. They also include the characteristics of the local labor market, employers, postsecondary education systems, students, families, teachers, and local communities and the existing organizational structures and curricula of middle schools. Next, the figure highlights several of the most difficult problems that middle schools face. The left side of the figure then shows the four constructs that are affected by context and that outline the Talent Development reform and its intended effects. These constructs lay out a process for reform that begins with the implementation of the model's structural elements and leads to changes in student performance outcomes.

- **Structural elements:** changes in school organization, policies, curriculum content, resource allocations, and relationships with external entities that address key problems. The structural elements should be viewed as mechanisms that are mutually reinforcing and that offer direct and concrete approaches to enhancing supports and learning opportunities.

- **Supports and learning opportunities:** changes in school processes, teacher and student behaviors, experiences and expectations, and the use of internal and external resources that result from these structural elements. The supports and learning opportunities are also mutually reinforcing and together are aimed at enhancing student performance through meditating outcomes.

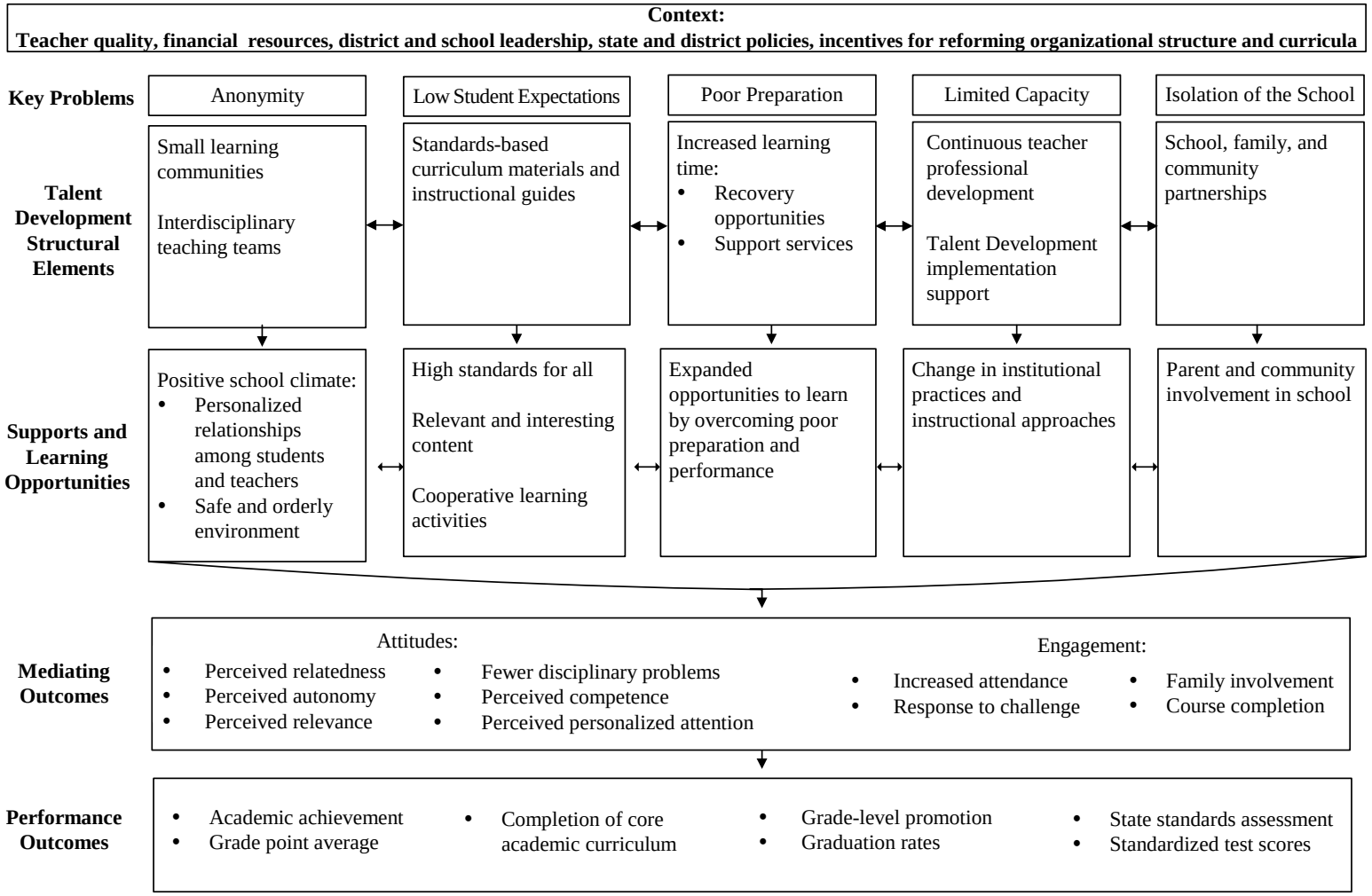
- **Mediating outcomes:** changes in students' attitudes, engagement with school, and sense of efficacy and competence that emerge from changes in supports and learning opportunities. These mediating outcomes should be seen as direct antecedents to better performance outcomes.

- **Performance outcomes:** changes in student achievement and progress toward promotion, high school graduation, and successful transitions to postsecondary education and employment.

### How the Model Addresses Key Problems: Components of Full Implementation

Linkages among and between each stage in the framework illustrate the hypothesized pathways through which the Talent Development Middle School model is expected to affect student performance. In addition to representing the theory of change that drives the model, the framework can also be used to guide the measurement and analysis of the model's impacts and

**Figure 1**
**Simplified Conceptual Framework for the Talent Development Middle School Model**



implementation. This section describes the components of full implementation, which are outlined in Box 1; the following section discusses initial phases of implementation in the 11 schools in this study. This conceptual framework is discussed below in terms of the problems that the Talent Development model aims to address.

**Box 1**

**Key Components of Talent Development Implementation**

- Reorganization of the school into small learning communities and teaching teams
- Implementation of standards-based, facilitated instructional programs in
  - Reading/English/Language Arts
  - Mathematics
  - Science
  - U.S. History
- Provision of four tiers of continuous support for teachers, including
  - Subject-specific professional development with a focus on modeling lessons, content knowledge, instructional strategies, and classroom management
  - In-classroom support from a curriculum coach
  - In-school support from teachers who receive extra training
  - Support from CRESPAR-based instructional facilitators
- Implementation of an elective replacement approach to provide extra help in mathematics and reading
- Facilitation of school-family-community partnerships

### Addressing the Problem of Anonymity

One reason often given by students for dropping out of school is the distance and estrangement that they feel from teachers and administrators.[12] A positive school climate — in which students and adults know each other well and adults express care and concern for students' welfare, intellectual growth, and educational success — is a key motivational element in

[12]See Altenbaugh, 1998.

the learning process for adolescents.[13] The large size of comprehensive secondary schools often depersonalizes the school environment, preventing teachers from working as teams and developing an atmosphere that is conducive to learning.[14] The flux in classroom composition and student peer groups promotes anonymity and diminishes any sense of community. Students do not have a consistent group of teachers who are accountable for their success, and teachers do not have a chance to coordinate their coursework. The Talent Development model uses small learning communities aimed at building a positive school climate that is characterized by personalized relationships among and between students and teachers. The Talent Development Middle School model's small learning communities include:

- **School-within-a-school units** of 200 to 300 students who occupy their own areas of the school and stay together for two or three years of middle school
- **Semi-departmentalization,** whereby many teachers are responsible for two subjects, to limit the number of different students per teacher
- **Interdisciplinary teams of teachers** who share the same students and have common planning time to address individual students' needs
- **Mentor-advisors and looping,** whereby some teachers or the entire team remain with the same students for multiple school years, to reinforce relationships and a sense of responsibility for the success of each student

### Addressing the Problem of Low Student Expectations

Adolescent students become bored, and attendance suffers, when they are not drawn to their coursework by the prospect of interesting and fulfilling class activities or when they see no connections between learning tasks and their own interests and goals. In traditional schools, the curriculum is usually separated into higher-level academic courses for college-bound students and lower-level academic and vocational courses for those presumed not to be college-bound. This separation often confines the teaching and learning process to the transfer of abstract knowledge from teachers to students or, in the case of vocational classes, to a narrow focus on specific job skills. There are usually very few opportunities to explore how basic skills are actually applied outside the classroom.[15]

The Talent Development model involves organizational and instructional reforms that fight apathy by injecting meaning into the curriculum; connecting schoolwork to students'

[13]See Wilson and Corbett, 1999.
[14]See Sizer, 1984; Hill, Foster, and Gendler, 1990; Powell, Cohen, and Farrar, 1985.
[15]See, for example, Resnick, 1987a; Raizen, 1989; Stasz et al., 1993; and Grubb, 1995.

backgrounds, interests, and goals; and enlivening lessons and learning activities with interesting and challenging applications. In Talent Development middle schools, this is achieved through:

- **Instruction in all academic areas featuring contextual learning, active student teams, and teaching for understanding**[16]
  - **Reading, English, and Language Arts (RELA).** All students work in cooperative teams. *Student Team Literature* — the chosen middle school language arts curriculum and instructional program — includes curricular materials (partner discussion guides) to assist students' study of high-quality fiction and nonfiction books.
  - **Mathematics.** A research- and standards-based mathematics curriculum is built around materials developed by the University of Chicago School Mathematics Project (UCSMP). The *Talent Development Middle School Mathematics Program* blends skill building with problem solving and is designed to enable all students to succeed in algebra in eighth grade. (Some Talent Development sites have incorporated standards-based mathematics curricula other than the UCSMP series.)
  - **Science.** The Talent Development middle school science staff help the science faculty at each school modify their curriculum so that it aligns with national science standards. Teachers implement hands-on modules drawn from a number of recently developed curricula.
  - **U.S. History.** The Talent Development middle school U.S. History curriculum brings together A History of US, a 10-volume series by Joy Hakim, and primary source materials in a series of student team-learning lessons. Firsthand accounts of participants are used to provide the social context of important events.
- **Coursework connected to students' future career possibilities** through a weekly class in which students explore career interests and understand the educational requirements for various kinds of occupations
- **Cultural relevance in curricular materials** that include personalities and experiences from students' own backgrounds

[16]For a description of the Talent Development middle school curriculum, see Center for Social Organization of Schools (2002b).

### Addressing the Problem of Poor Prior Preparation

One of the greatest challenges in U.S. education is how to produce student achievement at high performance standards during middle and high school grades in the face of the widely diverse prior preparations of the students who enter these levels. The Talent Development model does not compromise on standards; the model requires a common core curriculum for all students and heterogeneous grouping in these academic classes. It works to make a high-standards-based education a reality for all, by providing increased academic learning time and significant recovery opportunities for struggling students.

- **Elective-replacement approach to extra help.** Talent Development middle schools have organized opportunities for extra help during the school day that are linked to the curriculum (replacing an elective or study hall for part of the year). Students who need extra help in math or reading attend a 10-week accelerated learning course (in addition to their regular math or reading courses) that uses cooperative groups and computers to provide intensive learning experiences. In a typical Talent Development middle school, this elective-replacement approach to extra help enables up to 300 students a year to receive an additional 10 to 12 weeks of instruction in mathematics and reading.

- **Professional development.** Detracking (discontinuation of the practice of grouping students according to their ability levels) is further supported through professional development. Teachers receive training in subject-specific cooperative learning and classroom management techniques that are designed for diverse classrooms.

### Addressing the Problem of Limited Capacity to Implement Comprehensive Reform

Currently, most schools — particularly those in highly stressed environments — have little or no capacity to address the problems of anonymity, low student expectations, and poor prior preparation of students. Even with specific strategies such as those listed above, implementing a comprehensive set of organizational reforms that respond to these challenges requires that teachers and administrators change their practice in fundamental ways. Hence, a critical component of the Talent Development approach is to provide schools with the following kinds of sustained and multilayered technical assistance and implementation support.[17]

[17]For a more complete description of the institutional and professional development supports offered by Talent Development, see Center for Social Organization of Schools (2002c).

- **A multiyear implementation plan.** The Talent Development approach begins with a planning process of up to one year and culminates with faculty approval to move forward with the model. Sharing and planning between the school and Talent Development staff continue throughout the implementation years. Typically, the model is phased in over three years, in addition to the planning year. Schools customize the model by incorporating existing strengths, and they localize it to support ongoing school, district, and community initiatives.

- **Four layers of continuous support for teachers:**

  - From 30 to 38 hours of **professional development** per subject per year for at least two years, with a focus on modeling upcoming lessons, content knowledge, instructional strategies, and classroom management

  - **Weekly in-classroom implementation support** from a trained curriculum coach for each subject area (Typically, coaches are skilled and experienced school district teachers or administrators who are placed on special assignment to the Talent Development model or are teachers or administrators from the school who are given release time.)

  - **School-based support** from lead teachers who receive additional training

  - **Ongoing technical assistance** from CRESPAR-based instructional facilitators

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

- **Support from other schools in the Talent Development network.** Each year, national conferences are held at which schools share their experiences and learn from one another. In addition, schools are linked to one another through Web-based electronic learning communities.

### Addressing the Problem of Schools' Isolation from Families, Community, and Local Institutions

Most schools are isolated from other institutions in their community, and many have very limited contact with students' families (other than notifying them of severe disciplinary and academic problems). In addition, given the few connections between schools and commu-

nity institutions — particularly local employers — many students are inadequately informed about or prepared for the adult world and the world of work.[18] In short, schooling can become a process for isolating students from the world that they should be preparing to enter. Little effort is made to use the community as a resource for providing students with meaningful learning opportunities and as a context for highlighting the relevance of what they learn in school.

To address such problems, through a partnership with the National Network of Partnership Schools ("the Network," for short), Talent Development uses school-family-community partnerships.[19] The Network brings together schools, districts, and states that are committed to developing and maintaining comprehensive programs of school-family-community partnerships. The goal is to enable families and communities to become informed about and involved in children's education and in the schools. The Talent Development model draws on a variety of Network strategies for increasing these types of involvement, including:

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

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

[18]See, for example, Resnick, 1987b; Berryman and Bailey, 1992; Berryman, 1995.
[19]See Center for Social Organization of Schools, 2002d.

## The Context for Impacts: Implementation in Eleven Schools

This section of the report describes the context for a preliminary assessment of Talent Development's impacts on several outcomes illustrated in Figure 1. Whereas the prior section describes the model's theory of change and the ideal components of full implementation, this section describes the actual implementation in 11 middle schools. (Box 1 summarizes the key components of Talent Development implementation.) This overview of the implementation of the model's key components in the schools does not attempt to assess the quality or intensity of implementation because the evaluation does not include a systematic analysis of implementation in these schools.[20] The goal of the overview is to shed light on hypotheses about when, where, and how one might expect Talent Development to begin making a difference for troubled middle schools and the students they serve.

By the 1999-2000 school year, six middle schools in the district had adopted the Talent Development model.[21] These early-implementing schools are the primary focus of the impact analysis described below. Figure 2 presents a time line of implementation for the six schools. The figure shows that, as of the 2001-2002 school year (the most recent school year for which data are included in the analysis),[22] these early-implementing schools had been working with Talent Development for at least three years and for as many as five years (not including the initial planning period). Five other middle schools in the district began implementing Talent Development in the 2001-2002 school year. The analysis in this report captures only the first year of implementation for these schools, which are part of Talent Development's most recent scaling-up effort in the district.

### The Planning Year and the Role of the Model Developer

Talent Development middle schools usually begin by engaging with CRESPAR in a planning year to build faculty commitment to the model and to develop a concrete implementation timetable and strategy. However, several of the schools in this study had an abbreviated planning period that was limited to the spring semester, and one school, School B, did not have a planning period because the model did not gain sufficient faculty approval until shortly before implementation began. CRESPAR's goal is to help schools implement the model over two to three years, including all its major components (the four subject area programs, the recovery math and reading programs, training and supports to teachers and staff, and organizational modifications).

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[20]The information on implementation of the model in middle schools in the district was gathered directly from Talent Development model developers in correspondence and conversations, unless otherwise noted.

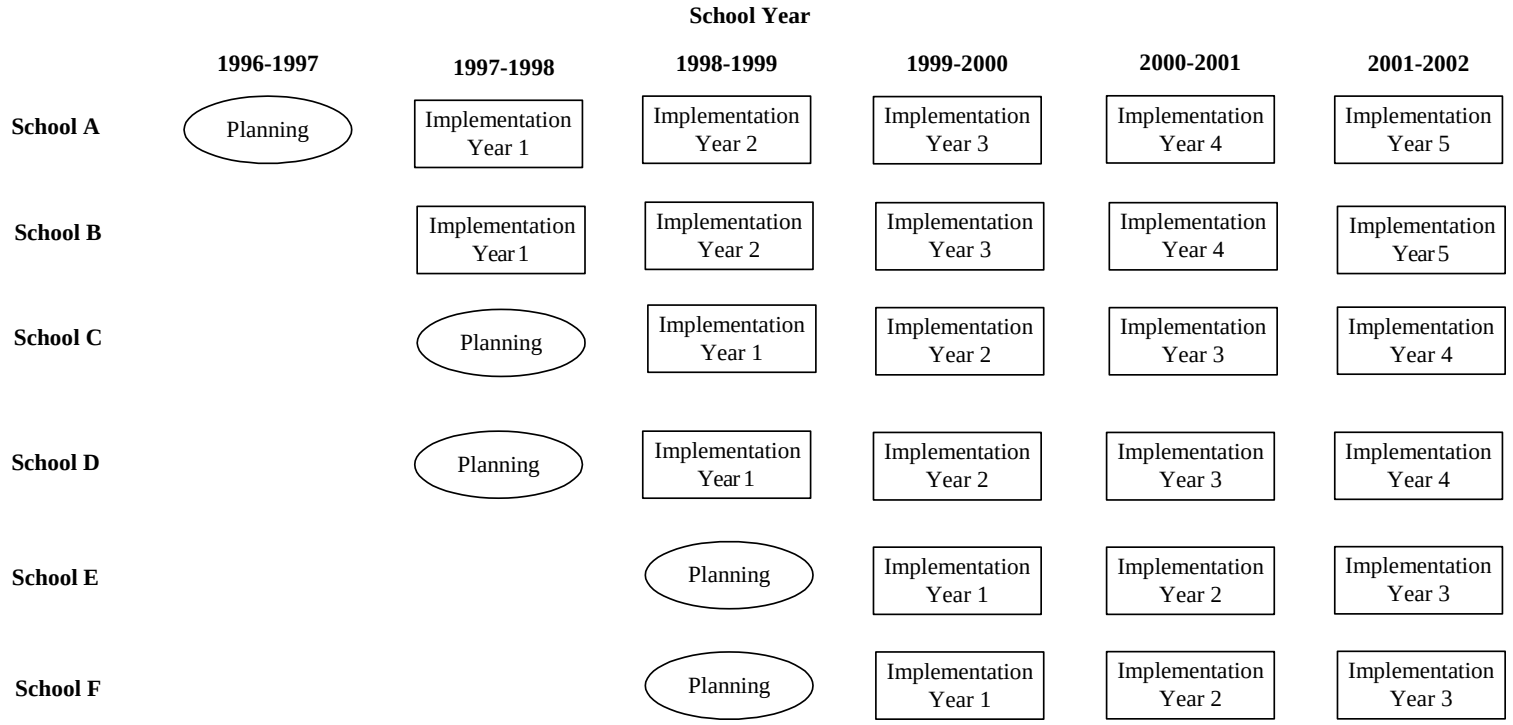
[21]Not counted in this sum is the "pilot" Talent Development middle school that adopted the model in 1995. As noted earlier, this school is not included in the current analysis due to data constraints and its status as a pilot test.

[22]Data for the 2002-2003 and 2003-2004 school years were not available at the time of analysis. These follow-up years will be included in a report forthcoming in 2005.

**The Talent Development Evaluation**

**Figure 2**

**Implementation Time Line in Six Early-Implementing Talent Development Middle Schools**




NOTE: School B did not have a planning period because the model did not gain sufficient faculty approval until shortly before implementation began.

A unique aspect of the Talent Development model is the intense support that schools receive from CRESPAR-based curriculum developers and implementation staff and from school-based organizational facilitators. Both groups aim to ensure that the implementation of each major component receives two full years of intensive support, and they work closely with each site's school leaders to adopt the model — being involved with everything from class scheduling and recruiting staff for new roles to ordering materials and coordinating professional development and coaching (described below).

The relationship between the model developers and the school leaders is maintained throughout each year of implementation. Curriculum coaches at each site provide weekly implementation expertise and support while also serving as the liaison between school staff and the model developers. Although full implementation of the model should be feasible in a three-year time frame, CRESPAR has found that schools need four years to incorporate the core components. Even in sites that begin to implement all the components, fidelity and commitment to individual components may shift from year to year as teachers and administrators transfer out of the building and as new staff arrive.

## Implementation in Six Early-Implementing Middle Schools

All the Talent Development middle schools in this analysis share certain components of the model, but the schools have varied somewhat in how and when they implemented the components. Some differences in implementation represent innovations in the model, and others reflect necessary flexibility when adapting the model to each unique school environment. As noted, the progress of implementation can be hampered by changes in school leadership as well as by turnover among teachers and staff. Given these factors, the schools varied greatly in terms of when each of the curricular programs was implemented, the use of available professional development, and the provision of an extra-help program.

### Reorganization of the School

Every early-implementing middle school in the study reorganized in order to create supportive learning environments.[23] The schools were organized into small learning communities, and interdisciplinary teams of teachers shared the same students. It is important to note that some of the very large middle schools (School C had over 1,300 students) have had greater difficulty creating learning communities of 200 to 300 students and building close student-teacher relationships.

[23]Mac Iver et al., 2001.

### Standards-Based Instructional Programs

Figure 3 illustrates roughly when each of the four Talent Development instructional programs was formally introduced in the six early-implementing middle schools. Black blocks represent full initiation of a program; white blocks indicate that a program had not been started or was dropped; and striped blocks indicate partial initiation. For the purposes of this report, "full initiation" of an instructional component means that the school had purchased student and teaching materials, had agreed to send teachers to professional development, and had paid for coaching in that subject. However, teachers' acceptance and willingness to use the materials as consistently and intensely as prescribed by the Talent Development model affected the thoroughness of implementation. For example, "full initiation" does not indicate that all teachers participated in professional development around the curriculum (see the next section). For the purposes of this report, "partial initiation" means that the school adopted the instructional program for selected classrooms or grade levels. The evaluation was not able to collect data on the quality or fidelity of implementation. Nonetheless, Figure 3 shows that there was variation in the timing and completeness of adoption of the four standards-based instructional programs. It also shows that only two of the six schools had put all four programs in place for two or more years, although five schools had three or more of the programs in place.

As noted above, all six of the early-implementing Talent Development middle schools used *Student Team Literature* as their Reading, English, and Language Arts (RELA) curriculum.[24] Most adopted it, at least partially, in the first year. All schools except School B had officially adopted the reading program by the second year. School B never fully adopted the reading program in all classrooms and eventually dropped it in the fifth year of Talent Development implementation.

Four of the six early-implementing Talent Development middle schools used the University of Chicago School Mathematics Project (UCSMP) math program, which is recommended by Talent Development and includes algebra in eighth grade. The other two schools introduced other comparable standards-based math programs that were supported by Talent Development. All six schools adopted the UCSMP program or another standards-based math program in all classrooms by the second year of Talent Development implementation, and they sustained the program throughout subsequent implementation years.

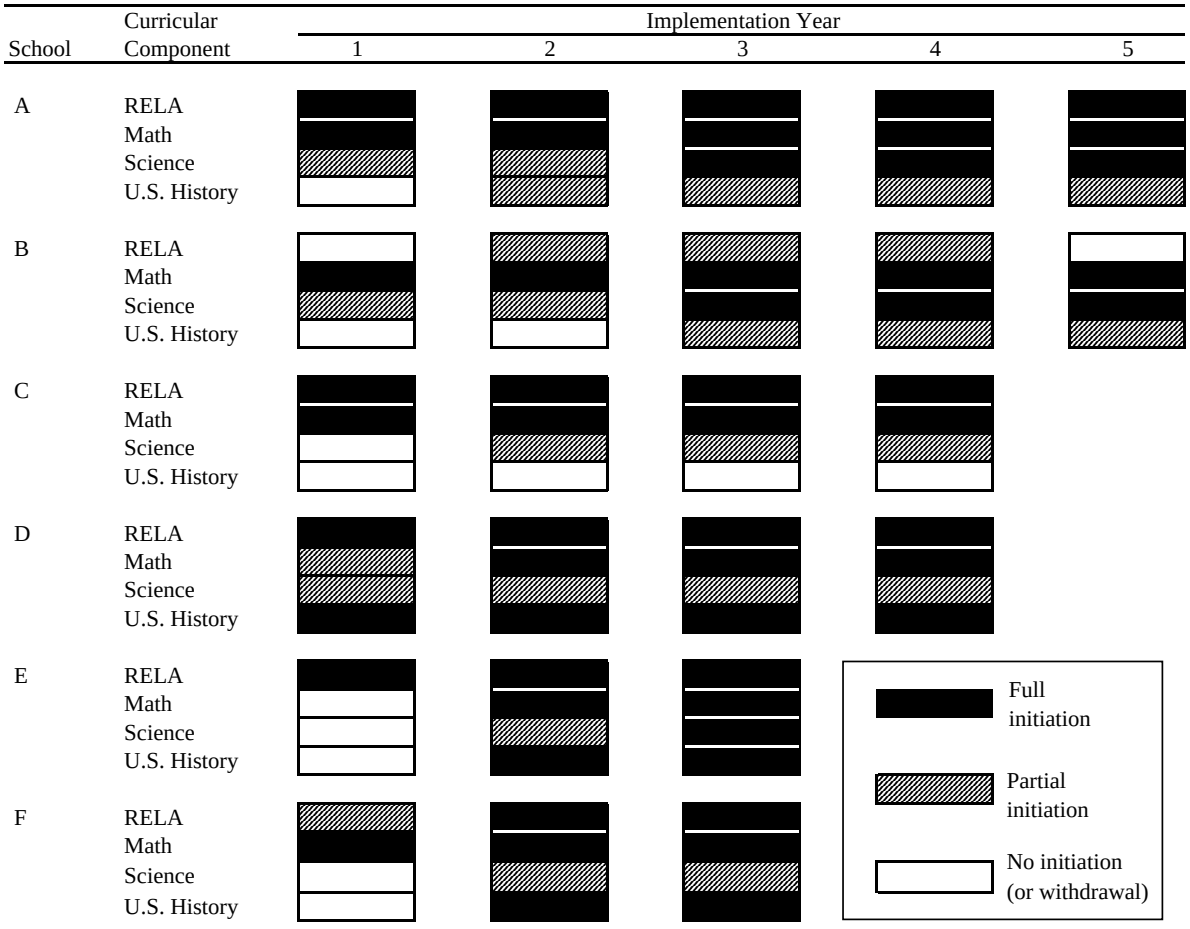
Half of the six early-implementing middle schools adopted the science instructional program in some classrooms or grade levels in the first year. It typically took two to three years for schoolwide adoption of the science program. All six schools had the science program in

[24]Documentation of when the Talent Development middle school components were implemented was provided by Kathy Nelson, Talent Development Schools Education/Field Administrator (August 5, 2003).

**The Talent Development Evaluation**

## Figure 3

## Initiation of Curricular Components in Six Early-Implementing Talent Development Schools




NOTES: Implementation Years 1 to 5 are relative to the first calendar year of implementation in each school.

For the purposes of this report, "full initiation" of an instructional component means that student and teaching materials were officially adopted in all classrooms at each grade level: The school purchased materials, agreed to send teachers to professional development, and paid for coaching in that subject. However, teacher acceptance and willingness to implement the materials affected the degree to which they were used. For the purposes of this report, "partial initiation" means that only some teachers at each grade level adopted the instructional program. Unfortunately, an indicator of the strength or fidelity of adoption is not available.

place by the third year of Talent Development implementation, though the breadth of use across grade levels varied from school to school. For example, in half the schools, the program was broadly adopted across all grade levels; in the other schools, some teachers at each grade level did not commit to using the science program.

The U.S. History curriculum tended to be added in the second or third year of Talent Development implementation, if at all. It was fully initiated in three of the six early-implementing middle schools and partially initiated in two other schools. Student and teaching materials and ongoing professional development were provided to support the implementation of all four curricular initiatives.

### Support for Teachers

As part of Talent Development's professional development program, each of the six early-implementing middle schools in the study was assigned subject-specific curricular coaches. These coaches were either CRESPAR-based staff or teachers from the district who had been placed on special assignment to CRESPAR. Coaches were trained to provide weekly in-classroom support tailored to the needs of each teacher. For the most part, coaches were invited into classrooms to plan and model lessons, but coaches also observed teachers and gave confidential feedback and helped to adapt instructional programs to fit specific classroom needs. In addition, coaches and lead teachers from each school worked with CRESPAR-based instructional facilitators to provide monthly workshops for each subject area. Teachers could also take part in other subject-specific professional development sessions outside the school day (in the afternoons, on weekends, or during the summer). Most schools were able to provide stipends to teachers who undertook this training. But at least one school was not able to mandate participation in professional development activities, and no teachers from that school attended training during the three years of Talent Development implementation.

Ongoing professional development varied somewhat by subject area. Professional development for math and science was grade-specific and unit-focused. Teacher and coaches discussed specific units and modeled lessons that they used in class. Content materials helped to guide teachers' implementation of the math and science programs to a significant extent. Professional development in history was grade-specific and focused on particular volumes in the 10-volume series A History of US that teachers were using. Professional development for reading, English, and language arts (RELA) was somewhat more generic, as teachers within the same school often selected different novels. The RELA training was focused less on the novel itself and more on using partner discussion guides and developing lessons to engage and challenge students. In this way, implementation of the English and language curriculum was heavily dependent on teachers' adopting new instructional practices.

### Extra Help

Another component of the Talent Development Middle School model is the elective-replacement approach to extra help, whereby students receive extra help linked to the curriculum during the regular school day (replacing an elective or study hall for part of the year). This component is designed to help struggling students reach grade-level work in reading and math. In theory, the extra-help programs also support the model's detracking approach, because teachers feel less pressure to "slow down" when there is a way for students to get more time and more instruction if needed. CRESPAR pilot-tested its extra-help reading program during the 2000-2001 school year, while the extra-help math program was developed several years earlier. However, the schools are encouraged, not required, to offer extra help in reading and math as part of their elective offerings. Of the six early-implementing middle schools, only Schools C, D, and E had extra-help programs in place for one year or longer.

## Implementation in Five Later-Implementing Middle Schools

In the first year of implementing the Talent Development Middle School model, four of the five schools that began Talent Development in the 2001-2002 school year had organized into small learning communities with teaching teams. Of these, three schools had adopted standards-based reading and math programs; one school had adopted only the reading program but also had extra-help programs in both reading and math. The fifth school had adopted only the Talent Development standards-based science program. All five of these later-implementing schools had subject-specific curricular coaches, and ongoing professional development was available to support the curricular changes.

## Implications for the Impact Analysis

The information in Figures 2 and 3 and the phase-in implementation strategy undertaken by the middle schools participating in the study have several implications for the focus and interpretation of the impact analysis discussed below.

- **The six early-implementing schools are the focus of the analysis.**

Figure 2 illustrates that the start of Talent Development implementation was staggered across middle schools in the district: Some schools began implementation earlier than others. All six of the early-implementing schools shown in the figure had at least three years of implementation experience; two schools had four years of experience, and two others had implemented Talent Development for five years. Figure 3 shows that, within each school, implementation of the four instructional programs were phased in over several years. Complete implementation of the model is a three-year plan and usually a four-year reality. At this point in the project, it may be too early to expect significant impacts on student achievement and atten-

dance. However, such impacts are most likely to be found in schools that have implemented the model more fully. Therefore, the impact analysis primarily focuses on the six early-implementing schools that have worked with Talent Development for three, four, or five years. The five later-implementing schools had only one year of implementation experience, and their impact analysis is discussed as it compares with the analysis of the early-implementing schools.

- **The findings for the first three follow-up years are the most reliable.**

Follow-up data for the six early-implementing schools are available only for the first three years of Talent Development's implementation. Because the analysis includes all six schools, findings for these three years will have the greatest statistical power and may also provide the most robust indication of Talent Development's preliminary impacts on student performance and engagement. Follow-up data are available for the fourth year of implementation at four schools and for the fifth year of implementation at two schools. The additional data provide valuable information regarding the impacts of a more fully implemented Talent Development model and what impacts might be expected as the model matures in later years. However, because the pool of schools is smaller, average outcomes for these later years may be more easily driven by one school. To identify such instances, the analysis considers year-by-year outcomes for each school.

- **The test score analysis focuses on eighth-grade math and reading.**

Given that the English and language arts and mathematics curricular components were typically the first to be implemented, achievement gains might be expected in these subjects first. The components were usually phased in by grade level, so it may have taken two or three years before a curricular component was adopted schoolwide. Given this implementation pattern, it is reasonable to expect that potential impacts on math and reading may precede gains in other subjects. However, given that some schools needed two or three years to put the reading and math components fully in place, it is also reasonable to expect that impacts, if any, during the first years of implementation may be more modest. The locus of impacts may be on eighth-grade students, who have benefited from two or three years of instructional improvements. For these reasons, the test score analysis focuses first on eighth-grade math and reading. Results for seventh-grade students are also included in the findings, although significant impacts may not be likely within the time frame of this analysis.

- **Impacts on mathematics may emerge during the current implementation period.**

Also of note is the nature of professional development in math and reading. Professional development in math is unit-focused and closely linked to the materials. This may enable teachers to readily transfer new instructional practices to the classroom. Professional develop-

ment in reading is more generic and is not necessarily tied to the current novel selected by each teacher. Because mastery of the new instructional practice in reading may take more time, change in this subject area may be significantly hampered by teacher turnover and by the influx of new teachers, who must master both content and pedagogy.[25] If this is the case, it may be reasonable to expect greater traction in math within three to four years, while results in reading may become evident in later years of implementation.

- **Greater personalization of the schools may lead to impacts on student attendance and promotion.**

Creating supportive learning environments by reorganizing the school into small learning communities and teaching teams is also part of the first years of Talent Development implementation. The goal is to create a more communal organization of the school that personalizes adult-child relationships, which leads to greater student engagement and more positive attitudes about school. Effects of this change may be seen in improved rates of attendance and grade-level promotion. The analysis focuses on these outcome measures over time — especially for eighth-grade students, as more students are exposed to supportive learning environments for two or more years. It is important to note that teacher and school leadership turnover may hamper the evolution of more personalize learning environments, so that year-to-year change may not be cumulative.

## The Study's Analytic Approach and Data Sources

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

In this report, impacts are measured using a comparative interrupted time series design (see Box 2).[26] This analytic approach combines the use of the interrupted time series analytic

[25]Useem found that — compared with new teachers in math, science, and social studies — new RELA teachers in Talent Development middle schools in the district were most likely to be poorly prepared to teach in their subject area and had little or no courses or pedagogy coursework in their content area (2001a, p. 15).

[26]A detailed description of the analytic approach is available online in this report's Technical Resources (Unit 1: Analytic Appendix). See www.mdrc.org/publications/400/techresources.pdf.

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 deviations from the historical patterns for the Talent Development middle schools with deviations from the historical patterns for similar non-Talent Development middle schools during the same period. Thus, *impacts* are defined as differences between Talent Development and non-Talent Development middle schools in terms of their deviations from historical patterns in student outcomes. When combined with regression analysis to control for differences caused by individual student background characteristics and prior school experiences, the approach seeks to isolate Talent Development's unique impact on student engagement and performance.

**Box 2**

**The Three Steps for Estimating Impacts with a Comparative Interrupted Time Series 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.

### 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 middle 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

middle 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 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.

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 districtwide policies or interventions that occurred at about the same time as Talent Development implementation. For example, while Talent Development was being scaled up, the district participated in an NSF Urban Systemic Initiative for mathematics. Such a change may cause positive deviations from baseline averages of math achievement in the district. An interrupted time series design would capture this improvement and would ascribe it to Talent Development; in reality, however, Talent Development may have caused some, all, or none of this change in math achievement. In order to sort out what part of the deviation from baseline is caused by Talent Development, this study looks at similar middle 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 middle schools in a single school district. The schools are matched in terms of racial/ethnic composition and average eighth-grade math and reading achievement scores. Table 3 provides an indication of the extent to which the matching process resulted in a group of non-Talent Development schools that is comparable to the 11 Talent Development schools in the study. In general, the table indicates that the non-Talent Development schools were similar to the Talent Development schools in terms of race/ethnicity and test scores over the years leading up to Talent Development implementation. Talent Development schools had a lower percentage of student who were overage for grade than their non-Talent Development counterparts. Comparing Table 3 and the eighth-grade column in Table 2 shows that Talent Development schools and their comparison schools are representative of the 38 nonselective middle schools in the district in terms of average test scores in math and reading, attendance rates, and promotion rates.

**The Talent Development Evaluation**

## Table 3

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

| Characteristic | Talent Development Schools | Non-Talent Development Schools | Difference |
|---|---|---|---|
| Race/ethnicity (%) | | | |
| Black | 81.5 | 81.8 | -0.3 |
| White | 4.4 | 2.2 | 2.1 |
| Hispanic | 11.2 | 14.2 | -3.0 |
| Other | 2.9 | 1.7 | 1.2 |
| Overage for grade[a] (%) | 21.4 | 23.8 | -2.4 |
| SSA test scores | | | |
| Average math and reading (NCE) | 27.0 | 26.9 | 0.1 |
| Math | | | |
| Average NCE | 25.9 | 25.7 | 0.2 |
| In the bottom quartile (%) | 77.5 | 77.1 | 0.4 |
| At or above grade level (%) | 6.3 | 6.0 | 0.3 |
| Reading | | | |
| Average NCE | 28.4 | 28.5 | -0.1 |
| In the bottom quartile (%) | 71.1 | 70.4 | 0.7 |
| At or above grade level (%) | 9.0 | 9.0 | -0.1 |
| Attendance rate[b] | 84.3 | 84.8 | -0.5 |
| Attendance rate of 90% or higher[b] (%) | 47.3 | 48.6 | -1.3 |
| Attendance rate of 80% or lower[b] (%) | 28.5 | 26.6 | 1.9 |
| Promoted to 9th grade[c] (%) | 97.5 | 97.9 | -0.4 |

(continued)

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

NOTES: Sample includes 8th-grade students from 11 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Results in the non-Talent Development columns reflect averages across 11 clusters, including both early-implementing and later-implementing school clusters, of non-Talent Development schools. Each cluster consisted of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

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

**Table 3 (continued)**

[a]Typically, students who were overage for grade were retained in the current grade or a prior one. "Overage for grade" means a student turned 12 before the start of the 6th grade, 13 before the start of the 7th grade, or 14 before the start of the 8th grade.

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

[c]For the purposes of this analysis, 8th-grade students were considered to have been promoted to the 9th grade if they were listed as 9th-graders in the district's administrative data file one year after the current year. Students whose records were not included in the data file one year after the current year, for whatever reason, were not in the analysis sample for this outcome.

Measures of student achievement and engagement at the comparison schools should be a good estimate of what might have been observed in Talent Development schools in the absence of the intervention; that is, they should be a good counterfactual. But differences between the Talent Development and comparison schools do not necessarily reflect only the impact of Talent Development. Some differences could be artifacts of differences in the prior trends in student engagement and performance. For example, suppose that test scores for students in Talent Development schools were lower than test scores for students in non-Talent Development schools and that the scores improved only marginally after Talent Development began. At the same time, however, test scores for students attending similar schools in the district may actually have been declining over the same period. In this instance, Talent Development may have had a positive impact by preventing test scores from dropping, rather than by improving the overall average. Such a pattern could 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 (or 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 cohorts over time, the analysis incorporates individual student characteristics into the analytic model. Specifically, the analytic model includes controls for race/ethnicity, fourth-grade test scores in reading and mathematics, and whether the student has repeated a 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 3 outlines these assumptions, and this section explores the assumptions and provides some context for their validity.

**Box 3**

**Analytic Assumptions of the Comparative Interrupted Time Series 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 process by which schools enter into the Talent Development network does not affect student outcomes.

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 an 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 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. Table 3 shows that Talent Development schools and their comparison schools served similar students with similar outcome levels in the baseline period. Further, these outcomes levels did not change significantly during the pre-Talent Development baseline period. One challenge to this assumption is that one or two comparison schools experienced significant and atypical improvement or decline in the follow-up period. In fact, the analysis looked for schools that appeared to be outliers in the follow-up period; there were no major outliers that skewed the means of the comparison schools. Thus, there is even greater confidence in the reliability of the comparison schools.

Third, a necessary assumption is that background characteristics of students who enrolled before Talent Development implementation are the same as those of students who enrolled in Talent Development schools and comparison schools during implementation of the model. One competing hypothesis that might explain changes in student outcomes — other than an effective intervention — is that the composition of the student body changed from the baseline to the follow-up period. For example, the introduction of a magnet program may attract more able or more motivated students to a school and thus raise the school's average test scores. This analysis assumes that variables included in multiple regression 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 fourth-grade test scores), as well whether 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.

Even if these assumptions are valid, 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. Despite the limitations of the comparative interrupted time series approach, it offers a valid estimate of the impact of Talent Development in middle schools in the district, particularly when estimates are pooled across several schools.

### Pooling Across Schools

The pooled estimates across the six early-implementing middle schools that are the primary focus of this study maximize the reliability of the impact estimates. By pooling esti-

mates, the analysis can 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 individual schools are also discussed in order to highlight variation across sites; it should be noted, however, that these impacts are less reliable than the pooled estimates, because estimates for any one school may be anomalous.

Follow-up data for all six early-implementing school clusters are available only for the first three years of implementation. Findings for these three years have the greatest statistical power and show the most robust indication of Talent Development's preliminary impact on student performance and engagement. Also, indications of statistical significance,[27] which depend in part on sample size, may be achieved with impacts of a smaller magnitude in the first three years of implementation as compared with impacts in Years 4 and 5, which include fewer schools. Similarly, average deviations from baseline for Talent Development schools include 6 schools at most, compared with average deviations from baseline that include up to 18 non-Talent Development schools. Again, in this instance, statistical significance may be achieved with smaller deviations from baseline for non-Talent Development comparison schools as compared with deviations from baseline for Talent Development schools.

### Data Sources

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 2001-2002.[28] Box 4 defines several key outcomes included in the analysis.

[27]Statistical 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 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.

[28]This report's online Analytic Appendix (Unit 1 of the Technical Resources) gives a brief overview of the types of information included in these data sets. See www.mdrc.org/publications/400/techresources.pdf.

## Box 4

## Definitions of Key Program Outcomes

### Test Scores

- **State Standards Assessment (SSA):** A criterion-referenced test that provides information about student performance on skills and content knowledge specified by the state. This test is given in eighth grade in the district.
- **Stanford Achievement Test, Version 9 (SAT-9):** A national norm-referenced test that measures individual student achievement relative to scores obtained by a random sample of students from across the country. This test is given in seventh grade in the district.
- **Metrics for the SSA and SAT-9**
  - **Normal Curve Equivalent (NCE) score:** The average NCE score for students taking the test in a given subject area. The normalized test score, which ranges from 1 to 99 with a mean of 50, allows for comparisons across tests and subjects. The norms were constructed based on a statewide sample of students for the SSA and a national sample for the SAT-9.
  - **At or above grade level:** The percentage of students scoring at or above grade level on the test as indicated by scoring at or above the 50th percentile.
  - **In the bottom quartile:** The percentage of students scoring at or below the 25th percentile on the test.

### Attendance

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

### Promotion

- **Promoted to ninth grade:** The classification for a student who was designated in the district's administrative records as an eighth-grader in a given school year and was designated as a ninth-grader in the following school year. Students who are not in the district's administrative records in either year were not classified.

## Preliminary Impact Findings

The preliminary impact findings for this study indicate that, for eighth-grade students in early-implementing schools in the district, Talent Development produced statistically significant gains in math achievement that strengthened during the implementation period. The model also had a modest impact on attendance outcomes for eighth-grade students. The model did not produce consistent impacts, positive or negative, on reading achievement for eighth-grade students. The findings do not show significant impacts on seventh-grade math and reading achievement, though Talent Development middle schools show some improvement in the later years of implementation. Attendance rates for seventh-grade students did not have a consistent pattern of change during the implementation period.

The findings in this section are presented in two ways. First, summary tables show year-by-year average impacts for several outcomes, along with corresponding effect sizes. Second, bar graphs show the deviation from baseline average for both Talent Development and non-Talent Development schools. Impact estimates — which are featured in the summary tables and also indicated on the bar graphs — are defined as the difference between deviations from baseline for Talent Development schools and deviations from baseline for non-Talent Development schools. The year-by-year tables and figures show the pattern of impacts over time that may relate to the phased-in implementation of the model. Both the tables and the figures show average impact estimates across the six middle schools in the district that had implemented Talent Development for three, four, or five years — the ones that this report calls "early-implementing schools." Because only two schools have implemented for five years and four schools have implemented for four years, aggregate impacts for Years 4 and 5 are not based on averages for all six schools. Impacts in these last two years should be interpreted with more caution. In addition, the report's Technical Resources provide estimates for each school by year.[29] These data help to reveal patterns, but estimates for any one school are not reliable.

As of the 2001-2002 school year, all six of the early-implementing schools had adopted Talent Development's reading and math programs and had established small learning communities and teaching teams. The discussion focuses on impact findings in reading and math achievement and on attendance and promotion outcomes for seventh- and eighth-grade students in these six schools. Five other middle schools in the district began implementing Talent Development in the 2001-2002 school year. Since only one year of data is available for these later-implementing schools, their findings are based on a separate analysis and are discussed as they compare with the findings for the early-implementing schools. Because the analysis in this report includes a limited number of schools — some that have only a few years of follow-up data

[29]For school-by-year tables for each outcome, see www.mdrc.org/publications/400/techresources.pdf.

and histories of only partial implementation — these findings are considered preliminary. A forthcoming report will include two additional years of data.

### Impacts for Eighth-Grade Students

The analysis first focuses on the eighth grade, for two reasons. First, eighth grade marks the culmination of the middle school experience for students and the start of a critical transition period for young people. In many ways, the engagement and performance of eighth-grade students reflects an accumulation of the instruction and support that they received in middle school. Also, their engagement and performance are critical indicators of their preparation to meet the challenges of making a successful transition to high school. Second, the Talent Development Middle School model makes an effort to provide additional supports and to upgrade curricula and instruction for all middle school grades. Thus, the impact of Talent Development on the engagement and performance of eighth-grade students, in many ways, represents cumulative effects of the model for middle schools. If Talent Development does make a significant difference for middle schools, it is most likely to be evident among eighth-grade students, who had the potential to receive multiple years of its treatment.[30] Because the analysis does not control for seventh-grade achievement, eighth-grade findings represent the cumulative impact of Talent Development.

A particularly important outcome is student achievement. Eighth-grade students in the district take State Standards Assessment (SSA) tests in both math and reading. This has become a high-stakes assessment in the district. In the pre-Talent Development baseline period, students in both Talent Development and non-Talent Development middle schools scored far below the state averages on these tests. The baseline averages for these schools were at about the 24th Normal Curve Equivalent (NCE) in math and at about the 28th NCE in reading. The SSA statewide average for both tests is the 50th NCE.

- **Talent Development had a positive impact on math achievement of eighth-grade students that strengthened over time. The findings indicate that Talent Development raised the average NCE score and significantly reduced the percentage of students scoring in the bottom quartile of the statewide assessment in mathematics.**

[30]It is important to note that the eighth-grade class in a given middle school is likely to include a number of students who have attended that school for only one or two years. It may be argued that impact estimates based on the full sample of eighth-grade students may reflect a diluted version of the Talent Development treatment, because such students would have received only part of the full treatment. These estimates do, however, reflect the reality in which Talent Development operates, and it is unlikely that the model will ever be implemented in a situation where student mobility is prohibited.

Figure 4 illustrates the trend in math achievement over the first three years of implementation, averaged across all six early-implementing schools. The figure shows the deviation from baseline in math achievement, as measured by average NCE score, for Talent Development and non-Talent Development schools over time. Both sets of schools improved during the follow-up period, but Talent Development schools outpaced their non-Talent Development comparison schools. For example, in Year 3, Talent Development schools improved from their baseline average by about 6 NCEs, while non-Talent Development schools improved from their baseline average by about 4 NCEs. The difference in the deviations from baseline for the two sets of schools is the estimated impact of Talent Development in each follow-up year. Therefore, in Year 3, the estimated impact of Talent Development on math achievement is 2 NCEs.[31] Though the magnitude of this impact may seem small, it represents about one-sixth of the student-level standard deviation for this outcome, or an effect size of 0.15.[32] A recent study notes that a full year of classroom instruction (albeit calculated for fifth grade, not eighth grade) has been associated with one-half the student-level standard deviation in math achievement — or an effect size of about 0.50 — as measured by a nationally normed test.[33] Therefore, impacts from a comprehensive school reform model like Talent Development, in the range of a 0.15 effect size, may be considered educationally important.

As noted above, all six early-implementing schools have at least three years of follow-up data. Four years of follow-up data are available for four schools, and five years of follow-up data are available for two schools. Since impact estimates for Years 4 and 5 are based on fewer schools, they should be interpreted with greater caution. However, impact estimates for these years may provide a good indication of Talent Development's impacts as the model matures, if the pattern of impacts for Years 1 to 3 are similar across each cohort of schools; that is, if the pattern of impacts for the first schools to implement the model is not very different from the pattern of impacts for all schools.

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[31]It is important to note that, had the analysis simply looked at the average deviation from baseline for Talent Development schools, the impact of Talent Development would have been overestimated to be 5.7 NCEs. Also, had the analysis simply compared the follow-up period averages for Talent Development and non-Talent Development schools, the impact of Talent Development would have been underestimated to be 1.4 NCEs (the difference between 29.2 NCEs and 27.8 NCEs, shown in Appendix Table A.1).

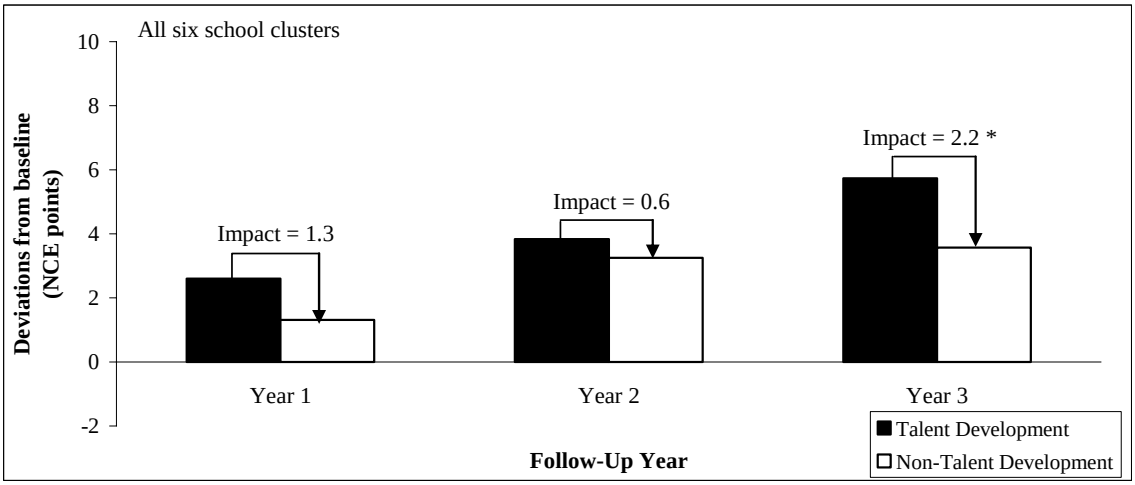
[32]Effect sizes show each impact as a proportion of the comparison group student-level standard deviation for each outcome. For example, an impact of 2.2 NCEs in SSA math test scores corresponds to an effect size of 0.15, or about one-sixth, of the student-level standard deviation for this outcome in the pre-Talent Development period.

[33]Kane (2004) notes that, in the national samples used to norm the SAT-9 scores, students taking the test in the spring of fifth grade scored approximately one-third of a standard deviation higher in reading and one-half of a standard deviation higher in math than students taking the test in the spring of fourth grade.

**The Talent Development Evaluation**

**Figure 4**

**Impacts on SSA Math NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools, Three-Year Follow-Up Results**




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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Results are pooled over six Talent Development Schools and six clusters of non-Talent Development comparison schools.

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 math NCE points from the three-year pre-implementation baseline average to each follow-up year.

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

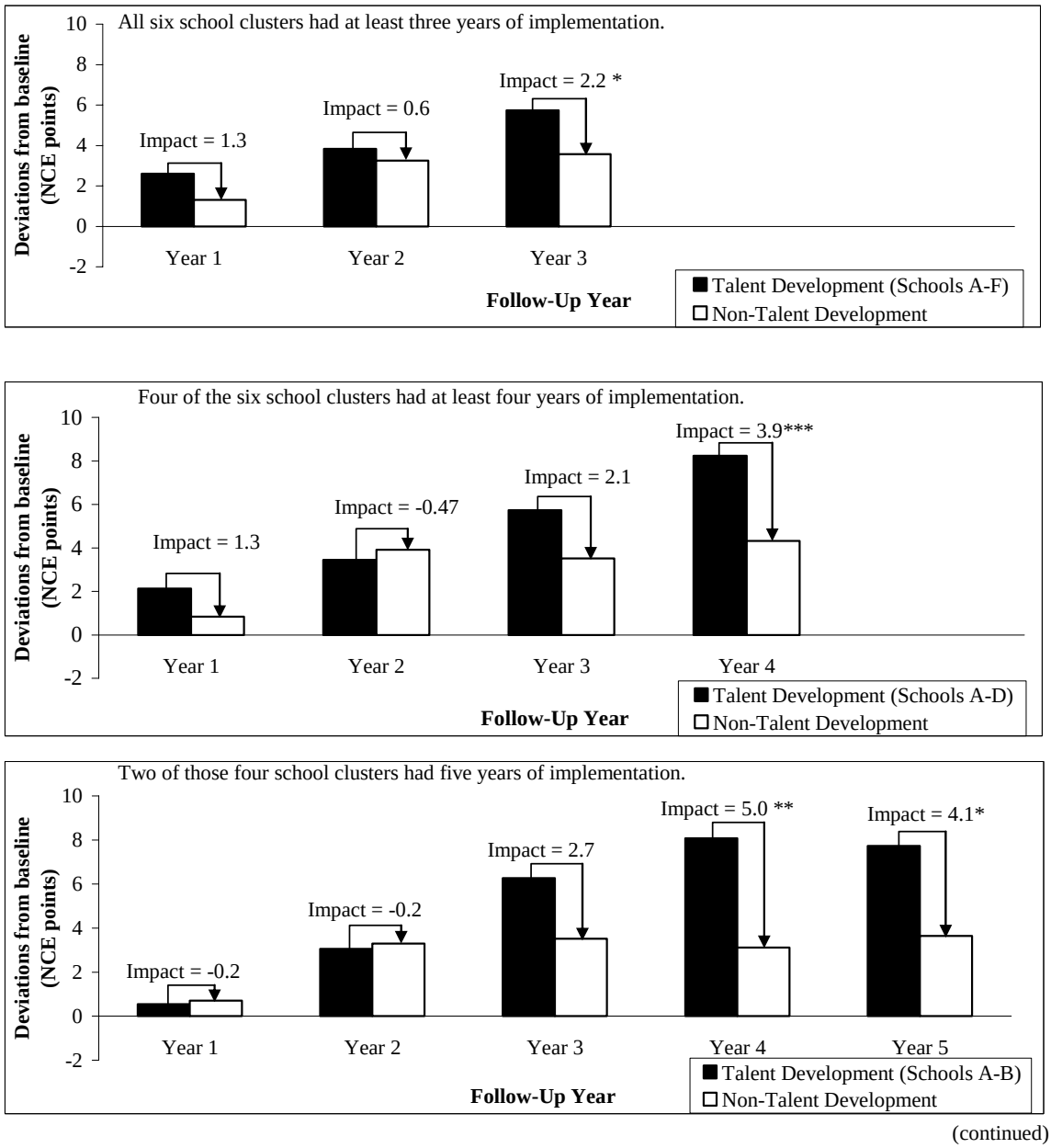
A two-tailed t-test was applied to the impacts. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

The top panel of Figure 5 shows the trend in math achievement over the first three years of implementation, averaged across all six early-implementing schools (the same as in Figure 4); the middle panel shows the trend in math achievement over the first four years of implementation, averaged across four of the six early-implementing schools; and the bottom panel shows the trend in math achievement, averaged across two of these four early-implementing schools. While there is some variation, the patterns of impacts in the first three years of follow-up are similar from panel to panel. Impacts in math achievement tend to improve over time and seem to strengthen in Years 3 and 4. The bottom panel, which includes only two schools, shows a

**The Talent Development Evaluation**

## Figure 5

**Pattern of Impacts on SSA Math NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools, for School Clusters with Varying Years of Implementation**




(continued)

**Figure 5 (continued)**

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Panel I: Results are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools, school clusters A, B, C, D, E, and F.

Panel II: Results are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools, school clusters A, B, C, and D.

Panel III: Results are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools, school clusters A and B.

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 math NCE points from the three-year pre-implementation baseline average to each follow-up year.

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

A two-tailed t-test was applied to the impacts. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the top panel, as compared with the middle and bottom panels, which include fewer schools.

slight dip in Year 5, but this is still a strong impact. In Years 4 and 5, gains for Talent Development schools were about twice those of non-Talent Development comparison schools, with impacts of about 4 NCEs in each year — which corresponds to an effect size of 0.28.

Table 4 summarizes the impact findings for several measures of engagement and performance for eighth-grade students. Although the sample changes over time, for simplicity, impact estimates for Years 4 and 5 are included with those for Years 1 to 3 in this table and subsequent exhibits. The first three outcomes in Table 4 relate to SSA math test scores. While the average NCE score provides a sense of how students measure up against statewide norms, another important test score outcome is the percentage of students scoring in the bottom quartile. As discussed above, Talent Development aims to work with low-performing schools. In fact, in the baseline period, about 80 percent of students in the Talent Development schools and the non-Talent Development comparison schools scored in the bottom quartile in math. In Figure 6, each bar represents a reduction in the percentage of students scoring in the bottom quartile. Both sets of schools reduced this percentage, but Talent Development schools outpaced their comparison schools by 3 to 12 percentage points. The largest impact is in Year 4. Talent Development schools reduced the percentage of students scoring in the bottom quartile by about 20 percentage points, while non-Talent Development comparison schools reduced this percentage by about 8 percentage points. This impact represents an effect size of –0.30, which is almost one-third of the student-level standard deviation.

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## Table 4

## Impacts on SSA Test Scores, Attendance, and Promotion for Eighth-Grade Students in Early-Implementing Talent Development Schools, Five-Year Follow-Up Results

| | Impact at Follow-Up[a] | | | | | Impact Effect Size[b] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| **SSA test scores** | | | | | | | | | | |
| *Number of school clusters* | *6* | *6* | *6* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |
| Math | | | | | | | | | | |
| Average NCE | 1.3 | 0.6 | 2.2 * | 3.9 *** | 4.1 * | 0.09 | 0.04 | 0.15 * | 0.27 *** | 0.28 * |
| In the bottom quartile (%) | -2.8 | -4.7 | -4.4 | -12.1 *** | -10.9 | -0.07 | -0.12 | -0.11 | -0.30 *** | -0.28 |
| At or above grade level (%) | -0.6 | -1.2 | 0.9 | 4.5 ** | 4.5 | -0.03 | -0.06 | 0.04 | 0.20 ** | 0.20 |
| Reading | | | | | | | | | | |
| Average NCE | -1.1 | 2.7 ** | 0.1 | 0.7 | 2.8 | -0.07 | 0.17 ** | 0.01 | 0.05 | 0.17 |
| In the bottom quartile (%) | 3.2 | -5.6 * | 0.5 | -3.3 | -8.8 | 0.07 | -0.12 * | 0.01 | -0.07 | -0.19 |
| At or above grade level (%) | 0.0 | 4.0 ** | 0.6 | 1.8 | 4.0 | 0.00 | 0.14 ** | 0.02 | 0.06 | 0.14 |
| **Attendance[c]** | | | | | | | | | | |
| *Number of school clusters* | *5* | *5* | *5* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |
| Attendance rate | 1.6 | 2.1 * | 2.3 * | -0.1 | -1.0 | 0.05 | 0.07 * | 0.08 * | 0.00 | -0.03 |
| Attendance rate of 90% or higher (%) | 6.3 | 4.4 | 9.7 ** | 4.0 | 2.0 | 0.13 | 0.09 | 0.20 ** | 0.08 | 0.04 |
| Attendance rate of 80% or lower (%) | -3.8 | -3.9 | -5.7 * | -1.3 | 2.5 | -0.08 | -0.08 | -0.12 * | -0.03 | 0.05 |
| **Promotion[d]** | | | | | | | | | | |
| *Number of school clusters* | *6* | *6* | *6* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |
| Promoted to 9th grade (%) | 0.0 | 1.1 | 2.5 *** | 3.1 ** | 0.4 | 0.00 | 0.05 | 0.11 *** | 0.13 ** | 0.02 |

(continued)

## Table 4 (continued)

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

NOTES: Sample includes 8th-grade students from the 6 early-implementing Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

The number of school clusters varies by year due to the staggered implementation schedule and availability of data. Results for SSA test scores and promotion in Year 1, Year 2, and Year 3 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

Attendance measures were only available for five clusters. Therefore, results for Year 1, Year 2, and Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether the student had repeated a prior grade.

[a]The impact at follow-up for a given year was calculated as the difference in deviations from the baseline average between early-implementing Talent Development schools and their non-Talent Development comparison schools. A two-tailed t-test was applied to the impact at follow-up. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools.

[b]The impact effect size for each outcome was calculated by dividing the impact in a given year by the standard deviation of that outcome for all 8th-grade students in the 11 Talent Development schools and 18 non-Talent Development comparison schools from a pre-Talent Development period, school years 1995-1996 and 1996-1997.

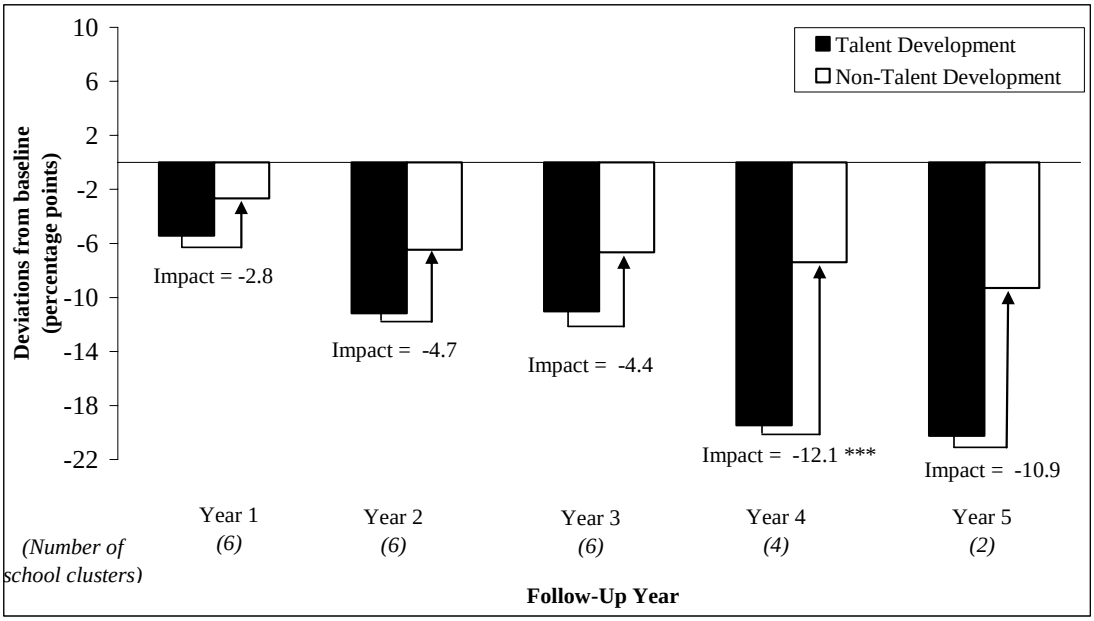
[c]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given school year. Attendance measures were not available for one Talent Development school, School E.

[d]Eighth-grade students were considered promoted if they were listed as 9th-grade students in the district's administrative data file one year after the current year. Students whose records were not included in the data file one year after the current year, for whatever reason, were not in the analysis sample for this outcome.

**The Talent Development Evaluation**

## Figure 6

## Impacts on the Percentage of Students in the Bottom Quartile of SSA Math Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools, Five-Year Follow-Up Results




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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Therefore, results for Year 1, Year 2, and Year 3 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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 the percentage of students with SSA math scores in the bottom quartile from the three-year pre-implementation baseline average to each follow-up year.

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

A two-tailed t-test was applied to the impacts. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools.

The presence of larger impacts in the later years of implementation is consistent with the phased-in implementation pattern of a standards-based math curriculum in Talent Development schools. It is also consistent with the potential cumulative effect of Talent Development, as discussed above. Eighth-grade students who enrolled during Years 3 through 5 of implementation are likely to have been "exposed to" Talent Development in sixth and seventh grades as well as in eighth grade. These students — although not all students, given student mobility — have received a "full dose" of Talent Development in their middle school years.

There is some variation in the magnitude and even in the direction of math impacts across the six early-implementing schools.[34] By Year 3, all the schools had positive impacts of between 2 and 3 points on average NCE scores. Year 4 impacts were generally stronger for each school, ranging between 2 and 8 NCE points, and these scores held relatively steady for the two schools for which a fifth year of data is available. The impact of Talent Development on math achievement in the five later-implementing schools, which had implemented the model for only one year, is also positive and of the same magnitude as the impact estimates for the first year of implementation in early-implementing schools. The upcoming report will examine whether these later-implementing schools are able to sustain and build on their first-year gains.

- **Talent Development did not produce consistent impacts on eighth-grade reading achievement over the follow-up period.**

Table 4 shows that the impacts on reading achievement do not follow a consistent pattern. First-year impacts, though small and not statistically significant, are negative, while some of the largest positive and statistically significant impacts in reading are found in Year 2. Figure 7 shows that, in the second year of implementation, Talent Development schools improved average reading scores by about 2 NCEs and that, at the same time, average reading scores declined by about 1 NCE in the comparison schools. Hence, the impact of Talent Development was an increase of about 3 NCEs in Year 2. This corresponds to an effect size of 0.17, which is not trivial when a full school year of instruction is associated with about one-third of the student-level standard deviation in nationally normed reading test scores.[35] However, this impact was not sustained over time.

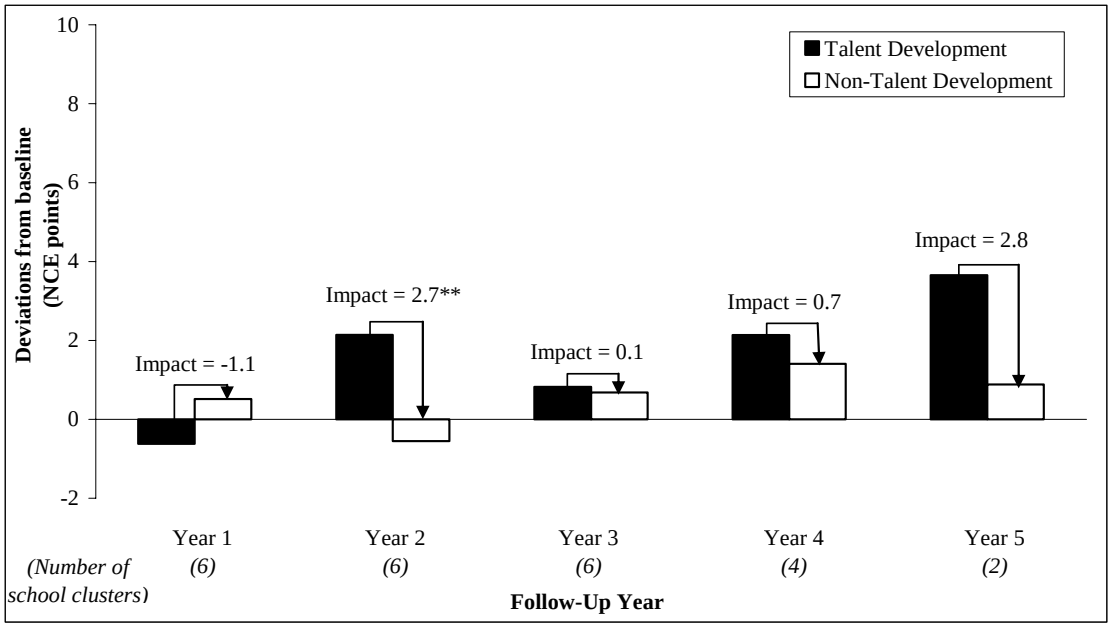
Talent Development and non-Talent Development schools both improved slightly in Year 3. The Talent Development schools built on this gain in Years 4 and 5, with increases of about 2 and 4 NCEs, respectively, while gains in the comparison schools remained at about 1 NCE, on average. In fact, further analysis indicates that all but one Talent Development school

[34]For school-by-year impact tables, see www.mdrc.org/publications/400/techresources.pdf.
[35]Kane, 2004.

**The Talent Development Evaluation**

## Figure 7

## Impacts on SSA Reading NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools, Five-Year Follow-Up Results




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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Therefore, results for Year 1, Year 2, and Year 3 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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 SSA reading NCE points from the three-year pre-implementation baseline average to each follow-up year.

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

A two-tailed t-test was applied to the impacts. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools.

had consistently small but positive deviations from the baseline average in reading, while there was greater variation in the size and direction of change in the comparison schools. However, it is not clear that findings for Year 5 provide a good indication of potentially greater impacts in reading, as they are driven by one school.[36]

A similar story emerges for the second reading outcome, the percentage of students scoring in the bottom quartile. In the baseline period, about 70 percent of students in both the Talent Development and the non-Talent Development comparison schools scored at this low level. However, there is greater variability from year to year and school to school. Again, the large impact in Year 5 is driven by one school that had particularly strong impacts throughout all five years of implementation. The impact of Talent Development on reading achievement in the first year of implementation in the five later-implementing schools was small but in the right direction, unlike the first-year impacts described above.

The findings for math and reading achievement appear to be consistent with the features of implementation. Most Talent Development schools officially adopted the math and reading programs at the same time: A school purchased materials, agreed to send teachers to professional development, and paid for coaching in those subjects. Professional development in math was unit-focused and grade-specific, which may have facilitated implementation more than the technique-focused training in reading and language arts. The reading program was more reliant on teachers' accepting and mastering new instructional practice, which is expected to develop over time but may be less resilient to staff turnover.

- **During most years of follow-up, average eighth-grade attendance rates modestly improved in both Talent Development and non-Talent Development schools. In general, Talent Development schools outpaced their comparison schools.**

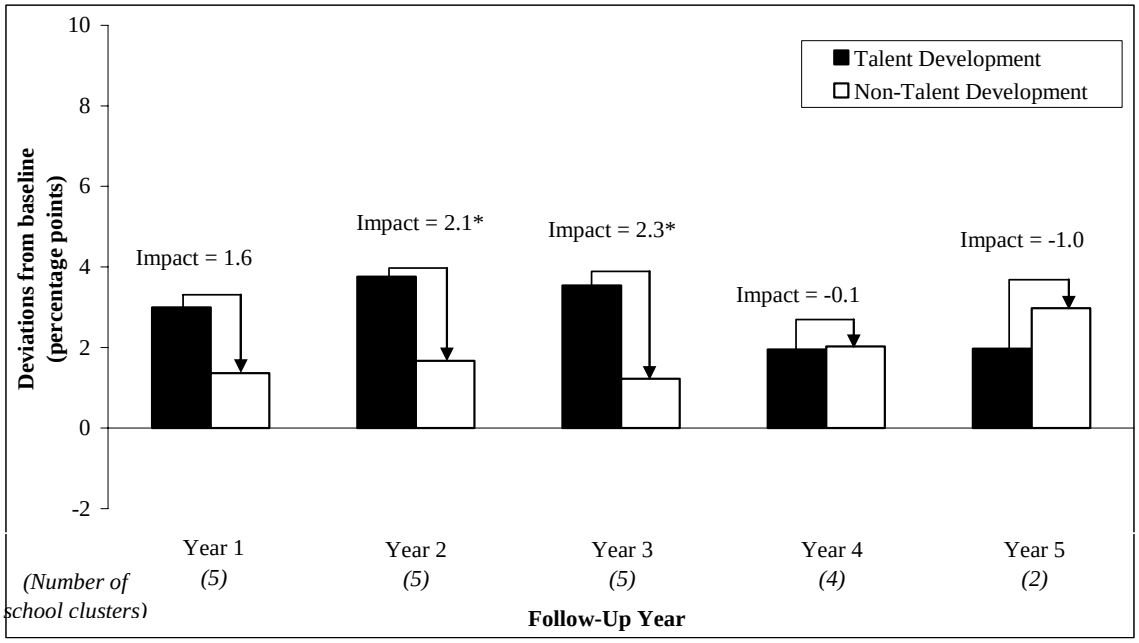
Table 4 contains three outcomes related to attendance for eighth-grade students. The first, attendance rate, is calculated by dividing the number of days present by the number of days enrolled for each student. Figure 8 shows that, during the follow-up period, the overall average attendance rate improved in both Talent Development and non-Talent Development schools. This finding is consistent across all schools. Statistically significant differences, of about 2 percentage points, between Talent Development and non-Talent Developments schools are seen in Years 2 and 3. Overall attendance rates averaged between 85 percent and 88 percent in both sets of schools during the five years of follow-up.

[36]Note that the impact of 2.8 NCEs in Year 5 is not statistically significant, while the impact of 2.7 NCEs in Year 2 is significant at the 5 percent level. The sample of schools in Year 2 includes six clusters of Talent Development and comparison schools, while the sample of schools in Year 5 includes only two clusters.

**The Talent Development Evaluation**

## Figure 8

### Impacts on Attendance Rates for Eighth-Grade Students in Early-Implementing Talent Development Schools, Five-Year Follow-Up Results




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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year. Attendance data were not available for one Talent Development school, School F.

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Therefore, results for Year 1, Year 2, and Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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 attendance rate from the three-year pre-implementation baseline average to each follow-up year.

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

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. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools.

In the pre-Talent Development baseline period, about half the students in both Talent Development and non-Talent Development schools were regularly attending school — defined as having an attendance rate of 90 percent or higher. Talent Development puts a great deal of emphasis on student attendance, so it is not surprising to see that the percentage of regularly attending students rose during implementation of the model. Every Talent Development school had at least one year of double-digit gains on this outcome and, in each follow-up year, outpaced its comparison schools.

There is a similar pattern of findings for lowering the percentage of chronic absentees — defined as having an attendance rate of 80 percent or lower — which included about 28 percent of students in the baseline period. In every follow-up year, Talent Development schools reduced the percentage of chronic absentees and, in Years 1 through 4, did so to a greater extent than their comparison schools. In Year 5, Talent Development schools reduced chronic absentees by about 4 percentage points, while non-Talent Development comparison schools reduced them by about 6 percentage points.

Interestingly, these impacts are driven by three schools that began Talent Development implementation in 1998-1999 and 1999-2000, rather than the first two schools to implement the model.[37] The strength of the impacts drops off in Years 4 and 5, when fewer of these schools are part of the analysis. Although this finding suggests that attendance impacts improved for successive cohorts of Talent Development schools, findings for the five later-implementing schools do not confirm this pattern. In general, first-year attendance impacts for these schools are not stronger than first-year impacts for the early-implementing schools.

- **In both Talent Development and non-Talent Development schools, over 95 percent of students were promoted from eighth to ninth grade. In one implementation year, the findings indicate that Talent Development significantly improved this promotion rate.**

The last outcome in Table 4 shows the percentage of eighth-grade students who were promoted to the ninth grade. Given the very high rates of promotion from eighth to ninth grade — which in the baseline period were nearly 98 percent for both Talent Development and non-Talent Development schools — a significant impact on this outcome was not expected. Indeed, the table shows small but positive impacts for each year of implementation. On average, Talent Development schools slightly improved promotion rates, compared with their baseline averages, while non-Talent Development comparison schools had virtually no change or slight declines in promotion rates from eighth to ninth grade. In Year 3, Talent Development had a statistically significant impact of nearly 3 percentage points on the promotion rate.

[37]For school-by-year impact tables, see www.mdrc.org/publications/400/techresources.pdf.

### Impacts for Seventh-Grade Students

Seventh-grade students benefited from, at most, two years of Talent Development. Thus, it is reasonable to expect that impacts for seventh-graders may be less pronounced than impacts for eighth-graders. And given the multiyear implementation of the model, impacts for seventh-grade students, too, are likely to be strongest in the later years of implementation. In fact, it may be too early to look for significant impacts on seventh-grade students.

Table 5 provides a summary of the impact findings for several measures of engagement and performance for seventh-grade students. Again, although the sample changes over time, impact estimates for Years 4 and 5 are included with those for Years 1 through 3 in this table and in the exhibits that follow. Also, because the analysis does not control for sixth-grade achievement, seventh-grade findings represent the cumulative impact of Talent Development.

Test scores available for the seventh grade are from the Stanford Achievement Test, Version 9 (SAT-9). Impact estimates are presented here for math total, math problem solving, and reading comprehension. In the pre-Talent Development baseline period, students in both the Talent Development and the non-Talent Development comparison schools scored below the national averages on these tests. The baseline average for these schools was at about the 34th NCE in math total and math problem solving and at about the 36th NCE in reading comprehension. The national average for both tests is the 50th NCE.

- **Talent Development did not produce systematic impacts on seventh-grade math achievement in the first three years of implementation. There is some evidence, however, that positive impacts began to emerge in the fourth and fifth years of follow-up in schools for which data are available.**

Talent Development produced few statistically significant impacts on math achievement. Figure 9 shows that Talent Development schools did not begin to improve their baseline average math total NCE scores until the fourth year of implementation. Fewer schools are included in the fourth year of analysis, but the improvement does not seem to be the result of dropping lower-performing schools. Instead, Talent Development schools seem to have made more progress than their comparison schools in the fourth and fifth years of implementation. This is particularly true in math problem solving, — which is expected, since the mathematics program recommended by Talent Development blends skill building with problem solving. Table 5 shows that, like the eighth-grade findings, the impacts for seventh grade are more pronounced in the reduction of the percentage of students scoring in the bottom quartile. Impacts on math problem solving were about 11 percentage points in Years 4 and 5 and were not driven by one or two schools. The five later-implementing schools showed a modestly positive start in math achievement in the first year of implementation.

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**Table 5**

**Impacts on SAT-9 Test Scores and Attendance for Seventh-Grade Students in Early-Implementing Talent Development Schools, Five-Year Follow-Up Results**

| | Impact at Follow-Up[a] | | | | | Impact Effect Size[b] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| **SAT-9 test scores** | | | | | | | | | | |
| *Number of school clusters* | *6* | *6* | *5* | *4* | *2* | *6* | *6* | *5* | *4* | *2* |
| Math total | | | | | | | | | | |
| Average NCE | -0.6 | -0.5 | -1.6 | 2.0 | 0.3 | -0.04 | -0.04 | -0.11 | 0.14 | 0.02 |
| In the bottom quartile (%) | -1.3 | -0.6 | 3.1 | -10.1 * | -5.3 | -0.03 | -0.01 | 0.06 | -0.21 * | -0.11 |
| At or above grade level (%) | -0.3 | -2.6 | -3.9 | 1.1 | -4.5 | -0.01 | -0.08 | -0.12 | 0.03 | -0.14 |
| Math problem solving | | | | | | | | | | |
| Average NCE | 0.0 | -0.5 | -1.5 | 3.1 * | 0.8 | 0.00 | -0.03 | -0.10 | 0.20 * | 0.05 |
| In the bottom quartile (%) | -1.1 | 1.3 | 4.0 | -11.1 ** | -10.5 | -0.02 | 0.03 | 0.08 | -0.23 ** | -0.22 |
| At or above grade level (%) | 0.8 | -1.7 | -4.3 | 1.1 | -2.4 | 0.03 | -0.05 | -0.14 | 0.03 | -0.08 |
| Reading | | | | | | | | | | |
| Average NCE | 0.0 | -0.5 | 1.0 | 1.6 | 0.1 | 0.00 | -0.03 | 0.06 | 0.09 | 0.01 |
| In the bottom quartile (%) | -0.4 | 2.0 | -0.7 | -4.6 | -0.5 | -0.01 | 0.04 | -0.01 | -0.09 | -0.01 |
| At or above grade level (%) | 2.2 | -1.3 | 0.4 | 3.2 | 2.9 | 0.06 | -0.03 | 0.01 | 0.08 | 0.07 |
| **Attendance[c]** | | | | | | | | | | |
| *Number of school clusters* | *5* | *5* | *5* | *4* | *2* | *5* | *5* | *5* | *4* | *2* |
| Attendance rate | -1.3 | 0.0 | 0.1 | -2.8 ** | 0.3 | -0.04 | 0.00 | 0.00 | -0.09 ** | 0.01 |
| Attendance rate of 90% or higher (%) | -3.0 | 2.1 | 5.7 * | -1.6 | 4.9 | -0.06 | 0.04 | 0.12 * | -0.03 | 0.10 |
| Attendance rate of 80% or lower (%) | 1.5 | -2.8 | -0.5 | 2.7 | -2.3 | 0.03 | -0.06 | -0.01 | 0.06 | -0.05 |

(continued)

## Table 5 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

The number of school clusters varies by year due to the staggered implementation schedule and availability of data. SAT-9 test score results for Year 1 and Year 2 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

Attendance measures were only available for five clusters. Therefore, results for Year 1, Year 2, and Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether the student had repeated a prior grade.

[a]The impact at follow-up for a given year was calculated as the difference in deviations from the baseline average between early-implementing Talent Development schools and their non-Talent Development comparison schools. A two-tailed t-test was applied to the impact at follow-up. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools.

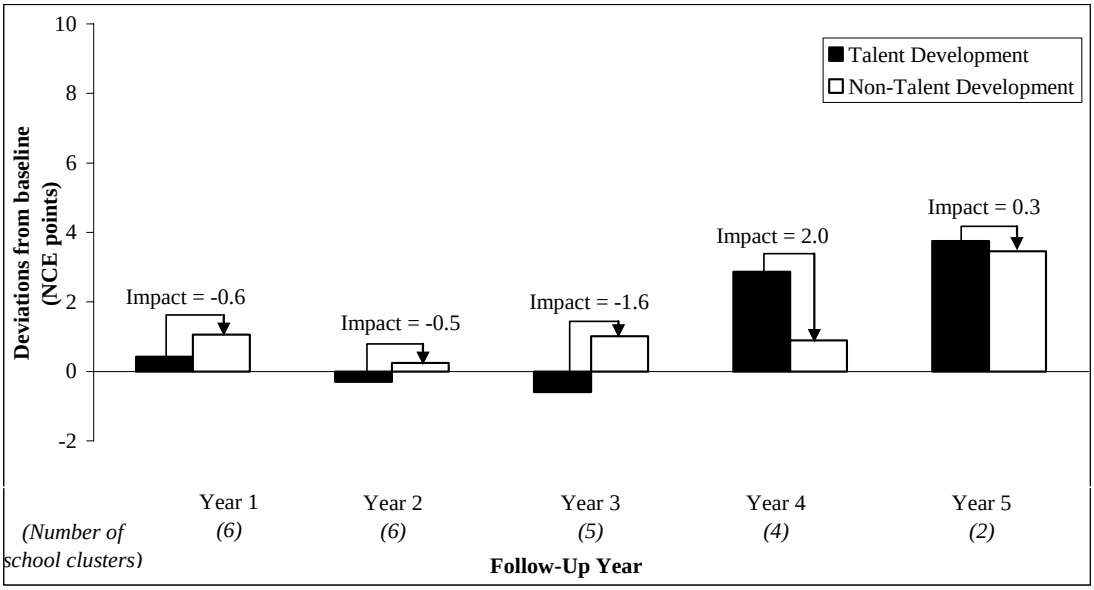
[b]The impact effect size for each outcome was calculated by dividing the impact in a given year by the standard deviation of that outcome for all 7th-grade students in the 11 Talent Development schools and 18 non-Talent Development comparison schools from a pre-Talent Development period, school years 1995-1996 and 1996-1997.

[c]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. Attendance measures were not available for one Talent Development school, School E.

**The Talent Development Evaluation**

## Figure 9

## Impacts on SAT-9 Math Total NCE Scores for Seventh-Grade Students in Early-Implementing Talent Development Schools, Five-Year Follow-Up Results




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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Therefore, results for Year 1 and Year 2 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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 SAT-9 math total NCE points from the three-year pre-implementation baseline average to each follow-up year.

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

A two-tailed t-test was applied to the impacts. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the first two follow-up years, as compared with Year 4 and Year 5, which include fewer schools.

- **Both Talent Development and non-Talent Development schools show modest improvements in seventh-grade reading achievement in later implementation years. Overall, there were no systematic differences between these sets of schools over time.**

The third set of outcomes in Table 5 summarizes the impact of Talent Development on seventh-grade reading achievement. In the follow-up period, both Talent Development and non-Talent Development schools had very small deviations from the baseline average in reading, resulting in virtually no impact for Talent Development. Figure 10 shows some upswing in achievement in the last three years of implementation in Talent Development schools. However, on average, non-Talent Development comparison schools made similar gains in Year 5 that diminish the impact of Talent Development.

First-year findings for the five later-implementing schools show a stronger start in reading than in the early-implementing schools. Though impacts for this group are not statistically significant, the impact on average reading score is an increase of about 1 NCE. The analysis also shows an impact of 4 percentage points in the reduction of the percentage of students scoring in the bottom quartile and an impact of 4 percentage points in the increase of the percentage of students reading at grade level.

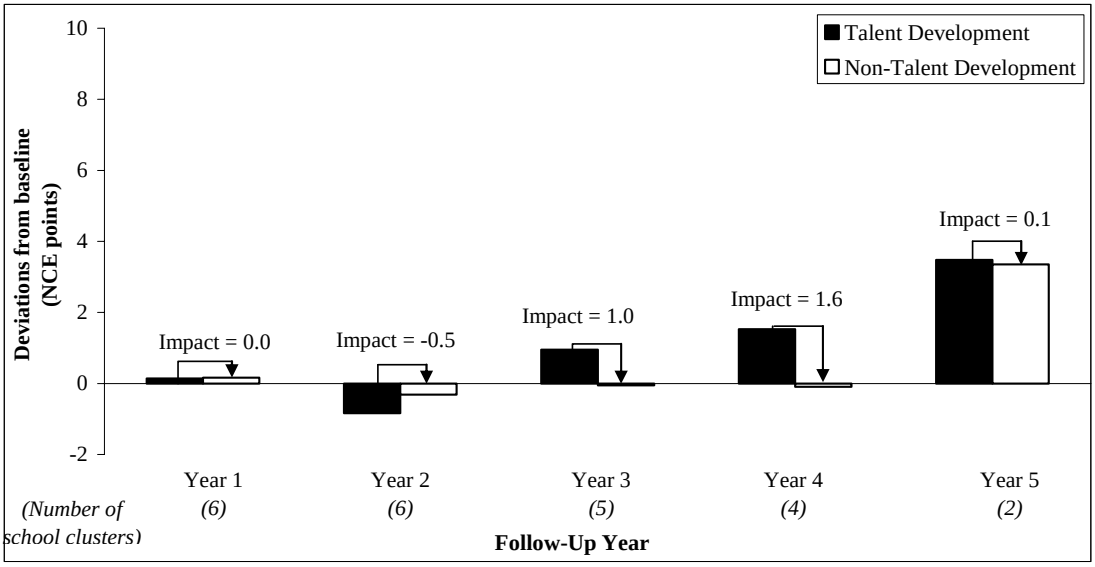
- **The findings indicate that Talent Development did not produce consistent impacts on seventh-grade attendance outcomes.**

Figure 11 shows attendance-rate deviations from baseline average for Talent Development and non-Talent Development schools. This figure illustrates the unstable pattern of impacts for seventh-grade attendance outcomes. The statistically significant and negative impact in Year 4 is driven by two Talent Development schools and is somewhat less reliable than the relatively flat pattern of impacts for the first three years of follow-up. There is some variability across schools in the size and direction of deviations from their baseline averages, but most changes are small, and no school appears to exhibit a pattern of improvement or decline in attendance rates. Similarly, there is little deviation from baseline average attendance rates for the five later-implementing Talent Development schools and their non-Talent Development comparison schools.

**The Talent Development Evaluation**

## Figure 10

**Impacts on SAT-9 Reading NCE Scores for Seventh-Grade Students in Early-Implementing Talent Development Schools, Five-Year Follow-Up Results**




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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Therefore, results for Year 1 and Year 2 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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 SAT-9 reading NCE points from the three-year pre-implementation baseline average to each follow-up year.

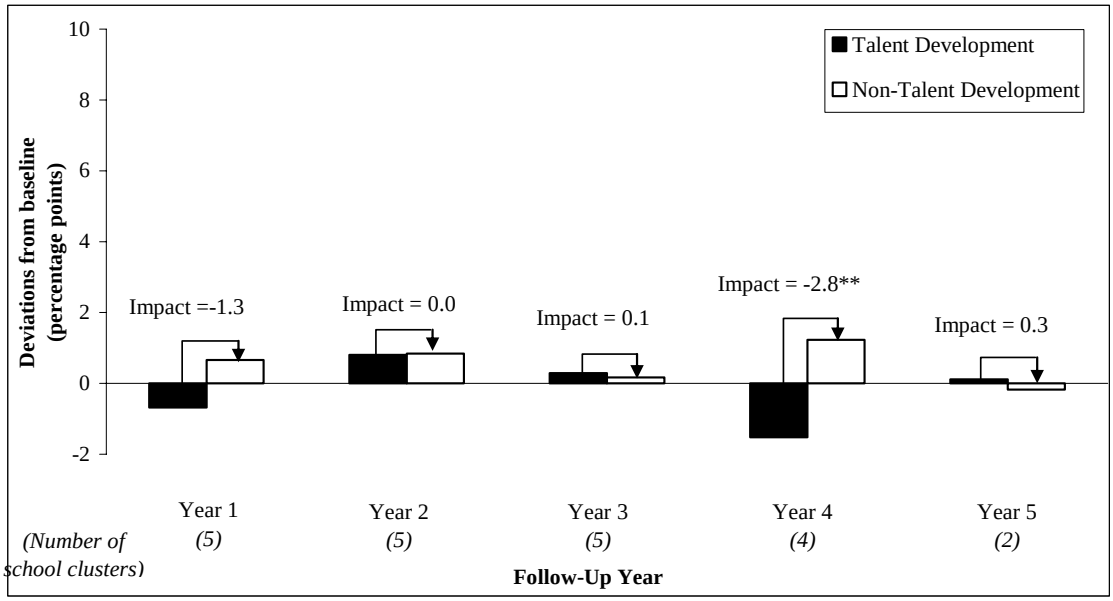
The impact was calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development comparison schools.

A two-tailed t-test was applied to the impacts. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the first two follow-up years, as compared with Year 4 and Year 5, which include fewer schools.

**The Talent Development Evaluation**

## Figure 11

**Impacts on Attendance Rates for Seventh-Grade Students in Early-Implementing Talent Development Schools, Five-Year Follow-Up Results**




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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year. Attendance data were not available for one Talent Development school, School F.

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Therefore, results for Year 1, Year 2, and Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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 attendance rate from the three-year pre-implementation baseline average to each follow-up year.

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

A two-tailed t-test was applied to the impacts. Standard errors were adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Statistical significance, which depends in part on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools.

## Sizing Up the Results

Taken together, what do these findings suggest about the Talent Development Middle School model? Two important patterns emerge: (1) The most prominent impacts occurred in mathematics achievement among eighth-grade students; and (2) the strength of impacts seems to be associated with the timing and intensity of Talent Development's implementation.

The most significant impacts were found for math achievement among eighth-grade students and were particularly strong in the later years of implementation. This pattern may reflect a combination of factors: Eighth-graders in these later years may have benefited from cumulative years of exposure to Talent Development, and implementation may need two or more years to gain enough traction to produce significant results. Also, the development of math impacts before impacts in reading seems to be consistent with the nature of the curricular materials and teacher training in math, which focused on grade-specific content units and were readily transferable to classroom practice.

The presence of Talent Development impacts seems to correspond with whether and when key components of the model were implemented. The components of the model were phased in over three years in the six schools that are the focus of this report. The impact analysis shows that improvements in student achievement, at least in math, began to emerge in Years 3 and 4 of implementation. The math program was usually one of the first components implemented, and the professional development program is considered to be a two-year course of study by the model's developers. Small learning communities were part of the first year of implementation in all schools; however, impacts on attendance do not seem to follow the implementation of this component, which was expected to increase student engagement.

The relationship between implementation and effects is consistent with findings from a meta-analysis of the 29 most widely discussed and disseminated models of comprehensive school reform (CSR). The CSR study found that substantial improvements in student achievement typically do not emerge, if they occur at all, until several years after the reforms are initiated. CSR effects began to increase substantially after the fifth year of implementation.[38] The same study suggests that the magnitude of the impacts reported here are comparable with other third-party evaluations of CSR models that have strong evidence of effectiveness.

Impact estimates on average math achievement for eighth-grade students range between 1 NCE and 4 NCEs, corresponding to effect sizes of between 0.04 and 0.28. Although no absolute standard exists to define whether a specific effect size is large or small, there are some traditional guidelines. This report's effect sizes of the impacts for eighth-grade math achievement fall in the small-to-moderate categories. More recent analyses suggest that this categorization

[38]Borman, Hewes, Overman, and Brown, 2003, p. 152.

may be too conservative for educational outcomes. It is possible for small-to-moderate effect sizes to have substantial education significance. For example, if all 38 nonselective middle schools in the district exacted the most promising impacts on math achievement described in this report, more than 1,200 eighth-grade students could move out of the bottom quartile in math achievement each year.

Although the early impact findings in this report should be considered preliminary — because this study focuses on six middle schools in a single district with three to five years of follow-up data — they are encouraging, particularly for math achievement among eighth-grade students. It is not common to find early impacts of this magnitude in evaluations of models of comprehensive school reform.[39]

## Next Steps

Overall, the findings in this report suggest that the Talent Development Middle School model has positive and significant impacts on certain measures, particularly when key components have been adequately implemented. And this may offer promise that the model will have positive and significant impacts on other outcomes in the future, but more data collection and analysis need to be done.

A subsequent report from MDRC on the Talent Development Middle School model will track outcomes for two more years of implementation in the six early-implementing schools and in the five later-implementing schools in an effort to answer remaining questions, including:

- Will the improvements in eighth-grade mathematics be strengthened over time? Will the impacts continue to be sustained in early-implementing schools, and will those impacts eventually accrue in later-implementing schools and for students in other grade levels?
- Will the preliminary findings that show some promise for Talent Development's impact on reading achievement be realized?
- Do the benefits of Talent Development accrue primarily to those students who regularly attend school in both the baseline and the follow-up periods? (If so, this would explain the seemingly contradictory findings about attendance and achievement.)

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

- Will improvements in achievement during middle school years translate into students' greater persistence in high school and their eventual graduation?
- How resilient is the Talent Development model in the face of significant changes in the district's context, including management of some schools by outside organizations?

The upcoming report, due in 2005, will be produced in the context of a range of comprehensive school reform research sponsored by the U.S. Department of Education. Taken together, this research has the potential to deliver a powerful message to policymakers, researchers, and practitioners about what interventions help to improve student performance and attendance in low-performing secondary schools.

## Appendix A

# Tables for Eighth-Grade Students in Early-Implementing Schools

**The Talent Development Evaluation**

## Appendix Table A.1

## Year-by-Year Levels and Impacts on SSA Math Test Score Outcomes for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results

*I. Outcome Levels Compared with Baseline Average*

| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Average NCE | 26.1 | 27.3 | 29.2 | 31.9 | 34.1 | 25.5 | 27.4 | 27.8 | 28.6 | 30.4 |
| Deviation from baseline | 2.6 ** | 3.8 *** | 5.7 *** | 8.2 *** | 7.7 *** | 1.3 *** | 3.2 *** | 3.6 *** | 4.3 *** | 3.6 *** |
| At or above grade level (%) | 5.4 | 5.8 | 7.3 | 11.4 | 13.7 | 5.9 | 7.0 | 6.3 | 6.2 | 8.0 |
| Deviation from baseline | 0.8 | 1.2 | 2.7 ** | 6.2 *** | 6.2 ** | 1.4 ** | 2.4 *** | 1.8 *** | 1.7 * | 1.7 |
| In the bottom quartile (%) | 77.9 | 72.1 | 72.3 | 64.4 | 57.5 | 77.8 | 74.0 | 73.8 | 73.4 | 66.8 |
| Deviation from baseline | -5.4 * | -11.2 *** | -11.0 *** | -19.5 *** | -20.2 *** | -2.7 ** | -6.5 *** | -6.7 *** | -7.4 *** | -9.3 *** |
| *Number of school clusters* | *6* | *6* | *6* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |

*II. Impact of Talent Development Compared with Non-Talent Development Schools*

*III. Impact Effect Size*

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Average NCE | 1.3 | 0.6 | 2.2 * | 3.9 *** | 4.1 * | 0.09 | 0.04 | 0.15 * | 0.27 *** | 0.28 * |
| At or above grade level (%) | -0.6 | -1.2 | 0.9 | 4.5 ** | 4.5 | -0.03 | -0.06 | 0.04 | 0.20 ** | 0.20 |
| In the bottom quartile (%) | -2.8 | -4.7 | -4.4 | -12.1 *** | -10.9 | -0.07 | -0.12 | -0.11 | -0.30 *** | -0.28 |
| *Number of school clusters* | *6* | *6* | *6* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |

(continued)

## Appendix Table A.1 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

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

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Results for Year 1, Year 2, and Year 3 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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

Panel III: The single row of data from Panel II continues into Panel III to show the effect sizes for the impact estimates of Panel II. The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 8th-grade students in the 18 non-Talent Development comparison schools from school years 1995-1996 and 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-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.

Statistical significance, which in part depends on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools. Similarly, note that average deviations from baseline for Talent Development schools (in Panel I) include at most 6 schools, while average deviations from baseline for non-Talent Development schools (also in Panel I) include up to 18 schools.

**The Talent Development Evaluation**

## Appendix Table A.2

## Year-by-Year Levels and Impacts on SSA Reading Test Score Outcomes for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results

*I. Outcome Levels Compared with Baseline Average*

| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Average NCE | 27.8 | 30.6 | 29.3 | 30.8 | 36.2 | 28.8 | 27.8 | 29.0 | 30.1 | 32.7 |
| Deviation from baseline | -0.6 | 2.1 ** | 0.8 | 2.1 | 3.7 ** | 0.5 | -0.5 | 0.7 | 1.4 ** | 0.9 |
| At or above grade level (%) | 8.7 | 11.4 | 8.7 | 9.9 | 14.7 | 8.7 | 7.4 | 8.2 | 8.6 | 10.2 |
| Deviation from baseline | -0.2 | 2.5 | -0.2 | 0.7 | 1.7 | -0.3 | -1.5 * | -0.7 | -1.1 | -2.4 |
| In the bottom quartile (%) | 73.3 | 68.3 | 71.8 | 66.0 | 52.6 | 70.2 | 74.0 | 71.4 | 68.7 | 62.1 |
| Deviation from baseline | 3.0 | -2.0 | 1.5 | -3.8 | -9.3 * | -0.2 | 3.6 *** | 1.0 | -0.5 | -0.6 |
| *Number of school clusters* | *6* | *6* | *6* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |

*II. Impact of Talent Development Compared with Non-Talent Development Schools*

*III. Impact Effect Size*

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Average NCE | -1.1 | 2.7 ** | 0.1 | 0.7 | 2.8 | -0.07 | 0.17 ** | 0.01 | 0.05 | 0.17 |
| At or above grade level (%) | 0.0 | 4.0 ** | 0.6 | 1.8 | 4.0 | 0.00 | 0.14 ** | 0.02 | 0.06 | 0.14 |
| In the bottom quartile (%) | 3.2 | -5.6 * | 0.5 | -3.3 | -8.8 | 0.07 | -0.12 * | 0.01 | -0.07 | -0.19 |
| *Number of school clusters* | *6* | *6* | *6* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |

(continued)

## Appendix Table A.2 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

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

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Results for Year 1, Year 2, and Year 3 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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

Panel III: The single row of data from Panel II continues into Panel III to show the effect sizes for the impact estimates of Panel II. The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 8th-grade students in the 18 non-Talent Development comparison schools from school years 1995-1996 and 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-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.

Statistical significance, which in part depends on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools. Similarly, note that average deviations from baseline for Talent Development schools (in Panel I) include at most 6 schools, while average deviations from baseline for non-Talent Development schools (also in Panel I) include up to 18 schools.

**The Talent Development Evaluation**

## Appendix Table A.3

## Year-by-Year Levels and Impacts on Attendance Rate Outcomes for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results

*I. Outcome Levels Compared with Baseline Average*

| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Attendance rate | 86.9 | 87.6 | 87.4 | 85.5 | 87.7 | 85.5 | 85.8 | 85.3 | 85.7 | 88.1 |
| Deviation from baseline | 3.0 *** | 3.8 *** | 3.5 *** | 1.9 | 2.0 | 1.4 ** | 1.7 *** | 1.2 ** | 2.0 *** | 3.0 *** |
| Attendance rate of 90% or higher (%) | 55.1 | 54.5 | 57.8 | 52.9 | 61.4 | 49.8 | 51.1 | 49.1 | 51.0 | 57.9 |
| Deviation from baseline | 8.3 ** | 7.6 ** | 10.9 *** | 8.0 * | 10.4 | 2.0 | 3.2 * | 1.2 | 3.9 * | 8.4 ** |
| Attendance rate of 80% or lower (%) | 21.8 | 20.8 | 20.5 | 24.0 | 17.7 | 25.0 | 24.2 | 25.6 | 25.0 | 20.6 |
| Deviation from baseline | -6.7 ** | -7.7 *** | -8.0 *** | -5.2 * | -3.7 | -2.9 ** | -3.8 *** | -2.3 * | -3.9 ** | -6.2 *** |
| *Number of school clusters* | *5* | *5* | *5* | *4* | *2* | *5* | *5* | *5* | *4* | *2* |

*II. Impact of Talent Development Compared with Non-Talent Development Schools*

*III. Impact Effect Size*

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Attendance rate | 1.6 | 2.1 * | 2.3 * | -0.1 | -1.0 | 0.05 | 0.07 * | 0.08 * | 0.00 | -0.03 |
| Attendance rate of 90% or higher (%) | 6.3 | 4.4 | 9.7 ** | 4.0 | 2.0 | 0.13 | 0.09 | 0.20 ** | 0.08 | 0.04 |
| Attendance rate of 80% or lower (%) | -3.8 | -3.9 | -5.7 * | -1.3 | 2.5 | -0.08 | -0.08 | -0.12 * | -0.03 | 0.05 |
| *Number of school clusters* | *5* | *5* | *5* | *4* | *2* | *5* | *5* | *5* | *4* | *2* |

(continued)

## Appendix Table A.3 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year. Attendance data were not available for the sixth early-implementing Talent Development school.

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

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Results for Year 1, Year 2, and Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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

Panel III: The single row of data from Panel II continues into Panel III to show the effect sizes for the impact estimates of Panel II. The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 8th-grade students in the 18 non-Talent Development comparison schools from school years 1995-1996 and 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-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.

Statistical significance, which in part depends on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools. Similarly, note that average deviations from baseline for Talent Development schools (in Panel I) include at most 5 schools, while average deviations from baseline for non-Talent Development schools (also in Panel I) include up to 18 schools.

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. Attendance data were unavailable for one Talent Development school, School F.

**The Talent Development Evaluation**

## Appendix Table A.4

### Year-by-Year Levels and Impacts on One-Year Promotion Outcomes for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results

| | *I. Outcome Levels Compared with Baseline Average* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Promoted to 9th grade (%) | 97.7 | 98.0 | 100.0 | 98.3 | 97.6 | 98.2 | 97.3 | 97.6 | 96.7 | 97.9 |
| Deviation from baseline | 0.4 | 0.7 | 2.2 ** | 0.9 | 0.2 | 0.3 | -0.5 | -0.2 | -1.2 | 0.1 |
| *Number of school clusters* | *6* | *6* | *6* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |

| | *II. Impact of Talent Development Compared with Non-Talent Development Schools* | | | | | *III. Impact Effect Size* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Promoted to 9th grade (%) | *0.0* | 1.1 | 2.5 ** | 2.1 | 0.1 | 0.00 | 0.05 | 0.11 ** | 0.09 | 0.01 |
| *Number of school clusters* | *6* | *6* | *6* | *4* | *2* | *6* | *6* | *6* | *4* | *2* |

(continued)

## Appendix Table A.4 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

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

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Results for Year 1, Year 2, and Year 3 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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

Panel III: The single row of data from Panel II continues into Panel III to show the effect sizes for the impact estimates of Panel II. The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 8th-grade students in the 18 non-Talent Development comparison schools from school years 1995-1996 and 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-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.

Statistical significance, which in part depends on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools. Similarly, note that average deviations from baseline for Talent Development schools (in Panel I) include at most 6 schools, while average deviations from baseline for non-Talent Development schools (also in Panel I) include up to 18 schools.

Eighth-grade students were considered promoted if they were listed as 9th-grade students in the district's administrative data file one year after the current year. Students whose records were not included in the data file one year after the current year, for whatever reason, were not in the analysis for this outcome.

## Appendix B

# Tables for Seventh-Grade Students in Early-Implementing Schools

**The Talent Development Evaluation**

## Appendix Table B.1

## Year-by-Year Levels and Impacts on SAT-9 Math Test Score Outcomes for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results

*I. Outcome Levels Compared with Baseline*

| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Average NCE | 34.4 | 33.7 | 33.7 | 36.0 | 39.5 | 34.4 | 33.6 | 34.5 | 33.9 | 38.1 |
| Deviation from baseline | 0.4 | -0.3 | -0.6 | 2.9 * | 3.8 | 1.1 * | 0.2 | 1.0 | 0.9 | 3.5 *** |
| At or above grade level (%) | 16.0 | 12.1 | 11.8 | 13.3 | 19.4 | 14.7 | 13.0 | 13.7 | 10.6 | 19.9 |
| Deviation from baseline | 1.9 | -2.0 | -2.9 | -0.2 | 0.5 | 2.2 ** | 0.5 | 1.0 | -1.3 | 5.0 ** |
| In the bottom quartile (%) | 57.4 | 61.5 | 62.3 | 54.8 | 44.5 | 59.0 | 62.5 | 59.8 | 63.1 | 49.0 |
| Deviation from baseline | -4.3 | -0.2 | 1.3 | -9.7 ** | -13.2 * | -3.1 * | 0.5 | -1.8 | 0.4 | -7.9 ** |
| *Number of school clusters* | *6* | *6* | *5* | *4* | *2* | *6* | *6* | *5* | *4* | *2* |

*II. Impact of Talent Development Compared with Non-Talent Development Schools*

*III. Impact Effect Size*

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Average NCE | -0.6 | -0.5 | -1.6 | 2.0 | 0.3 | -0.04 | -0.04 | -0.11 | 0.14 | 0.02 |
| At or above grade level (%) | -0.3 | -2.6 | -3.9 | 1.1 | -4.5 | -0.01 | -0.08 | -0.12 | 0.03 | -0.14 |
| In the bottom quartile (%) | -1.3 | -0.6 | 3.1 | -10.1 * | -5.3 | -0.03 | -0.01 | 0.06 | -0.21 * | -0.11 |
| *Number of school clusters* | *6* | *6* | *5* | *4* | *2* | *6* | *6* | *5* | *4* | *2* |

(continued)

## Appendix Table B.1 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

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

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Results for Year 1 and Year 2 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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

Panel III: The single row of data from Panel II continues into Panel III to show the effect sizes for the impact estimates of Panel II. The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 7th-grade students in the 18 non-Talent Development comparison schools from school years 1995-1996 and 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-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.

Statistical significance, which in part depends on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools. Similarly, note that average deviations from baseline for Talent Development schools (in Panel I) include at most 6 schools, while average deviations from baseline for non-Talent Development schools (also in Panel I) include up to 18 schools.

**The Talent Development Evaluation**

## Appendix Table B.2

## Year-by-Year Levels and Impacts on SAT-9 Math Problem Solving Test Score Outcomes for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results

*I. Outcome Levels Compared with Baseline*

| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Average NCE | 35.4 | 34.4 | 34.8 | 37.3 | 41.3 | 34.4 | 34.0 | 35.2 | 33.8 | 38.6 |
| Deviation from baseline | 1.4 | 0.4 | 0.6 | 4.2 *** | 5.6 ** | 1.4 ** | 0.9 * | 2.1 *** | 1.2 | 4.8 *** |
| At or above grade level (%) | 17.3 | 14.1 | 13.8 | 14.9 | 23.5 | 14.3 | 13.6 | 15.7 | 11.8 | 21.8 |
| Deviation from baseline | 2.8 | -0.4 | -1.1 | 1.4 | 5.7 | 2.0 * | 1.3 | 3.2 *** | 0.3 | 8.1 *** |
| In the bottom quartile (%) | 56.2 | 59.8 | 58.6 | 49.7 | 34.8 | 59.3 | 60.4 | 56.5 | 60.4 | 48.1 |
| Deviation from baseline | -5.0 | -1.4 | -2.4 | -14.7 *** | -22.9 *** | -3.9 ** | -2.8 * | -6.4 *** | -3.6 | -12.4 *** |
| *Number of school clusters* | *6* | *6* | *5* | *4* | *2* | *6* | *6* | *5* | *4* | *2* |

*II. Impact of Talent Development Compared with Non-Talent Development Schools*

*III. Impact Effect Size*

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Average NCE | 0.0 | -0.5 | -1.5 | 3.1 * | 0.8 | 0.00 | -0.03 | -0.10 | 0.20 * | 0.05 |
| At or above grade level (%) | 0.8 | -1.7 | -4.3 | 1.1 | -2.4 | 0.03 | -0.05 | -0.14 | 0.03 | -0.08 |
| In the bottom quartile (%) | -1.1 | 1.3 | 4.0 | -11.1 ** | -10.5 | -0.02 | 0.03 | 0.08 | -0.23 ** | -0.22 |
| *Number of school clusters* | *6* | *6* | *5* | *4* | *2* | *6* | *6* | *5* | *4* | *2* |

(continued)

## Appendix Table B.2 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

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

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Results for Year 1 and Year 2 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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

Panel III: The single row of data from Panel II continues into Panel III to show the effect sizes for the impact estimates of Panel II. The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 7th-grade students in the 18 non-Talent Development comparison schools from school years 1995-1996 and 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-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.

Statistical significance, which in part depends on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools. Similarly, note that average deviations from baseline for Talent Development schools (in Panel I) include at most 6 schools, while average deviations from baseline for non-Talent Development schools (also in Panel I) include up to 18 schools.

**The Talent Development Evaluation**

## Appendix Table B.3

## Year-by-Year Levels and Impacts on SAT-9 Reading Test Score Outcomes for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results

*I. Outcome Levels Compared with Baseline*

| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Average NCE | 36.2 | 35.2 | 37.6 | 37.5 | 42.3 | 36.2 | 35.7 | 36.2 | 35.9 | 41.5 |
| Deviation from baseline | 0.1 | -0.8 | 1.0 | 1.5 | 3.5 | 0.2 | -0.3 | -0.1 | -0.1 | 3.3 *** |
| At or above grade level (%) | 22.2 | 19.1 | 23.0 | 21.6 | 30.7 | 20.0 | 20.4 | 22.1 | 19.2 | 27.6 |
| Deviation from baseline | 0.4 | -2.7 | 0.3 | 0.4 | 4.0 | -1.8 * | -1.4 | -0.2 | -2.8 * | 1.2 |
| In the bottom quartile (%) | 50.5 | 54.5 | 49.3 | 47.3 | 37.6 | 50.6 | 52.3 | 51.4 | 52.2 | 39.8 |
| Deviation from baseline | -1.3 | 2.7 | -0.4 | -4.1 | -6.6 | -0.9 | 0.7 | 0.3 | 0.5 | -6.1 ** |
| *Number of school clusters* | *6* | *6* | *5* | *4* | *2* | *6* | *6* | *5* | *4* | *2* |

*II. Impact of Talent Development Compared with Non-Talent Development Schools*

*III. Impact Effect Size*

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| Average NCE | 0.0 | -0.5 | 1.0 | 1.6 | 0.1 | 0.00 | -0.03 | 0.06 | 0.09 | 0.01 |
| At or above grade level (%) | 2.2 | -1.3 | 0.4 | 3.2 | 2.9 | 0.06 | -0.03 | 0.01 | 0.08 | 0.07 |
| In the bottom quartile (%) | -0.4 | 2.0 | -0.7 | -4.6 | -0.5 | -0.01 | 0.04 | -0.01 | -0.09 | -0.01 |
| *Number of school clusters* | *6* | *6* | *5* | *4* | *2* | *6* | *6* | *5* | *4* | *2* |

(continued)

## Appendix Table B.3 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

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

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Results for Year 1 and Year 2 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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

Panel III: The single row of data from Panel II continues into Panel III to show the effect sizes for the impact estimates of Panel II. The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 7th-grade students in the 18 non-Talent Development comparison schools from school years 1995-1996 and 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-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.

Statistical significance, which in part depends on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools. Similarly, note that average deviations from baseline for Talent Development schools (in Panel I) include at most 6 schools, while average deviations from baseline for non-Talent Development schools (also in Panel I) include up to 18 schools.

**The Talent Development Evaluation**

## Appendix Table B.4

## Year-by-Year Levels and Impacts on Attendance Rate Outcomes for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results

*I. Outcome Levels Compared with Baseline*

| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Attendance rate | 85.5 | 87.0 | 86.4 | 84.4 | 88.1 | 85.8 | 86.0 | 85.3 | 86.2 | 86.9 |
| Deviation from baseline | -0.7 | 0.8 | 0.3 | -1.5 | 0.1 | 0.7 | 0.8 ** | 0.2 | 1.2 ** | -0.2 |
| Attendance rate of 90% or higher (%) | 46.9 | 51.5 | 52.7 | 47.9 | 56.4 | 49.4 | 48.8 | 46.4 | 50.5 | 52.1 |
| Deviation from baseline | -2.9 | 1.6 | 2.9 | 0.0 | 1.7 | 0.1 | -0.5 | -2.9 ** | 1.6 | -3.2 * |
| Attendance rate of 80% or lower (%) | 24.7 | 21.5 | 24.5 | 26.7 | 19.6 | 25.2 | 26.3 | 27.0 | 26.0 | 24.4 |
| Deviation from baseline | 0.7 | -2.5 | 0.5 | 2.2 | 0.2 | -0.9 | 0.2 | 0.9 | -0.5 | 2.5 * |
| *Number of school clusters* | *5* | *5* | *5* | *4* | *2* | *5* | *5* | *5* | *4* | *2* |

| | *II. Impact of Talent Development Compared with Non-Talent Development Schools* | | | | | *III. Impact Effect Size* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Attendance rate | -1.3 | 0.0 | 0.1 | -2.8 ** | 0.3 | -0.04 | 0.00 | 0.00 | -0.09 ** | 0.01 |
| Attendance rate of 90% or higher (%) | -3.0 | 2.1 | 5.7 * | -1.6 | 4.9 | -0.06 | 0.04 | 0.12 * | -0.03 | 0.10 |
| Attendance rate of 80% or lower (%) | 1.5 | -2.8 | -0.5 | 2.7 | -2.3 | 0.03 | -0.06 | -0.01 | 0.06 | -0.05 |
| *Number of school clusters* | *5* | *5* | *5* | *4* | *2* | *5* | *5* | *5* | *4* | *2* |

(continued)

## Appendix Table B.4 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

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

The number of school clusters varies by year due to the staggered implementation schedule and the availability of data. Results for Year 1 and Year 2 are pooled over six Talent Development schools and six clusters of non-Talent Development comparison schools; results for Year 3 are pooled over five Talent Development schools and five clusters of non-Talent Development comparison schools; results for Year 4 are pooled over four Talent Development schools and four clusters of non-Talent Development comparison schools; and results for Year 5 are pooled over two Talent Development schools and two clusters of non-Talent Development comparison schools.

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

Panel III: The single row of data from Panel II continues into Panel III to show the effect sizes for the impact estimates of Panel II. The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 7th-grade students in the 18 non-Talent Development comparison schools from school years 1995-1996 and 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-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.

Statistical significance, which in part depends on sample size, may be achieved with impacts of a smaller magnitude in the first three follow-up years, as compared with Year 4 and Year 5, which include fewer schools. Similarly, note that average deviations from baseline for Talent Development schools (in Panel I) include at most 5 schools, while average deviations from baseline for non-Talent Development schools (also in Panel I) include up to 18 schools.

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. Attendance data were unavailable for one Talent Development school, School F.

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*Context, Components, and Initial Impacts on Ninth-Grade Students' Engagement and Performance*
2004. James J. Kemple, Corinne M. Herlihy

# About MDRC

MDRC is a nonprofit, nonpartisan social policy research organization. We are dedicated to learning what works to improve the well-being of low-income people. Through our research and the active communication of our findings, we seek to enhance the effectiveness of social policies and programs. MDRC was founded in 1974 and is located in New York City and Oakland, California.

MDRC's current projects focus on welfare and economic security, education, and employment and community initiatives. Complementing our evaluations of a wide range of welfare reforms are new studies of supports for the working poor and emerging analyses of how programs affect children's development and their families' well-being. In the field of education, we are testing reforms aimed at improving the performance of public schools, especially in urban areas. Finally, our community projects are using innovative approaches to increase employment in low-income neighborhoods.

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

Over the past quarter century, MDRC has worked in almost every state, all of the nation's largest cities, and Canada. We conduct our projects in partnership with state and local governments, the federal government, public school systems, community organizations, and numerous private philanthropies.

# The Talent Development Middle School Model

## Context, Components, and Initial Impacts on Students' Performance and Attendance

**December 2004**

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# Technical Resources


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Unit 1:
Analytic Appendix

Unit 2:
Supplementary Tables

a. Expanded Tables for Eighth-Grade Students in Early-Implementing Schools
b. Expanded Tables for Seventh-Grade Students in Early-Implementing Schools
c. Expanded Tables for Eighth-Grade Students in Later-Implementing Schools
d. Expanded Tables for Seventh-Grade Students in Later-Implementing Schools

***Click the above links to access each unit**

**Unit I**

# Analytic Appendix

## Introduction

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

Talent Development is a comprehensive reform model for large middle schools that serve high-poverty populations and face serious problems with student attendance, discipline, and achievement scores. The model calls for specific changes in school organization and curricula with the goals of establishing a strong, positive school climate for learning; promoting high standards for mathematics, language arts, science, and U.S. history coursework for all students; and providing professional development systems to support implementation of the recommended reforms. Each of these changes is aimed specifically at enhancing student attendance in school, improving measurable student learning, and keeping students on course toward grade-level promotion and a successful transition to high school.

The impact analysis for this report focuses on engagement and performance outcomes for seventh- and eighth-grade students. The three types of outcomes that are examined are the ones likely to be in greatest proximity to the early phases of Talent Development's implementation: daily attendance, reading and math test scores, and grade-level promotion. The analytic approach used to measure the model's impact on these outcomes can best be described as a comparative interrupted time series design.[1]

Before detailing the steps of the design, it is important to distinguish between this study's measures of program outcomes and its measures of program impacts. The term "outcomes" here refers to the status or behavior of individual students or groups of students at various points during the period under study. In this study, the outcomes are measures of student attendance, grade-level promotion, and test scores. The term "impact" here refers to Talent Development's effect on an outcome.

### Constructing a Counterfactual

In this study, the average outcome levels (or even year-to-year changes in outcomes) for students in the Talent Development schools, by themselves, provide potentially misleading in-

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

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

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

### The Logic of the Comparative Interrupted Time Series Design

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

The first analysis provides an indication of whether the participating middle schools experience a deviation from their historical patterns in student outcomes coincident with the introduction of Talent Development. The projection of each middle school's recent history acts as the counterfactual. This is a particularly good counterfactual because, in the absence of the reform, many aspects of the school would be expected to stay the same: students, faculty, polices, school culture, neighborhood, and physical plant. Using a historical pattern as a counterfactual has the potential to control for both measurable and unmeasurable characteristics of a given school.

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

districtwide policies or interventions that occurred at about the same time as Talent Development implementation. For example, while Talent Development scaled up, the district that is the focus of this study participated in an NSF Urban Systemic Initiative for mathematics.[2] Such an effort may have caused positive deviations from baseline averages in math achievement at middle schools in the district. An interrupted time series design would capture this improvement and ascribe it to Talent Development as an impact of the program. Talent Development may have caused some, all, or none of this change in math achievement. In order to sort out what part of the deviation from baseline is due to Talent Development, the analysis looks at similar middle schools in the same district.

The second analysis in the comparative interrupted time series design (the comparison between Talent Development and non-Talent Development schools) helps to account for other factors in the broader school district that may influence school functioning and student engagement and performance. For this part of the analysis, Talent Development schools are matched with sets of comparison schools that are similar on several dimensions, including racial/ethnic composition and test scores. The Talent Development and comparison schools are all nonselective, comprehensive middle schools in the same large, urban district. Measures of student achievement and engagement at the comparison schools provide a good indication of what might have been observed in Talent Development schools in the absence of the intervention.

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

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

[2]To preserve the anonymity of the district and schools included in this study, this appendix refers generically to "the district" and uses the labels "School A" through "School F."

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

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

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

The rest of this appendix provides a step-by-step description of the analyses. The following section details the steps that make up the interrupted time series approach, including estimating deviations from baseline for Talent Development schools, controlling for compositional shifts, and accounting for cohort effects. The section after that describes the comparison-school approach, including selecting comparison schools and estimating their deviations from baseline. The final section describes estimating impacts and pooling estimates across schools.

[3]Student attendance records were not consistently available for one Talent Development middle school in the district, School F. Data from this school could not be included in estimates of Talent Development's impact on attendance outcomes for seventh- and eighth-grade students.

**The Talent Development Evaluation**

## Analytic Appendix
## Table 1

## Data Sources and Availability, by School Year and Grade Level

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



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

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

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

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

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

Test scores may not be available for every student.

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

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

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

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

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

**The Talent Development Evaluation**

## Analytic Appendix
## Table 2

## Data Types and Descriptions

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

**The Talent Development Evaluation**

## Analytic Appendix
## Table 3

### Definitions of Key Outcomes

| Outcome | Definition |
|---|---|
| **Attendance rate** | The total number of days a student was marked present during the school year divided by the total number of days the student was listed as enrolled. These data were available consistently only for students who attended school for at least one day in the final marking period of the year. Thus, the analysis did not include students who dropped out or left the district prior to that point. |
| **Chronic absenteeism** | Indicates that a student had an attendance rate of 80 percent or lower for the year. |
| **Regular attendance** | Indicates that a student had an attendance rate of 90 percent or higher for the year. |
| **Average NCE** | The average Normal Curve Equivalent (NCE) score for students taking the test in a given subject area. The normalized test score, which ranges from 1 to 99 with a mean of 50, allows for comparison across tests and subjects. |
| **At or above grade level** | The percentage of students scoring at or above grade level on the test as indicated by scoring at or above the 50th percentile. |
| **In the bottom quartile** | The percentage of students scoring at or below the 25th percentile on the test. |
| **Promoted to the 9th grade** | Classification for a student who was designated in the district's administrative records as an eighth-grader in a given school year and was designated as a ninth-grader in the following school year. Students who were not in the district's administrative records in either year were not classified. |

To provide a concrete example in support of the descriptions, this appendix refers throughout to the State Standards Assessment (SSA) eighth-grade math test score outcome, measured in Normal Curve Equivalents (NCEs).[4]

[4]The Normal Curve Equivalent (NCE) is a way of measuring where a student falls along the normal curve. The normalized test scores, which range from 1 to 99 with a mean of 50, allow 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 comparisons of groups of students or schools.

## The Interrupted Time Series Approach

### Estimating Deviations from Baseline for Talent Development Schools

For this evaluation, outcomes for students enrolled in a given school prior to Talent Development implementation were compared with outcomes for students enrolled in the same school during the years after implementation began. For most measures of student engagement and performance, the analysis focuses on the three years prior to implementation and for up to five years after implementation.[5] The three years prior to implementation are referred to as the *baseline period.* The year of implementation and each subsequent year are referred to as *follow-up years.* Differences in student outcomes between the baseline and follow-up periods are referred to as *deviations from the baseline.*

The key feature of the interrupted time series approach is to project what student engagement and performance would most likely be without Talent Development. This projection extends over one or more years after Talent Development began and is based on measures of student engagement and performance during a multiyear pre-Talent Development baseline period. For example, to project into the follow-up period a school's pattern of math achievement, the analysis used the average annual math test scores of eighth-grade students over the three baseline years. The equation below specifies the simplest form of a regression model that can be used to estimate an interrupted time series from a baseline derived from the three-year average at a single school.[6]

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

where:

$Y_i$ = SSA math test score for student *i*

[5]For two schools (School A and School B), only two years of baseline data were available for eighth-grade SSA test scores. Therefore, the baseline average for these outcomes is based on only two years of pre-Talent Development implementation data. Because these schools began implementation in the 1997-1998 school year, there are five years of follow-up data available. For the two schools that began implementation in 1998-1999 (School C and School D), there are four years of follow-up data available. For the two schools that began implementation in 1999-2000 (School E and School F), there are three years of follow-up data available.

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

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

$e_i$ = a random error term for student *i*

$A$ = a constant term equal to the average SSA math test score of eighth-grade students during the baseline years

$D_k$ = the deviation in the average SSA math test score from the baseline average *A* in year *k* of the follow-up period (that is, the Year *k* deviation from the baseline mean)

This equation pools data from the baseline and follow-up years and estimates the baseline mean and the average deviation from this mean for each year of the follow-up period for a single school. Figure 1 shows the unadjusted interrupted time series estimates for one Talent Development school in the district, School F. The triangles plot observed means for each baseline year. The solid line represents the baseline average, while the dashed line is the projection of this average into the first three Talent Development implementation years. School F began Talent Development implementation in the 1999-2000 school year, so that three years of follow-up data are available. The circles plot observed means for each follow-up year. The difference between the dashed line and each circle represents the deviation from baseline average for each year of implementation. (Note that the years identified on the horizontal axis of this exhibit and Figures 2 through 6 are presented relative to the first year of Talent Development implementation.)

### Controlling for Changes in Student Characteristics

In some cases, a Talent Development school (or a comparison school) may experience a change in the composition of its student population. For example, neighborhoods may undergo demographic changes, or geographic boundaries or rules governing school assignment patterns may change. More important, Talent Development may cause a change in the student population, for example, by preventing students from dropping out of school or by reducing the number of school transfers (which may keep lower-performing students in school longer). In order to help account for systematic changes in the characteristics of student cohorts over time, the analysis incorporates individual student characteristics into the model. The equation below represents the enhanced regression model for a single school:

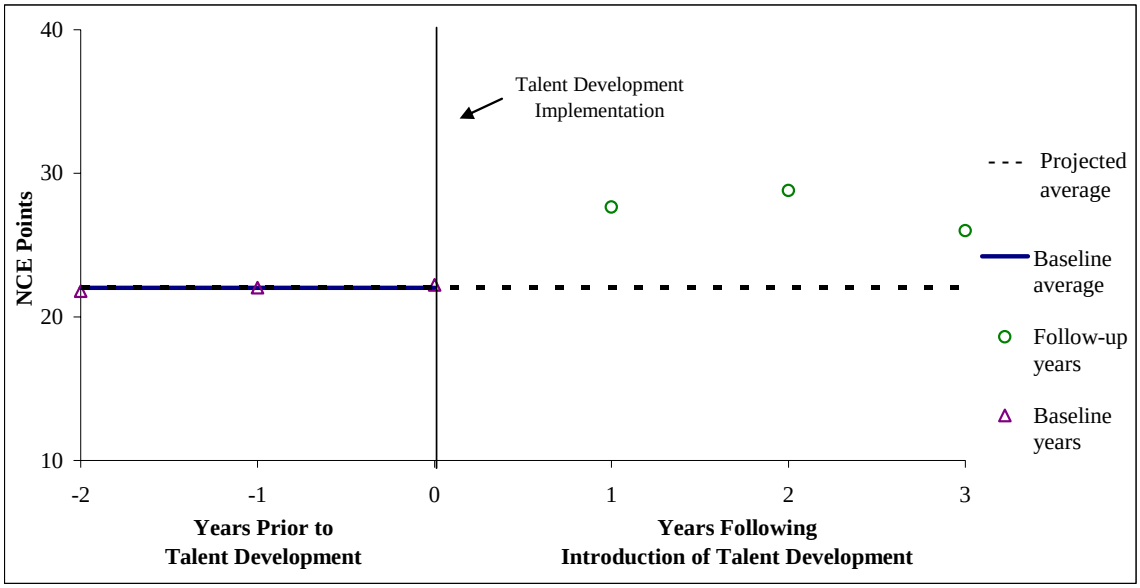
$$Y_i = A + \sum_{k=1}^{K} D_k FY_{ki} + \sum_{j=1}^{J} C_j X_{ji} + e_i$$

where the parameters specified above are the same and:

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

**Figure 1**

**Average Eighth-Grade SSA Math NCE Scores in Talent Development School F, Three-Year, Unadjusted, Follow-Up Results**




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

NOTES: The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

$C_j$ = the difference in the average eighth-grade SSA math test score over time associated with a unit change in background characteristics $X$

The capacity of the analysis to control for systematic changes in the characteristics of student cohorts is increased if the $X$ covariates and the outcomes are correlated. For example, suppose that, in one school, Talent Development increases the percentage of eighth-graders who had been retained in a prior grade or who entered middle school with very low achievement levels. Such a scenario might occur if Talent Development encouraged students not to transfer or prevented such students from dropping out of school altogether. Because such students are also less likely to be regular school attenders and to score well on the SSA tests, it could appear that Talent Development is reducing average student achievement and attendance rates if the analysis does not account for this change in the composition of the eighth grade. Thus, it is important to identify characteristics that are correlated with key outcomes, such as attendance and academic achieve-

ment. This can help disentangle Talent Development's impact on student achievement from effects that are caused by changes in the composition of the eighth-grade cohorts. In this case, the following covariates were incorporated into the interrupted times series models:

| | | |
|---|---|---|
| OVERAGE | = | whether the student was overage for her or his current grade, indicating that the student been retained in a previous grade. |
| RACE | = | dummy variables indicating whether the student was black, white, or of another race |
| TEST SCORES | = | separate variables indicating the student's fourth-grade reading comprehension and math test scores (measured in NCEs) |

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

### Accounting for Cohort Effects

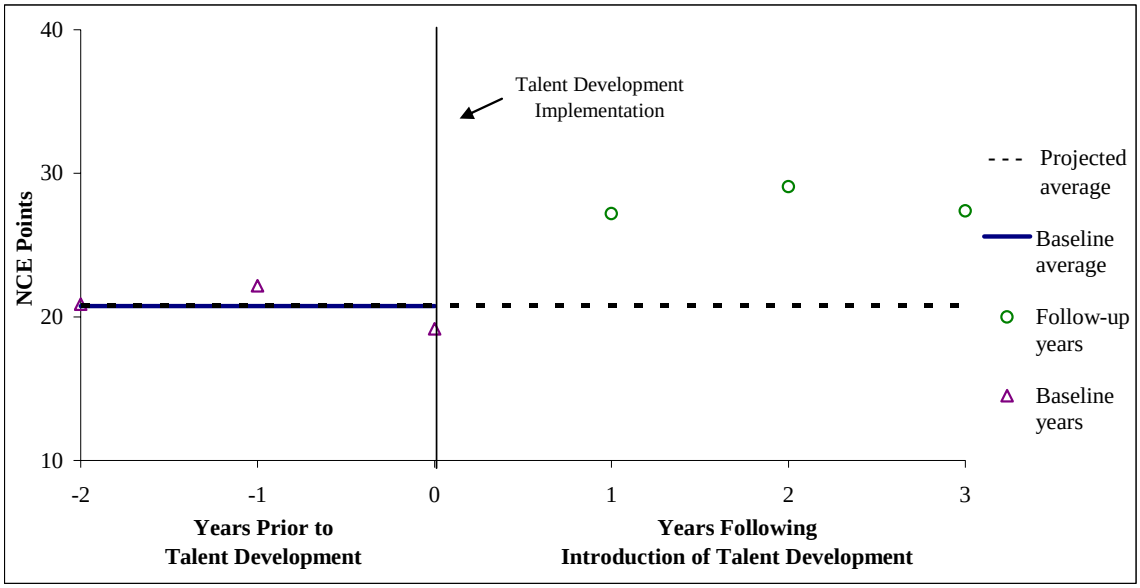
In addition to controlling for changes in student characteristics, the analysis also attempts to account for cohort effects, which are year-to-year variations in the average engagement and performance of students as a group or an entire cohort. Because cohort effects reflect variation that cannot be adequately explained or controlled for by individual random sampling error, the analysis must account for this variation when estimating the standard error of the projected baseline average as well as the standard error of the deviations from the baseline in subsequent follow-up years. If cohort effects are ignored, the standard error of the deviations from the baseline will be understated, and their statistical significance will be overstated.

For example, Figure 3 shows that average SSA eighth-grade math test scores — pooled across several schools — varied around the baseline average. The year-to-year variation is the source of estimated uncertainty or random error associated with future projections from the baseline average. Thus, it is also an additional source of random error associated with the deviations from the baseline. The more tightly the outcome averages cluster around the baseline average, the more confidence can be placed in future projections from this average and, thus, the more confidence can be placed in the estimates of the deviations from the baseline.

**The Talent Development Evaluation**

**Analytic Appendix**
**Figure 2**

**Average Eighth-Grade SSA Math NCE Scores in Talent Development School F, Three-Year, Adjusted, Follow-Up Results**




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

NOTES: The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

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

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

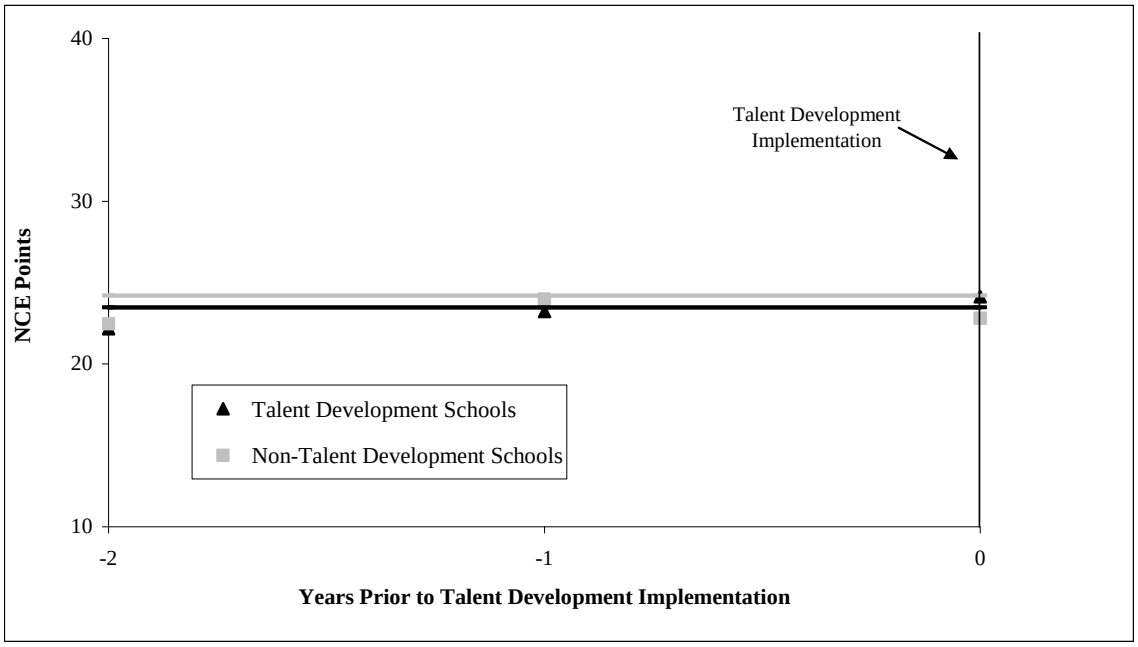
This equation cannot be estimated using ordinary least squares. This error structure represents a form of a hierarchical linear model.[7] Therefore, in order to use comparative interrupted time series techniques to estimate the effect of Talent Development on student performance, the interrupted time series model is translated into a multilevel system of equations.

[7]See Raudenbush and Bryk, 2001.

**The Talent Development Evaluation**

**Analytic Appendix**
**Figure 3**

**Average Eighth-Grade SSA Math Test Scores**
**in Early-Implementing Talent Development Schools and Their Comparison Schools,**
**for Pre-Talent Development Baseline Years**




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

NOTES: The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Results were pooled over six Talent Development middle schools and over six clusters of non-Talent Development middle schools.

In particular, the structure of the analysis can be thought of as having three levels: students nested within annual cohorts nested within schools.

The analysis can be executed using hierarchical linear modeling software. In this case, the analysis modeled an equivalent composite equation through the use of the Proc Mixed procedure in SAS software.[8] This procedure also allows for calculation of impact estimates and corresponding standard errors by school cluster, with each cluster consisting of one Talent De-

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

velopment school and its set of non-Talent Development comparison schools. The average of these cluster-by-cluster impacts represents an estimate of the net impact of Talent Development on student outcomes.

## Comparison-School Analysis

### Identifying Comparison Schools

The analysis uses comparison schools to assess the extent to which the baseline and follow-up patterns of student engagement and performance in Talent Development schools differ from the patterns of students in similar schools that do not attempt to implement the Talent Development model. The comparison was accomplished by matching each Talent Development middle school with one or more schools in the district that served students with similar characteristics and exhibited a similar pattern of student outcomes during the period before Talent Development began. In this way, the non-Talent Development comparison schools can provide a good indication of the effects on student engagement and performance that may be caused by other policies and events that occur in the district over and above those brought about by Talent Development. To get as robust an estimate of these potential effects as possible, the analysis sought to identify truly comparable non-Talent Development schools and to include as many comparable non-Talent Development schools as possible.

Comparison schools were selected from among the 27 nonselective, comprehensive middle schools in the district that were not implementing Talent Development prior to the 1997-1998 school year. The criteria for identifying comparison schools are based on average student characteristics and student outcomes over the two years before Talent Development was first introduced in the district. Specifically, schools were classified by racial/ethnic composition and by math and reading test scores of eighth-grade students averaged over the 1995-1996 and 1996-1997 school years. Matching focused on eighth-grade characteristics for several reasons. First, eighth grade marks the culmination of students' middle school experiences and the start of a critical transition period for young people. Eighth-grade students' engagement and performance are critical indicators of their preparedness for the challenges of transitioning successfully to high school. Second, the Talent Development Middle School model makes an effort to provide added supports and to upgrade curricula and instruction for all middle school grades. The impact of Talent Development on the engagement and performance of eighth-grade students represents the cumulative effect of the model for middle schools. Finally, the district places heavy emphasis on the SSA, which is given in eighth-grade, as an indicator of student and school performance. Therefore, it is important to ensure that, prior to implementation, Talent Development and non-Talent Development schools are as similar as possible on the achievement levels of eighth-grade students on the SSA math and reading tests.

The process of identifying schools that were as comparable as possible to the eventual Talent Development middle schools occurred in two steps. The first step was designed to ensure a high degree of similarity in the racial/ethnic composition of the eighth-graders. Here, the 38 non-selective, comprehensive middle schools in the district were stratified into four mutually exclusive groups based on their racial and ethnic composition. These groups included schools in which:

- 90 percent or more of the eighth- grade population were black
- more than half the eighth-grade population was black, but the racial/ethnic composition of the remaining eighth-graders was moderately mixed
- about 60 percent of the eighth-grade population was of other races/ethnicities (predominantly Hispanic)
- a third or more of the eighth-grade population were white

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

The second step in identifying schools that were comparable to the Talent Development schools was examining average SSA eighth-grade test scores in math and reading. In order to consider both math and reading test scores at once, the matching process was based on the average of each student's math and reading NCE score. Schools were considered comparable if the average eighth-grade composite math and reading score fell within .25 standard deviation of the average for a given Talent Development school.[9] This process resulted in groups of 1 to 12 non-Talent Development comparison schools for each Talent Development school.[10] Some non-Talent Development schools serve as comparison schools for more than one cluster.

The more similar the two groups of schools were prior to the start of Talent Development, the more likely it is that differences that emerged later can be attributed to the implementation of Talent Development. Table 4 provides an indication of the extent to which the matching process resulted in a group of non-Talent Development schools that was comparable to the Talent Development middle schools in the study. The table compares the 11 Talent Development schools with their matched sets of non-Talent Development comparison schools,

[9]The standard deviation of average eighth-grade combined math and reading SSA scores was calculated for all 38 nonselective high schools in the district over two years prior to Talent Development implementation (1995-1996 and 1996-1997). Over this period, the average combined test score was 29 NCEs, and the standard deviation was 15.2 NCEs. Thus, a .25 standard deviation for the eighth-grade math and reading test score was equivalent to 3.8 NCEs.

[10]Non-Talent Development schools may be included as comparisons for more than one Talent Development School.

**The Talent Development Evaluation**

**Analytic Appendix**

**Table 4**

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

| Characteristic | Talent Development Schools | Non-Talent Development Schools | Difference |
|---|---|---|---|
| Race/ethnicity (%) | | | |
| Black | 81.5 | 81.8 | -0.3 |
| White | 4.4 | 2.2 | 2.1 |
| Hispanic | 11.2 | 14.2 | -3.0 |
| Other | 2.9 | 1.7 | 1.2 |
| Overage for grade[a] (%) | 21.4 | 23.8 | -2.4 |
| SSA test scores | | | |
| Average math and reading (NCE) | 27.0 | 26.9 | 0.1 |
| Math | | | |
| Average NCE | 25.9 | 25.7 | 0.2 |
| In the bottom quartile (%) | 77.5 | 77.1 | 0.4 |
| At or above grade level (%) | 6.3 | 6.0 | 0.3 |
| Reading | | | |
| Average NCE | 28.4 | 28.5 | -0.1 |
| In the bottom quartile (%) | 71.1 | 70.4 | 0.7 |
| At or above grade level (%) | 9.0 | 9.0 | -0.1 |
| Attendance rate[b] | 84.3 | 84.8 | -0.5 |
| Attendance rate of 90% or higher[b] (%) | 47.3 | 48.6 | -1.3 |
| Attendance rate of 80% or lower[b] (%) | 28.5 | 26.6 | 1.9 |
| Promoted to 9th grade[c] (%) | 97.5 | 97.9 | -0.4 |

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

NOTES: Sample includes 8th-grade students from 11 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Results in the non-Talent Development columns reflect averages across 11 clusters, including both early-implementing and later-implementing school clusters, of non-Talent Development schools. Each cluster consisted of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

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

[a]Typically, students who were overage for grade were retained in the current grade or a prior one. "Overage for grade" means a student turned 12 before the start of the 6th grade, 13 before the start of the 7th grade, or 14 before the start of the 8th grade.

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

[c]For the purposes of this analysis, 8th-grade students were considered to have been promoted to the 9th grade if they were listed as 9th-graders in the district's administrative data file one year after the current year. Students whose records were not included in the data file one year after the current year, for whatever reason, were not in the analysis sample for this outcome.

reflecting average characteristics of eighth-graders in each group over the three years prior to the implementation of Talent Development in each school cluster. The table indicates that there were only modest differences between the Talent Development and non-Talent Development comparison schools over the years leading up to Talent Development implementation. The analytic strategy described above controls for these initial differences by framing the impacts of Talent Development in terms of differences between Talent Development and non-Talent Development schools in their deviations from the baseline averages.

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

For a specific example of how the variation plays out in terms of outcomes, it is useful to refer to Figure 3. The figure shows the year-to-year variation in the SSA math achievement outcome for Talent Development schools and their non-Talent Development comparison schools in the baseline period. It indicates that the Talent Development schools exhibited similar average math achievement as their non-Talent Development counterparts in the baseline period. The figure also indicates that there was some year-to-year variation in the outcome in the Talent Development schools and in the comparison schools but no clear slope.[11]

### Estimating Deviations from Baseline for Comparison Schools

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

As with the Talent Development schools, the interrupted time series approach was applied to non-Talent Development schools, cluster by cluster. Figure 4 illustrates the adjusted interrupted time series estimates for one group of non-Talent Development comparison schools, those matched with Talent Development School F. As in Figures 1 and 2, the triangles plot ob-

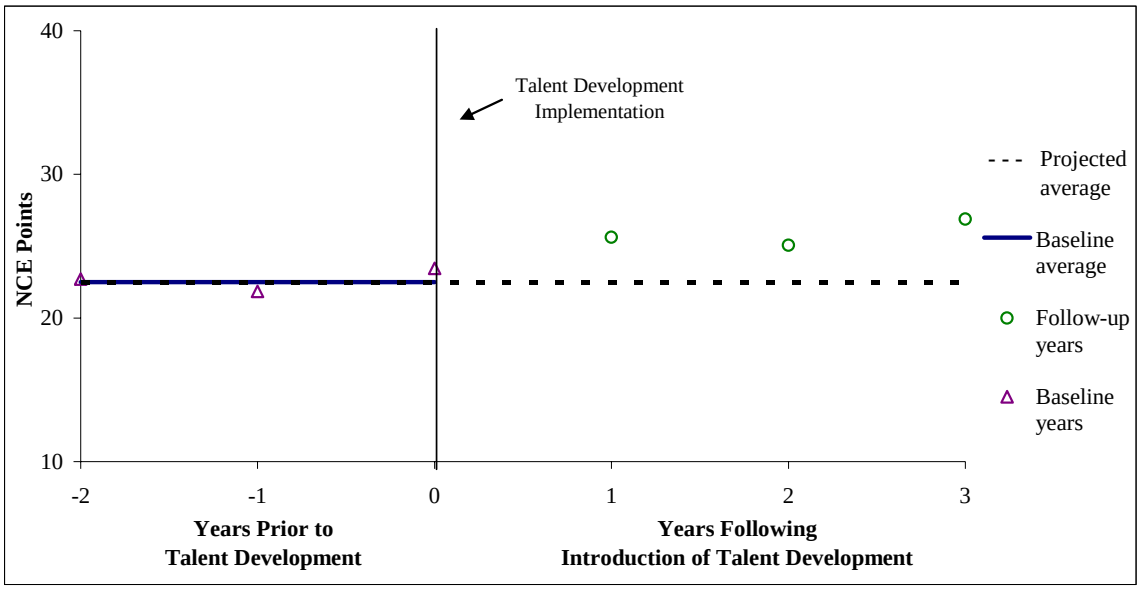
[11] As noted earlier, it is possible to project a baseline trend derived from a consistent pattern of year-to-year increases or decreases in the outcome in the baseline period. This was discounted for the current analysis because only three years of pre-Talent Development data are available, which gives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

served means for each baseline year. In this case, these are the baseline means across the comparison schools in the School F cluster. The solid line represents the baseline average, while the

**The Talent Development Evaluation**

**Analytic Appendix**
**Figure 4**

**Average Eighth-Grade SSA Math NCE Scores**
**in Non-Talent Development Comparison Schools in Cluster F,**
**Three-Year, Adjusted, Follow-Up Results**




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

NOTES: The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

dashed line is the projection of this average into the first three Talent Development implementation years. The circles plot observed means for each follow-up year across the comparison schools in the School F cluster. The difference between the dashed line and each circle represents the deviation from baseline average for each follow-up year. As with Talent Development School F, there is improvement in math achievement in the follow-up period as compared with the baseline period for this group of comparison schools. Therefore, in this example, impacts are driven by the difference in the magnitude of improvement between the Talent Development school and the average improvement in its group of comparison schools.

## Estimating Impacts

The equations described above were used to generate estimated deviations from the baseline average for each Talent Development school and for each Talent Development school's matched group of non-Talent Development schools.[12] In this report, the analysis focuses on six middle schools in the district that began working with Talent Development in the 1997-1998, 1998-1999, and 1999-2000 school years; these are referred to throughout the report as "early-implementing schools."[13] Table 5 presents the results from an analysis of eighth-grade SSA math achievement in these six schools and the comparison schools in their school cluster. These results are presented cluster by cluster in order to illustrate the variability of results from year to year and school to school, as well as to help illustrate how impacts are pooled across schools. Impacts for individual schools may not be reliable.

The pooled estimates maximize the reliability of the impact estimates, because estimates for any one school or cluster may be anomalous. In this way, the analysis can assess the likelihood that a nonzero impact was due to 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.

On the first page of Table 5, the five columns of numbers at the left show average math achievement (in NCEs) for the Talent Development schools and the deviation from baseline that each average represents for each year of implementation. The five columns of numbers at the right show these results for the non-Talent Development comparison schools in each school cluster. Under the School F heading, for example, the three columns at the left of the first row show average math achievement in each of three implementation years for Talent Development School F; the three columns at the right show the same information averaged across the non-Talent Development schools in this cluster. (This information for School F and its cluster of comparison schools is also illustrated in Figures 2 and 4, respectively.)

[12]Note that, because some non-Talent Development schools served as comparison schools for more than one Talent Development School, multiple estimates were obtained for these schools. Furthermore, different baseline averages were estimated for some non-Talent Development schools that served as comparison schools for Talent Development schools that began implementation in different years.

[13]The report also includes limited analysis for the first year of implementation in another five middle schools that began implementing the model in the district in the 2001-2002 school year (referred to as "later-implementing schools").

**The Talent Development Evaluation**

**Analytic Appendix**

**Table 5**

**Year-by-Year Levels and Impacts for SSA Math NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 8th-grade average NCE | 24.8 | 28.1 | 30.7 | 34.8 | 35.0 | 27.2 | 28.4 | 29.0 | 28.8 | 29.9 |
| Deviation from baseline | 0.8 | 4.1 | 6.6 ** | 10.8 *** | 11.0 *** | 1.6 | 2.9 ** | 3.4 *** | 3.2 *** | 4.4 *** |
| School B | | | | | | | | | | |
| 8th-grade average NCE | 29.0 | 30.6 | 34.5 | 34.0 | 33.1 | 27.6 | 31.6 | 31.5 | 30.9 | 30.8 |
| Deviation from baseline | 0.3 | 2.0 | 5.9 * | 5.3 | 4.5 | -0.2 | 3.7 * | 3.6 * | 3.0 | 2.9 |
| School C | | | | | | | | | | |
| 8th-grade average NCE | 23.7 | 23.8 | 25.7 | 28.0 | | 22.8 | 26.0 | 25.1 | 27.7 | |
| Deviation from baseline | 4.2 * | 4.3 * | 6.2 ** | 8.6 *** | | 2.1 ** | 5.3 *** | 4.4 *** | 7.0 *** | |
| School D | | | | | | | | | | |
| 8th-grade average NCE | 25.8 | 25.9 | 26.8 | 30.8 | | 22.5 | 26.5 | 25.4 | 26.8 | |
| Deviation from baseline | 3.2 * | 3.3 * | 4.2 ** | 8.2 *** | | -0.2 | 3.7 ** | 2.7 ** | 4.1 *** | |
| School E | | | | | | | | | | |
| 8th-grade average NCE | 26.1 | 26.3 | 30.3 | | | 27.2 | 27.1 | 28.7 | | |
| Deviation from baseline | 0.7 | 0.9 | 4.9 * | | | 1.4 | 1.3 | 3.0 *** | | |
| School F | | | | | | | | | | |
| 8th-grade average NCE | 27.2 | 29.1 | 27.4 | | | 25.6 | 25.1 | 26.9 | | |
| Deviation from baseline | 6.4 ** | 8.3 *** | 6.6 ** | | | 3.1 *** | 2.6 *** | 4.4 *** | | |
| All early-implementing schools | | | | | | | | | | |
| 8th-grade average NCE | 26.1 | 27.3 | 29.2 | 31.9 | 34.1 | 25.5 | 27.4 | 27.8 | 28.6 | 30.4 |
| Deviation from baseline | 2.6 ** | 3.8 *** | 5.7 *** | 8.2 *** | 7.7 *** | 1.3 *** | 3.2 *** | 3.6 *** | 4.3 *** | 3.6 *** |

(continued)

**The Talent Development Evaluation**

**Analytic Appendix**

**Table 5 (continued)**

**Year-by-Year Levels and Impacts for SSA Math NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.9 | 1.2 | 3.2 | 7.6 ** | 6.6 ** | -0.06 | 0.09 | 0.22 | 0.53 ** | 0.46 ** |
| School B | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.6 | -1.7 | 2.3 | 2.3 | 1.6 | 0.04 | -0.12 | 0.16 | 0.16 | 0.11 |
| School C | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 2.1 | -0.9 | 1.8 | 1.6 | | 0.15 | -0.07 | 0.13 | 0.11 | |
| School D | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 3.4 | -0.4 | 1.5 | 4.1 * | | 0.24 | -0.03 | 0.11 | 0.29 * | |
| School E | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.7 | -0.4 | 1.9 | | | -0.05 | -0.02 | 0.13 | | |
| School F | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 3.3 | 5.7 ** | 2.2 | | | 0.23 | 0.40 ** | 0.16 | | |
| All early-implementing schools | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 1.3 | 0.6 | 2.2 | 3.9 *** | 4.1 * | 0.09 | 0.04 | 0.15 | 0.27 *** | 0.28 * |

(continued)

## Analytic Appendix Table 5 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

The second row under the School F heading shows the deviation from the baseline average represented by the difference in average math achievement in each follow-up year and average math achievement over the three years prior to Talent Development (the baseline average). For example, for Talent Development School F, the average deviation from baseline in Year 1 is 6.4 NCEs. This indicates that eighth-grade SSA math scores in School F increased by an average of 6.4 NCEs during the first year of Talent Development implementation. In the same row, at the right, the numbers show that math scores increased by an average of 3.1 NCEs in the non-Talent Development schools in the same cluster over the same time period. Therefore, the estimated impact of Talent Development at School F is 3.3 NCEs, or the difference between the deviation from baseline for the Talent Development school and the average deviation from baseline for its comparison schools. This first-year impact is shown on the second page of Table 5, also under the School F heading. The impact corresponds to an effect size of 0.23.[14] Again, estimated impacts for individual schools may not be reliable and are given here only to illustrate how estimates were pooled to arrive at the impact across all schools.

The bottom two rows of numbers on both pages of Table 5 show results that have been pooled across all six school clusters included in the analysis. The cross-cluster average math achievement and deviation from baseline for each follow-up year were obtained by computing a simple mean across the six early-implementing Talent Development schools and the six non-Talent Development comparison group averages. Combined standard errors were computed for each of these means accordingly.[15] For example, on average, the deviation from baseline in the follow-up period for Talent Development schools was 2.6 NCEs. The average deviation from baseline for non-Talent Development schools was 1.3 NCEs. Therefore, the impact of Talent Development on the average eighth-grade SSA math achievement is an increase of 1.3 NCEs. This impact is not statistically significant and corresponds to an effect size of 0.09.

Pooled estimates maximize the reliability of the impact estimates. However, it should be noted that follow-up data are available for all six early-implementing school clusters only for the first three years of implementation. Findings for these first three years have the greatest statistical power and show the most robust indication of Talent Development's preliminary impact on student performance and attendance. Also, indications of statistical significance,[16] which de-

[14]Effect sizes show each impact as an proportion of the comparison-group student-level standard deviation for each outcome. In this report, the standard deviations used to calculate effect sizes are based on two years of pre-Talent Development implementation data from 11 Talent Development schools and 18 non-Talent Development comparison schools.

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

[16]Statistical significance is a measure of the degree of certainty one may have 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 sta-

(continued)

pend in part on sample size, may be achieved with impacts of smaller magnitude in the first three years as compared with impacts in Years 4 and 5, which include fewer schools. Similarly, average deviations from baseline for Talent Development schools include at most 6 schools, while average deviations from baseline for non-Talent Development schools include up to 18 schools. Again, in this instance, statistical significance may be achieved with smaller deviations from baseline for non-Talent Development comparison schools as compared with deviations from baseline for Talent Development schools.

Figure 5 provides a graphic representation of the findings presented at the bottom of Table 5. The top panel of the figure shows the baseline average and the deviation from the projected baseline average for the Talent Development schools. The bottom panel presents this information for the non-Talent Development schools. The solid line in each panel represents the baseline average eighth-grade SSA math test score, and the dashed line represents the projection of that average into the postimplementation follow-up period. The triangles show the average SSA math test score in each year prior to the start of Talent Development implementation averaged across all six school clusters.

The circles in each part of the figure represent the average SSA math test score in the first three years of Talent Development implementation across six school clusters. The differences between the dashed lines and the circles represent deviations from the baseline for Talent Development (in the upper panel) and non-Talent Development schools (in the lower panel). Again, it is the difference in these two deviations that represents the impact of Talent Development. Figure 6 shows the difference in deviations more clearly. For each follow-up year, the black bar represents the deviation from baseline averaged across six Talent Development schools, and the white bar represents the deviation from baseline average across six clusters of non-Talent development comparison schools.

For this study, this process of estimating and pooling impacts across school clusters was repeated for several student outcomes, including reading achievement, attendance rates, and grade-level promotion. For some outcomes and some follow-up years, data for all six school clusters are not available. In most cases, data for four school clusters are available to estimate the impact of Talent Development in the fourth year of implementation, and data from two school clusters are available to estimate the impact in the fifth year of implementation. The number of school clusters included in pooled impact estimates for each year is noted in the text, tables, and footnotes of the main report.

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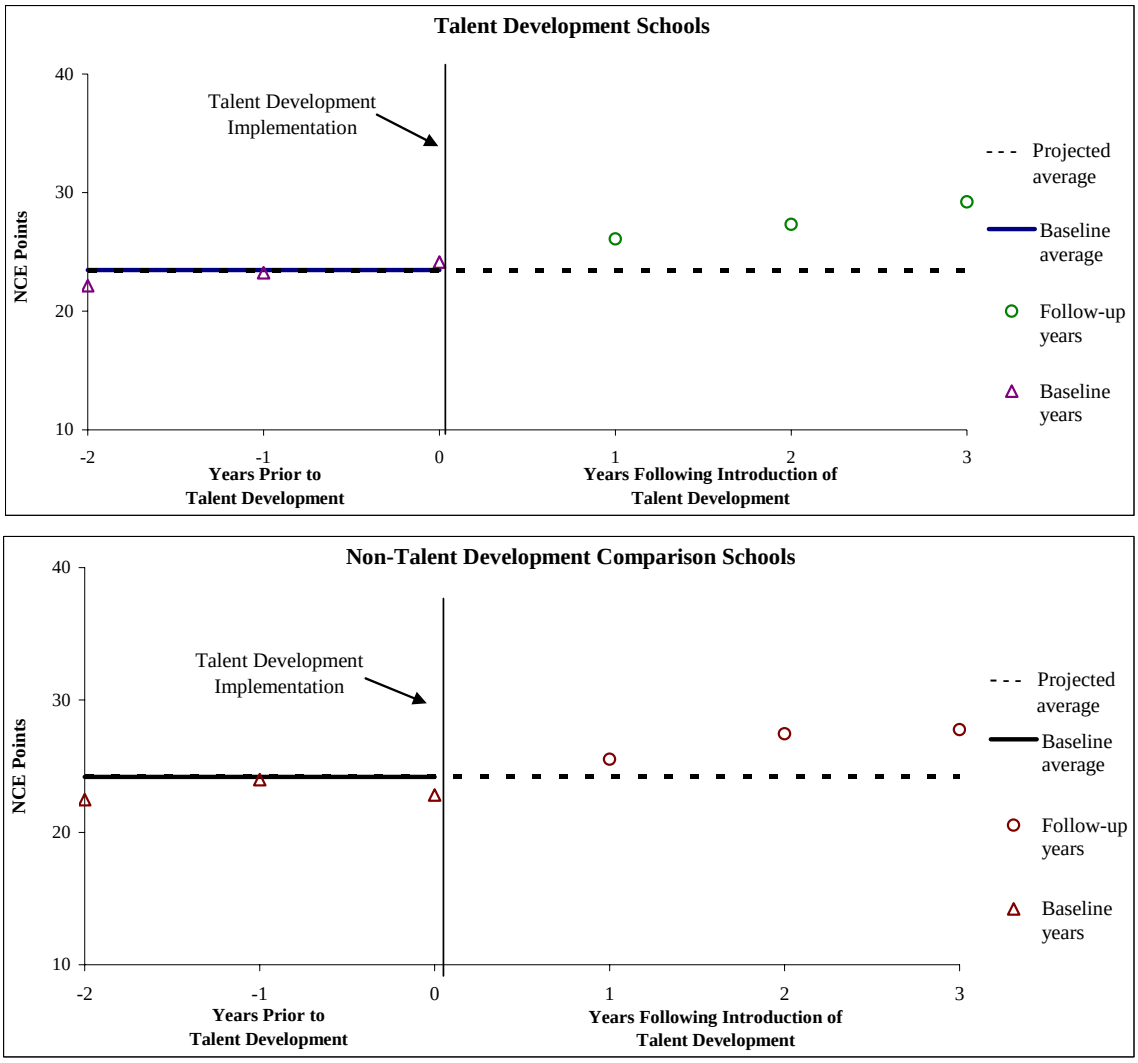
tistically significant, then the nonzero estimate is more likely to be the product of chance or random variation in the averages that were calculated across the schools and years under study. Unless otherwise noted, the deviations from baseline averages and Talent Development impacts discussed in this report are statistically significant at the 10 percent level or lower. This means that there is no more than a 10 percent probability that the difference resulted only from chance or random variation

**The Talent Development Evaluation**

## Analytic Appendix
## Figure 5

### Average Eighth-Grade SSA Math NCE Scores in Early-Implementing Talent Development Schools and Their Comparison Schools, Three-Year Follow-Up Results




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

NOTES: The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

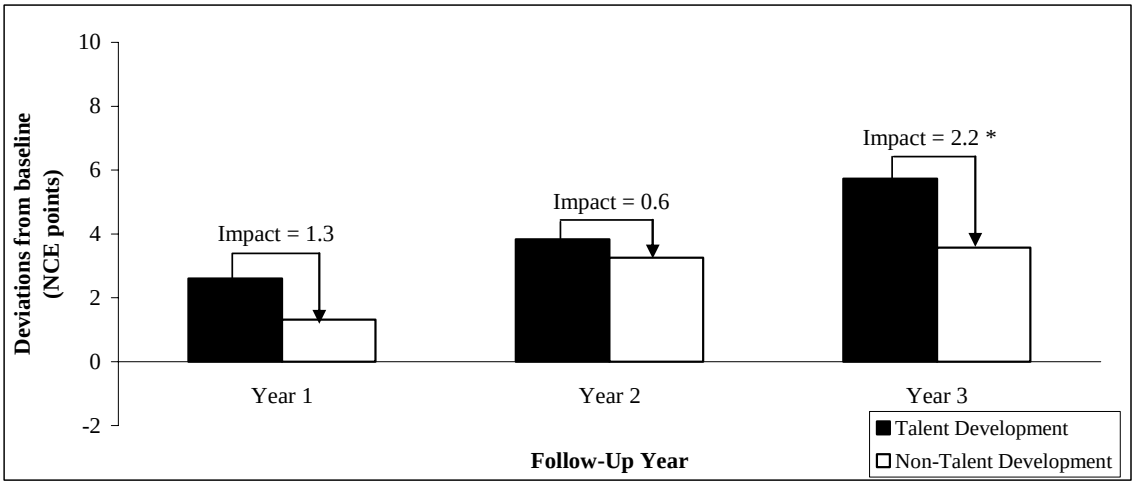
Results were pooled over six Talent Development middle schools and over six groups of non-Talent Development middle schools.

**The Talent Development Evaluation**

**Analytic Appendix**

**Figure 6**

**Impacts on SSA Math NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools, Three-Year Follow-Up Results**




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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Results are pooled over six Talent Development Schools and six clusters of non-Talent Development comparison schools.

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 math NCE points from the three-year pre-implementation baseline average to each follow-up year.

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

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

# References

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## Unit 2

# Supplementary Tables

**Unit 2a**

# Expanded Tables for Eighth-Grade Students in Early-Implementing Schools

**The Talent Development Evaluation**

**TR Table A.1**

**Year-by-Year Levels and Impacts for SSA Math NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 8th-grade average NCE | 24.8 | 28.1 | 30.7 | 34.8 | 35.0 | 27.2 | 28.4 | 29.0 | 28.8 | 29.9 |
| Deviation from baseline | 0.8 | 4.1 | 6.6 ** | 10.8 *** | 11.0 *** | 1.6 | 2.9 ** | 3.4 *** | 3.2 *** | 4.4 *** |
| School B | | | | | | | | | | |
| 8th-grade average NCE | 29.0 | 30.6 | 34.5 | 34.0 | 33.1 | 27.6 | 31.6 | 31.5 | 30.9 | 30.8 |
| Deviation from baseline | 0.3 | 2.0 | 5.9 * | 5.3 | 4.5 | -0.2 | 3.7 * | 3.6 * | 3.0 | 2.9 |
| School C | | | | | | | | | | |
| 8th-grade average NCE | 23.7 | 23.8 | 25.7 | 28.0 | | 22.8 | 26.0 | 25.1 | 27.7 | |
| Deviation from baseline | 4.2 * | 4.3 * | 6.2 ** | 8.6 *** | | 2.1 ** | 5.3 *** | 4.4 *** | 7.0 *** | |
| School D | | | | | | | | | | |
| 8th-grade average NCE | 25.8 | 25.9 | 26.8 | 30.8 | | 22.5 | 26.5 | 25.4 | 26.8 | |
| Deviation from baseline | 3.2 * | 3.3 * | 4.2 ** | 8.2 *** | | -0.2 | 3.7 ** | 2.7 ** | 4.1 *** | |
| School E | | | | | | | | | | |
| 8th-grade average NCE | 26.1 | 26.3 | 30.3 | | | 27.2 | 27.1 | 28.7 | | |
| Deviation from baseline | 0.7 | 0.9 | 4.9 * | | | 1.4 | 1.3 | 3.0 *** | | |
| School F | | | | | | | | | | |
| 8th-grade average NCE | 27.2 | 29.1 | 27.4 | | | 25.6 | 25.1 | 26.9 | | |
| Deviation from baseline | 6.4 ** | 8.3 *** | 6.6 ** | | | 3.1 *** | 2.6 *** | 4.4 *** | | |
| All early-implementing schools | | | | | | | | | | |
| 8th-grade average NCE | 26.1 | 27.3 | 29.2 | 31.9 | 34.1 | 25.5 | 27.4 | 27.8 | 28.6 | 30.4 |
| Deviation from baseline | 2.6 ** | 3.8 *** | 5.7 *** | 8.2 *** | 7.7 *** | 1.3 *** | 3.2 *** | 3.6 *** | 4.3 *** | 3.6 *** |

(continued)

**The Talent Development Evaluation**

**TR Table A.1 (continued)**

**Year-by-Year Levels and Impacts for SSA Math NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.9 | 1.2 | 3.2 | 7.6 ** | 6.6 ** | -0.06 | 0.09 | 0.22 | 0.53 ** | 0.46 ** |
| School B | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.6 | -1.7 | 2.3 | 2.3 | 1.6 | 0.04 | -0.12 | 0.16 | 0.16 | 0.11 |
| School C | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 2.1 | -0.9 | 1.8 | 1.6 | | 0.15 | -0.07 | 0.13 | 0.11 | |
| School D | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 3.4 | -0.4 | 1.5 | 4.1 * | | 0.24 | -0.03 | 0.11 | 0.29 * | |
| School E | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.7 | -0.4 | 1.9 | | | -0.05 | -0.02 | 0.13 | | |
| School F | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 3.3 | 5.7 ** | 2.2 | | | 0.23 | 0.40 ** | 0.16 | | |
| All early-implementing schools | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 1.3 | 0.6 | 2.2 | 3.9 *** | 4.1 * | 0.09 | 0.04 | 0.15 | 0.27 *** | 0.28 * |

(continued)

**TR Table A.1 (continued)**

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table A.2**

**Year-by-Year Levels and Impacts for SSA Math Scores At or Above Grade Level for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | 3.5 | 7.2 | 7.4 | 17.3 | 14.0 | 7.0 | 10.1 | 9.3 | 6.9 | 8.0 |
| Deviation from baseline | -0.6 | 3.1 | 3.3 | 13.2 *** | 9.9 ** | 1.7 | 4.8 *** | 4.0 *** | 1.5 | 2.7 * |
| School B | | | | | | | | | | |
| At or above grade level (%) | 10.1 | 12.4 | 17.8 | 13.1 | 13.4 | 6.9 | 12.1 | 10.7 | 8.9 | 8.0 |
| Deviation from baseline | -0.8 | 1.5 | 6.9 * | 2.2 | 2.5 | -0.4 | 4.8 * | 3.4 | 1.6 | 0.7 |
| School C | | | | | | | | | | |
| At or above grade level (%) | 4.7 | 1.8 | 4.0 | 3.4 | | 2.2 | 6.2 | 4.4 | 3.9 | |
| Deviation from baseline | 1.7 | -1.2 | 1.0 | 0.4 | | 0.2 | 4.2 *** | 2.5 ** | 2.0 * | |
| School D | | | | | | | | | | |
| At or above grade level (%) | 3.3 | 4.7 | 5.3 | 11.7 | | 5.4 | 4.0 | 2.7 | 5.0 | |
| Deviation from baseline | 0.8 | 2.2 | 2.8 | 9.1 *** | | 2.2 | 0.8 | -0.5 | 1.8 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | 6.9 | 3.8 | 3.4 | | | 7.8 | 5.4 | 7.4 | | |
| Deviation from baseline | 2.2 | -0.9 | -1.4 | | | 1.4 | -1.0 | 1.0 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | 4.0 | 5.0 | 5.8 | | | 6.1 | 3.9 | 3.4 | | |
| Deviation from baseline | 1.5 | 2.5 | 3.3 | | | 3.0 *** | 0.8 | 0.3 | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | 5.4 | 5.8 | 7.3 | 11.4 | 13.7 | 5.9 | 7.0 | 6.3 | 6.2 | 8.0 |
| Deviation from baseline | 0.8 | 1.2 | 2.7 ** | 6.2 *** | 6.2 ** | 1.4 ** | 2.4 *** | 1.8 *** | 1.7 * | 1.7 |

(continued)

**The Talent Development Evaluation**

**TR Table A.2 (continued)**

**Year-by-Year Levels and Impacts for SSA Math Scores At or Above Grade Level for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -2.3 | -1.7 | -0.7 | 11.6 ** | 7.2 | -0.10 | -0.08 | -0.03 | 0.53 ** | 0.33 |
| School B | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -0.4 | -3.3 | 3.5 | 0.6 | 1.8 | -0.02 | -0.15 | 0.16 | 0.03 | 0.08 |
| School C | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 1.5 | -5.5 * | -1.5 | -1.6 | | 0.07 | -0.25 * | -0.07 | -0.07 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -1.5 | 1.4 | 3.3 | 7.3 * | | -0.07 | 0.06 | 0.15 | 0.33 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 0.8 | 0.1 | -2.3 | | | 0.04 | 0.00 | -0.11 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -1.5 | 1.6 | 3.0 | | | -0.07 | 0.07 | 0.14 | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -0.6 | -1.2 | 0.9 | 4.5 ** | 4.5 | -0.03 | -0.06 | 0.04 | 0.20 ** | 0.20 |

(continued)

## TR Table A.2 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table A.3**

**Year-by-Year Levels and Impacts for SSA Math Scores in the Bottom Quartile for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | 80.4 | 67.3 | 68.9 | 53.5 | 58.0 | 74.1 | 68.1 | 69.7 | 73.1 | 68.5 |
| Deviation from baseline | -3.0 | -16.1 * | -14.4 * | -29.9 *** | -25.3 *** | -4.6 | -10.5 *** | -9.0 *** | -5.6 * | -10.2 *** |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | 68.2 | 61.4 | 57.9 | 56.3 | 57.0 | 72.8 | 60.9 | 62.7 | 66.2 | 65.2 |
| Deviation from baseline | -4.0 | -10.7 | -14.2 | -15.8 * | -15.1 * | -0.8 | -12.7 ** | -10.9 * | -7.4 | -8.4 |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | 86.5 | 79.3 | 81.8 | 78.7 | | 84.3 | 78.0 | 79.8 | 75.7 | |
| Deviation from baseline | -6.2 | -13.4 ** | -11.0 * | -14.0 ** | | -3.2 | -9.4 *** | -7.6 *** | -11.8 *** | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | 75.0 | 77.0 | 76.8 | 69.0 | | 82.6 | 78.4 | 81.6 | 78.5 | |
| Deviation from baseline | -12.1 * | -10.1 * | -10.3 * | -18.1 *** | | -0.7 | -4.9 | -1.7 | -4.7 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | 78.1 | 77.0 | 69.7 | | | 74.3 | 77.4 | 71.2 | | |
| Deviation from baseline | 0.1 | -0.9 | -8.2 | | | -2.0 | 1.2 | -5.0 ** | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | 79.2 | 70.8 | 78.5 | | | 78.8 | 81.1 | 77.9 | | |
| Deviation from baseline | -7.3 | -15.7 ** | -8.0 | | | -4.8 *** | -2.4 | -5.6 *** | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | 77.9 | 72.1 | 72.3 | 64.4 | 57.5 | 77.8 | 74.0 | 73.8 | 73.4 | 66.8 |
| Deviation from baseline | -5.4 * | -11.2 *** | -11.0 *** | -19.5 *** | -20.2 *** | -2.7 ** | -6.5 *** | -6.7 *** | -7.4 *** | -9.3 *** |

(continued)

**The Talent Development Evaluation**

**TR Table A.3 (continued)**

**Year-by-Year Levels and Impacts for SSA Math Scores in the Bottom Quartile for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 1.5 | -5.5 | -5.4 | -24.3 *** | -15.1 * | 0.04 | -0.14 | -0.14 | -0.61 *** | -0.38 * |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -3.2 | 2.0 | -3.3 | -8.4 | -6.8 | -0.08 | 0.05 | -0.08 | -0.21 | -0.17 |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -3.0 | -4.0 | -3.3 | -2.2 | | -0.08 | -0.10 | -0.08 | -0.06 | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -11.4 | -5.2 | -8.7 | -13.4 * | | -0.29 | -0.13 | -0.22 | -0.34 * | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 2.1 | -2.1 | -3.2 | | | 0.05 | -0.05 | -0.08 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -2.6 | -13.3 ** | -2.4 | | | -0.06 | -0.34 ** | -0.06 | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -2.8 | -4.7 | -4.4 | -12.1 *** | -10.9 | -0.07 | -0.12 | -0.11 | -0.30 *** | -0.28 |

(continued)

**TR Table A.3 (continued)**

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table A.4**

**Year-by-Year Levels and Impacts for SSA Reading NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 8th-grade average NCE | 32.4 | 32.7 | 31.6 | 33.1 | 34.4 | 30.5 | 29.0 | 30.7 | 30.8 | 32.0 |
| Deviation from baseline | 1.1 | 1.3 | 0.2 | 1.7 | 3.0 | 0.6 | -0.9 | 0.8 | 0.8 | 2.1 ** |
| School B | | | | | | | | | | |
| 8th-grade average NCE | 33.8 | 35.8 | 35.9 | 35.3 | 38.0 | 32.3 | 31.1 | 32.9 | 33.2 | 33.3 |
| Deviation from baseline | 0.1 | 2.1 | 2.2 | 1.6 | 4.3 | -1.3 | -2.5 | -0.7 | -0.4 | -0.3 |
| School C | | | | | | | | | | |
| 8th-grade average NCE | 23.7 | 26.7 | 24.0 | 25.7 | | 26.0 | 27.4 | 24.6 | 30.5 | |
| Deviation from baseline | 0.5 | 3.5 | 0.8 | 2.5 | | 0.9 | 2.3 ** | -0.5 | 5.5 *** | |
| School D | | | | | | | | | | |
| 8th-grade average NCE | 23.1 | 28.5 | 27.7 | 29.2 | | 27.7 | 24.0 | 25.0 | 25.9 | |
| Deviation from baseline | -3.4 | 2.1 | 1.3 | 2.7 | | 1.5 | -2.2 | -1.2 | -0.3 | |
| School E | | | | | | | | | | |
| 8th-grade average NCE | 27.8 | 29.6 | 30.1 | | | 29.0 | 29.1 | 30.9 | | |
| Deviation from baseline | -3.4 | -1.5 | -1.0 | | | 0.4 | 0.5 | 2.3 *** | | |
| School F | | | | | | | | | | |
| 8th-grade average NCE | 26.2 | 30.2 | 26.3 | | | 27.5 | 26.1 | 29.9 | | |
| Deviation from baseline | 1.3 | 5.4 * | 1.4 | | | 1.0 | -0.4 | 3.4 *** | | |
| All early-implementing schools | | | | | | | | | | |
| 8th-grade average NCE | 27.8 | 30.6 | 29.3 | 30.8 | 36.2 | 28.8 | 27.8 | 29.0 | 30.1 | 32.7 |
| Deviation from baseline | -0.6 | 2.1 ** | 0.8 | 2.1 | 3.7 ** | 0.5 | -0.5 | 0.7 | 1.4 ** | 0.9 |

(continued)

**The Talent Development Evaluation**

**TR Table A.4 (continued)**

**Year-by-Year Levels and Impacts for SSA Reading NCE Scores for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.5 | 2.2 | -0.6 | 0.8 | 0.9 | 0.03 | 0.14 | -0.04 | 0.05 | 0.06 |
| School B | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 1.4 | 4.7 | 3.0 | 2.0 | 4.6 | 0.09 | 0.29 | 0.19 | 0.12 | 0.29 |
| School C | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.4 | 1.2 | 1.3 | -2.9 | | -0.03 | 0.07 | 0.08 | -0.19 | |
| School D | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -4.9 | 4.3 | 2.5 | 3.0 | | -0.30 | 0.27 | 0.16 | 0.19 | |
| School E | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -3.8 | -2.0 | -3.4 | | | -0.24 | -0.13 | -0.21 | | |
| School F | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.3 | 5.8 * | -2.0 | | | 0.02 | 0.36 * | -0.12 | | |
| All early-implementing schools | | | | | | | | | | |
| 8th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -1.1 | 2.7 ** | 0.1 | 0.7 | 2.8 | -0.07 | 0.17 ** | 0.01 | 0.05 | 0.17 |

(continued)

## TR Table A.4 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table A.5**

**Year-by-Year Levels and Impacts for SSA Reading Scores At or Above Grade Level for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | 10.8 | 13.9 | 10.6 | 13.2 | 10.9 | 9.4 | 8.7 | 12.1 | 10.1 | 9.9 |
| Deviation from baseline | 0.2 | 3.4 | 0.1 | 2.7 | 0.3 | -0.6 | -1.3 | 2.0 | 0.0 | -0.2 |
| School B | | | | | | | | | | |
| At or above grade level (%) | 16.0 | 21.2 | 22.5 | 15.4 | 18.6 | 10.3 | 10.8 | 14.7 | 14.0 | 10.6 |
| Deviation from baseline | 0.4 | 5.6 | 6.9 | -0.2 | 3.0 | -4.9 | -4.4 | -0.5 | -1.2 | -4.6 |
| School C | | | | | | | | | | |
| At or above grade level (%) | 5.2 | 9.5 | 3.4 | 1.6 | | 6.5 | 8.8 | 3.7 | 6.5 | |
| Deviation from baseline | 2.6 | 7.0 ** | 0.8 | -1.0 | | 0.6 | 3.0 ** | -2.2 * | 0.6 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | 2.4 | 8.8 | 5.6 | 9.5 | | 7.2 | 3.8 | 4.0 | 4.0 | |
| Deviation from baseline | -5.6 ** | 0.7 | -2.5 | 1.4 | | -0.6 | -4.1 ** | -3.8 ** | -3.8 ** | |
| School E | | | | | | | | | | |
| At or above grade level (%) | 11.7 | 8.0 | 6.2 | | | 10.3 | 7.8 | 8.5 | | |
| Deviation from baseline | 0.0 | -3.7 | -5.5 * | | | 2.1 * | -0.3 | 0.3 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | 5.9 | 6.8 | 3.9 | | | 8.4 | 4.6 | 6.3 | | |
| Deviation from baseline | 1.0 | 1.9 | -1.0 | | | 1.8 * | -2.1 ** | -0.3 | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | 8.7 | 11.4 | 8.7 | 9.9 | 14.7 | 8.7 | 7.4 | 8.2 | 8.6 | 10.2 |
| Deviation from baseline | -0.2 | 2.5 | -0.2 | 0.7 | 1.7 | -0.3 | -1.5 * | -0.7 | -1.1 | -2.4 |

(continued)

**The Talent Development Evaluation**

**TR Table A.5 (continued)**

**Year-by-Year Levels and Impacts for SSA Reading Scores At or Above Grade Level for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 0.9 | 4.7 | -1.9 | 2.7 | 0.5 | 0.03 | 0.16 | -0.07 | 0.09 | 0.02 |
| School B | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 5.3 | 10.0 | 7.4 | 1.0 | 7.6 | 0.18 | 0.35 | 0.26 | 0.03 | 0.26 |
| School C | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 2.0 | 4.0 | 3.0 | -1.6 | | 0.07 | 0.14 | 0.10 | -0.06 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -5.0 | 4.7 | 1.3 | 5.2 * | | -0.17 | 0.16 | 0.05 | 0.18 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -2.1 | -3.4 | -5.8 * | | | -0.07 | -0.12 | -0.20 * | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -0.7 | 4.0 | -0.7 | | | -0.03 | 0.14 | -0.02 | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 0.0 | 4.0 ** | 0.6 | 1.8 | 4.0 | 0.00 | 0.14 ** | 0.02 | 0.06 | 0.14 |

(continued)

## TR Table A.5 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table A.6**

**Year-by-Year Levels and Impacts for SSA Reading Scores in the Bottom Quartile for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | 64.9 | 65.2 | 64.7 | 57.3 | 59.2 | 65.0 | 71.5 | 67.5 | 66.6 | 64.8 |
| Deviation from baseline | 0.3 | 0.5 | 0.0 | -7.4 | -5.5 | -2.2 | 4.3 * | 0.3 | -0.6 | -2.4 |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | 57.0 | 54.0 | 51.6 | 51.4 | 46.0 | 60.3 | 68.6 | 63.5 | 58.2 | 59.4 |
| Deviation from baseline | -2.1 | -5.1 | -7.6 | -7.7 | -13.1 * | 2.2 | 10.5 ** | 5.4 | 0.1 | 1.3 |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | 81.9 | 77.9 | 89.3 | 83.4 | | 77.3 | 75.3 | 80.1 | 68.7 | |
| Deviation from baseline | 0.9 | -3.1 | 8.3 | 2.4 | | 0.2 | -1.8 | 3.0 | -8.4 *** | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | 84.7 | 70.7 | 74.7 | 71.7 | | 72.6 | 79.2 | 77.6 | 81.3 | |
| Deviation from baseline | 10.3 | -3.6 | 0.3 | -2.7 | | -1.8 | 4.7 | 3.2 | 6.9 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | 75.7 | 66.9 | 72.1 | | | 71.3 | 71.6 | 68.7 | | |
| Deviation from baseline | 9.9 | 1.2 | 6.4 | | | 0.9 | 1.2 | -1.7 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | 75.6 | 75.0 | 78.3 | | | 74.9 | 78.0 | 70.8 | | |
| Deviation from baseline | -1.2 | -1.8 | 1.5 | | | -0.2 | 2.9 | -4.3 ** | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | 73.3 | 68.3 | 71.8 | 66.0 | 52.6 | 70.2 | 74.0 | 71.4 | 68.7 | 62.1 |
| Deviation from baseline | 3.0 | -2.0 | 1.5 | -3.8 | -9.3 * | -0.2 | 3.6 *** | 1.0 | -0.5 | -0.6 |

(continued)

**The Talent Development Evaluation**

**TR Table A.6 (continued)**

**Year-by-Year Levels and Impacts for SSA Reading Scores in the Bottom Quartile for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 2.5 | -3.7 | -0.3 | -6.8 | -3.1 | 0.06 | -0.08 | -0.01 | -0.15 | -0.07 |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -4.3 | -15.6 * | -13.0 | -7.8 | -14.4 * | -0.09 | -0.34 * | -0.28 | -0.17 | -0.32 * |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 0.7 | -1.3 | 5.3 | 10.8 | | 0.01 | -0.03 | 0.12 | 0.24 | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 12.1 | -8.4 | -2.9 | -9.6 | | 0.27 | -0.18 | -0.06 | -0.21 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 9.1 | 0.0 | 8.1 | | | 0.20 | 0.00 | 0.18 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -1.0 | -4.7 | 5.7 | | | -0.02 | -0.10 | 0.13 | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 3.2 | -5.6 * | 0.5 | -3.3 | -8.8 | 0.07 | -0.12 * | 0.01 | -0.07 | -0.19 |

(continued)

## TR Table A.6 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table A.7**

**Year-by-Year Levels and Impacts for Attendance Rate for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 8th grade attendance rate (%) | 84.7 | 87.0 | 86.9 | 87.7 | 87.0 | 86.5 | 87.2 | 86.1 | 86.3 | 86.7 |
| Deviation from baseline | 0.4 | 2.7 | 2.6 | 3.4 | 2.6 | 2.0 ** | 2.7 *** | 1.7 ** | 1.8 ** | 2.2 *** |
| School B | | | | | | | | | | |
| 8th grade attendance rate (%) | 88.7 | 90.6 | 89.6 | 88.8 | 88.4 | 87.8 | 87.3 | 87.0 | 87.4 | 89.4 |
| Deviation from baseline | 1.5 | 3.5 | 2.5 | 1.6 | 1.3 | 2.1 | 1.6 | 1.3 | 1.7 | 3.7 ** |
| School C | | | | | | | | | | |
| 8th grade attendance rate (%) | 83.5 | 83.6 | 82.9 | 81.6 | | 85.4 | 85.9 | 84.8 | 85.0 | |
| Deviation from baseline | 4.6 * | 4.8 * | 4.1 | 2.8 | | 2.0 * | 2.5 ** | 1.4 | 1.7 | *** |
| School D | | | | | | | | | | |
| 8th grade attendance rate (%) | 90.4 | 86.8 | 85.6 | 84.0 | | 82.3 | 83.0 | 83.3 | 84.0 | |
| Deviation from baseline | 6.4 ** | 2.8 | 1.6 | 0.0 | | 1.1 | 1.9 | 2.1 | 2.9 | |
| School E | | | | | | | | | | |
| 8th grade attendance rate (%) | 87.0 | 90.1 | 91.9 | | | 85.5 | 85.5 | 85.5 | | |
| Deviation from baseline | 2.0 | 5.1 ** | 6.9 *** | | | -0.4 | -0.4 ** | -0.4 *** | | |
| School F | | | | | | | | | | |
| 8th grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| 8th grade attendance rate (%) | 86.9 | 87.6 | 87.4 | 85.5 | 87.7 | 85.5 | 85.8 | 85.3 | 85.7 | 88.1 |
| Deviation from baseline | 3.0 *** | 3.8 *** | 3.5 *** | 1.9 | 2.0 | 1.4 ** | 1.7 *** | 1.2 ** | 2.0 *** | 3.0 *** |

**The Talent Development Evaluation**

**TR Table A.7 (continued)**

**Year-by-Year Levels and Impacts for Attendance Rate for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 8th grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | -1.6 | 0.0 | 0.9 | 1.6 | 0.4 | -0.05 | 0.00 | 0.03 | 0.05 | 0.01 |
| School B | | | | | | | | | | |
| 8th grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | -0.6 | 1.8 | 1.2 | -0.1 | -2.4 | -0.02 | 0.06 | 0.04 | 0.00 | -0.08 |
| School C | | | | | | | | | | |
| 8th grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | 2.7 | 2.2 | 2.7 | 1.2 | | 0.09 | 0.07 | 0.09 | 0.04 | |
| School D | | | | | | | | | | |
| 8th grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | 5.3 | 0.9 | -0.5 | -2.9 | | 0.18 | 0.03 | -0.02 | -0.10 | |
| School E | | | | | | | | | | |
| 8th grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | 2.4 | 5.5 ** | 7.3 *** | | | 0.08 | 0.18 ** | 0.24 *** | | |
| School F | | | | | | | | | | |
| 8th grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| 8th grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | 1.6 | 2.1 * | 2.3 * | -0.1 | -1.0 | 0.05 | 0.07 | 0.08 | 0.00 | -0.03 |

## TR Table A.7 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

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.

**The Talent Development Evaluation**

## TR Table A.8

### Year-by-Year Levels and Impacts for Attendance Rates Greater Than or Equal to 90 Percent for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 48.4 | 48.2 | 52.7 | 55.7 | 58.7 | 54.4 | 54.1 | 52.0 | 52.7 | 54.3 |
| Deviation from baseline | 0.0 | -0.2 | 4.3 | 7.3 | 10.3 | 7.3 ** | 7.0 ** | 5.0 * | 5.6 ** | 7.2 ** |
| School B | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 62.5 | 69.3 | 61.9 | 61.7 | 64.1 | 58.1 | 55.8 | 54.2 | 55.5 | 61.5 |
| Deviation from baseline | 8.8 | 15.6 | 8.3 | 8.0 | 10.4 | 6.1 | 3.9 | 2.3 | 3.5 | 9.6 |
| School C | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 39.6 | 38.4 | 47.8 | 50.5 | | 51.0 | 53.5 | 46.3 | 49.7 | |
| Deviation from baseline | 9.7 | 8.5 | 17.9 ** | 20.6 ** | | 5.7 | 8.2 ** | 0.9 | 4.4 | |
| School D | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 70.7 | 56.6 | 51.9 | 43.7 | | 36.3 | 41.5 | 42.8 | 46.0 | |
| Deviation from baseline | 22.9 *** | 8.8 | 4.1 | -4.1 | | -7.5 | -2.3 | -1.0 | 2.2 | |
| School E | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 54.5 | 59.7 | 74.6 | | | 49.5 | 50.7 | 50.2 | | |
| Deviation from baseline | 0.0 | 5.3 | 20.1 *** | | | -1.9 | -0.7 | -1.2 | | |
| School F | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 55.1 | 54.5 | 57.8 | 52.9 | 61.4 | 49.8 | 51.1 | 49.1 | 51.0 | 57.9 |
| Deviation from baseline | 8.3 ** | 7.6 ** | 10.9 *** | 8.0 * | 10.4 | 2.0 | 3.2 * | 1.2 | 3.9 * | 8.4 ** |

(continued)

**The Talent Development Evaluation**

**TR Table A.8 (continued)**

**Year-by-Year Levels and Impacts for Attendance Rates Greater Than or Equal to 90 Percent for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | -7.3 | -7.2 | -0.7 | 1.6 | 3.1 | -0.15 | -0.15 | -0.01 | 0.03 | 0.06 |
| School B | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | 2.6 | 11.8 | 5.9 | 4.4 | 0.9 | 0.05 | 0.24 | 0.12 | 0.09 | 0.02 |
| School C | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | 4.0 | 0.3 | 17.0 * | 16.3 * | | 0.08 | 0.01 | 0.34 * | 0.33 * | |
| School D | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | 30.4 *** | 11.2 | 5.1 | -6.3 | | 0.62 *** | 0.23 | 0.10 | -0.13 | |
| School E | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | 1.9 | 5.9 | 21.3 *** | | | 0.04 | 0.12 | 0.43 *** | | |
| School F | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | 6.3 | 4.4 | 9.7 ** | 4.0 | 2.0 | 0.13 | 0.09 | 0.20 ** | 0.08 | 0.04 |

(continued)

## TR Table A.8 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

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.

**The Talent Development Evaluation**

## TR Table A.9

### Year-by-Year Levels and Impacts for Attendance Rates Less Than or Equal to 80 Percent for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 24.4 | 22.2 | 25.4 | 22.5 | 19.9 | 21.3 | 22.0 | 23.4 | 23.1 | 22.5 |
| Deviation from baseline | -1.4 | -3.6 | -0.3 | -3.3 | -5.8 | -6.7 *** | -6.0 *** | -4.6 ** | -4.9 ** | -5.5 *** |
| School B | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 16.2 | 11.1 | 14.8 | 15.8 | 15.4 | 18.4 | 21.1 | 22.9 | 20.9 | 18.6 |
| Deviation from baseline | -0.8 | -5.9 | -2.2 | -1.2 | -1.6 | -7.1 * | -4.5 | -2.7 | -4.6 | -7.0 * |
| School C | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 35.8 | 34.0 | 29.3 | 26.0 | | 25.2 | 24.0 | 25.9 | 26.7 | |
| Deviation from baseline | -9.6 | -11.4 | -16.0 ** | -19.4 ** | | -5.1 * | -6.3 ** | -4.4 | -3.6 | |
| School D | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 11.8 | 22.9 | 22.6 | 31.7 | | 35.4 | 29.0 | 30.9 | 29.5 | |
| Deviation from baseline | -17.0 ** | -5.9 | -6.2 | 2.9 | | 3.5 | -2.9 | -1.0 | -2.4 | |
| School E | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 20.8 | 13.9 | 10.3 | | | 24.8 | 24.7 | 24.9 | | |
| Deviation from baseline | -4.7 | -11.6 ** | -15.2 *** | | | 0.9 | 0.8 | 1.0 | | |
| School F | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 21.8 | 20.8 | 20.5 | 24.0 | 17.7 | 25.0 | 24.2 | 25.6 | 25.0 | 20.6 |
| Deviation from baseline | -6.7 ** | -7.7 *** | -8.0 *** | -5.2 * | -3.7 | -2.9 ** | -3.8 *** | -2.3 * | -3.9 ** | -6.2 *** |

(continued)

**The Talent Development Evaluation**

**TR Table A.9 (continued)**

**Year-by-Year Levels and Impacts for Attendance Rates Less Than or Equal to 80 Percent for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | 5.4 | 2.4 | 4.3 | 1.7 | -0.4 | 0.11 | 0.05 | 0.09 | 0.03 | -0.01 |
| School B | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | 6.3 | -1.4 | 0.4 | 3.5 | 5.3 | 0.13 | -0.03 | 0.01 | 0.07 | 0.11 |
| School C | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | -4.5 | -5.1 | -11.7 | -15.8 * | | -0.09 | -0.11 | -0.24 | -0.33 * | |
| School D | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | -20.4 ** | -3.0 | -5.3 | 5.3 | | -0.43 ** | -0.06 | -0.11 | 0.11 | |
| School E | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | -5.6 | -12.4 ** | -16.2 *** | | | -0.12 | -0.26 ** | -0.34 *** | | |
| School F | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | -3.8 | -3.9 | -5.7 * | -1.3 | 2.5 | -0.08 | -0.08 | -0.12 * | -0.03 | 0.05 |

(continued)

## TR Table A.9 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

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.

**The Talent Development Evaluation**

## TR Table A.10

### Year-by-Year Levels and Impacts for One-Year Promotion Rate for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Promoted to 9th grade | 99.5 | 98.9 | 100.1 | 99.8 | 99.0 | 98.0 | 97.4 | 98.9 | 96.4 | 98.4 |
| Deviation from baseline | 1.5 | 0.9 | 2.1 | 1.8 | 1.0 | -0.1 | -0.8 | 0.8 | -1.7 ** | 0.2 |
| School B | | | | | | | | | | |
| Promoted to 9th grade | 99.5 | 98.2 | 99.8 | 98.2 | 99.1 | 99.0 | 96.2 | 98.2 | 97.5 | 98.6 |
| Deviation from baseline | 0.6 | -0.6 | 1.0 | -0.6 | 0.3 | 0.7 | -2.0 ** | -0.1 | -0.8 | 0.3 |
| School C | | | | | | | | | | |
| Promoted to 9th grade | 94.4 | 96.9 | 100.4 | 100.4 | | 98.3 | 98.8 | 97.5 | 96.8 | |
| Deviation from baseline | -2.1 | 0.4 | 3.9 | 3.9 | | -0.2 | 0.3 | -0.9 | -1.7 * | |
| School D | | | | | | | | | | |
| Promoted to 9th grade | 96.2 | 98.7 | 99.5 | 97.9 | | 95.5 | 98.3 | 95.6 | 93.4 | |
| Deviation from baseline | -1.3 | 1.2 | 2.0 | 0.4 | | -0.8 | 2.0 | -0.7 | -2.9 | |
| School E | | | | | | | | | | |
| Promoted to 9th grade | 98.0 | 97.5 | | | | 99.1 | 96.0 | | | |
| Deviation from baseline | -0.1 | -0.6 | | | | 1.1 | -2.0 ** | | | |
| School F | | | | | | | | | | |
| Promoted to 9th grade | 98.8 | 97.8 | | | | 99.1 | 97.3 | | | |
| Deviation from baseline | 3.6 | 2.7 | | | | 1.3 * | -0.5 | | | |
| All early-implementing schools | | | | | | | | | | |
| Promoted to 9th grade | 97.7 | 98.0 | 100.0 | 99.1 | 99.1 | 98.2 | 97.3 | 97.6 | 96.0 | 98.5 |
| Deviation from baseline | 0.4 | 0.7 | 2.2 *** | 1.4 | 0.6 | 0.3 | -0.5 | -0.2 | -1.8 *** | 0.2 |

(continued)

**The Talent Development Evaluation**

**TR Table A.10 (continued)**

**Year-by-Year Levels and Impacts for One-Year Promotion Rate for Eighth-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Promoted to 9th grade | | | | | | | | | | |
| Deviation from baseline | 1.6 | 1.6 | 1.3 | 3.6 | 0.8 | 0.07 | 0.07 | 0.06 | 0.15 | 0.03 |
| School B | | | | | | | | | | |
| Promoted to 9th grade | | | | | | | | | | |
| Deviation from baseline | -0.1 | 1.4 | 1.1 | 0.2 | 0.0 | 0.00 | 0.06 | 0.04 | 0.01 | 0.00 |
| School C | | | | | | | | | | |
| Promoted to 9th grade | | | | | | | | | | |
| Deviation from baseline | -1.9 | 0.0 | 4.8 * | 5.6 ** | | -0.08 | 0.00 | 0.20 * | 0.24 ** | |
| School D | | | | | | | | | | |
| Promoted to 9th grade | | | | | | | | | | |
| Deviation from baseline | -0.5 | -0.9 | 2.7 | 3.2 | | -0.02 | -0.04 | 0.12 | 0.14 | |
| School E | | | | | | | | | | |
| Promoted to 9th grade | | | | | | | | | | |
| Deviation from baseline | -1.2 | 1.4 | | | | -0.05 | 0.06 | | | |
| School F | | | | | | | | | | |
| Promoted to 9th grade | | | | | | | | | | |
| Deviation from baseline | 2.3 | 3.2 | | | | 0.10 | 0.13 | | | |
| All early-implementing schools | | | | | | | | | | |
| Promoted to 9th grade | | | | | | | | | | |
| Deviation from baseline | 0.0 | 1.1 | 2.5 *** | 3.1 ** | 0.4 | 0.00 | 0.05 | 0.11 *** | 0.13 ** | 0.02 |

(continued)

## TR Table A.10 (continued)

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

NOTES: Sample includes 8th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

Eighth-grade students were considered promoted if they were listed as 9th-grade students in the district's administrative data file one year after the current year. Students whose records were not included on the data file one year after the current year, for whatever reason, were not in the analysis sample for this outcome.

**Unit 2b**

# Expanded Tables for Seventh-Grade Students in Early-Implementing Schools

**The Talent Development Evaluation**

**TR Table B.1**

**Year-by-Year Levels and Impacts for SAT-9 Math Total NCE Scores for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 7th-grade average NCE | 34.5 | 35.5 | 34.7 | 37.0 | 38.1 | 37.7 | 37.5 | 34.7 | 32.8 | 37.2 |
| Deviation from baseline | 2.3 | 3.3 | 2.5 | 4.7 | 5.8 | 4.2 *** | 4.0 *** | 1.2 | -0.7 | 3.7 *** |
| School B | | | | | | | | | | |
| 7th-grade average NCE | 39.2 | 39.6 | 35.6 | 37.9 | 40.9 | 40.1 | 38.7 | 39.6 | 34.1 | 39.0 |
| Deviation from baseline | 0.0 | 0.4 | -3.6 | -1.3 | 1.7 | 4.3 * | 2.8 | 3.7 * | -1.7 | 3.2 |
| School C | | | | | | | | | | |
| 7th-grade average NCE | 31.3 | 26.2 | 29.7 | 32.7 | | 31.9 | 29.3 | 31.0 | 33.0 | |
| Deviation from baseline | 1.9 | -3.2 | 0.3 | 3.3 | | 1.2 | -1.4 | 0.3 | 2.3 * | |
| School D | | | | | | | | | | |
| 7th-grade average NCE | 32.4 | 30.1 | 31.5 | 36.3 | | 35.0 | 33.4 | 31.1 | 35.9 | |
| Deviation from baseline | 0.9 | -1.4 | -0.1 | 4.8 ** | | 2.8 ** | 1.2 | -1.0 | 3.8 ** | |
| School E | | | | | | | | | | |
| 7th-grade average NCE | 33.4 | 34.1 | 36.9 | | | 31.8 | 31.6 | 36.0 | | |
| Deviation from baseline | -5.5 * | -4.8 | -2.1 | | | -3.3 *** | -3.5 *** | 0.9 | | |
| School F | | | | | | | | | | |
| 7th-grade average NCE | 35.4 | 36.3 | | | | 29.8 | 31.0 | | | |
| Deviation from baseline | 3.0 | 3.9 | | | | -2.8 *** | -1.6 ** | | | |
| All early-implementing schools | | | | | | | | | | |
| 7th-grade average NCE | 34.4 | 33.7 | 33.7 | 36.0 | 39.5 | 34.4 | 33.6 | 34.5 | 33.9 | 38.1 |
| Deviation from baseline | 0.4 | -0.3 | -0.6 | 2.9 * | 3.8 | 1.1 * | 0.2 | 1.0 | 0.9 | 3.5 *** |

(continued)

**The Talent Development Evaluation**

**TR Table B.1 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Math Total NCE Scores for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -1.9 | -0.7 | 1.3 | 5.5 | 2.1 | -0.13 | -0.05 | 0.09 | 0.38 | 0.14 |
| School B | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -4.3 | -2.4 | -7.3 * | 0.4 | -1.5 | -0.29 | -0.16 | -0.50 * | 0.03 | -0.10 |
| School C | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.6 | -1.8 | 0.0 | 1.0 | | 0.04 | -0.13 | 0.00 | 0.07 | |
| School D | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -2.0 | -2.6 | 1.0 | 1.0 | | -0.13 | -0.18 | 0.07 | 0.07 | |
| School E | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -2.2 | -1.2 | -2.9 | | | -0.15 | -0.09 | -0.20 | | |
| School F | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 5.9 ** | 5.5 * | | | | 0.40 ** | 0.38 * | | | |
| All early-implementing schools | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.6 | -0.5 | -1.6 | 2.0 | 0.3 | -0.04 | -0.04 | -0.11 | 0.14 | 0.02 |

(continued)

## TR Table B.1 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.2**

**Year-by-Year Levels and Impacts for SAT-9 Math Total Scores At or Above Grade Level for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | 20.0 | 15.1 | 17.3 | 15.2 | 16.9 | 21.2 | 20.2 | 15.2 | 9.8 | 18.5 |
| Deviation from baseline | 7.5 | 2.7 | 4.8 | 2.7 | 4.4 | 7.9 *** | 6.8 *** | 1.9 | -3.6 | 5.1 ** |
| School B | | | | | | | | | | |
| At or above grade level (%) | 26.4 | 25.0 | 14.4 | 17.3 | 21.8 | 26.2 | 23.3 | 26.1 | 12.4 | 21.4 |
| Deviation from baseline | 1.1 | -0.3 | -10.9 | -7.9 | -3.4 | 9.6 ** | 6.7 | 9.5 ** | -4.3 | 4.8 |
| School C | | | | | | | | | | |
| At or above grade level (%) | 12.9 | 7.8 | 5.1 | 6.8 | | 12.0 | 6.6 | 6.6 | 7.7 | |
| Deviation from baseline | 6.3 | 1.2 | -1.5 | 0.2 | | 3.9 ** | -1.5 | -1.5 | -0.4 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | 8.5 | 3.5 | 7.1 | 13.7 | | 12.9 | 14.2 | 4.8 | 12.4 | |
| Deviation from baseline | -0.9 | -5.8 * | -2.2 | 4.4 | | 3.6 | 4.9 ** | -4.5 ** | 3.2 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | 13.9 | 9.4 | 15.2 | | | 9.6 | 7.4 | 15.8 | | |
| Deviation from baseline | -6.1 | -10.6 | -4.8 | | | -6.6 ** | -8.7 *** | -0.4 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | 14.5 | 11.8 | | | | 6.3 | 6.5 | | | |
| Deviation from baseline | 3.3 | 0.5 | | | | -5.2 *** | -5.0 *** | | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | 16.0 | 12.1 | 11.8 | 13.3 | 19.4 | 14.7 | 13.0 | 13.7 | 10.6 | 19.9 |
| Deviation from baseline | 1.9 | -2.0 | -2.9 | -0.2 | 0.5 | 2.2 ** | 0.5 | 1.0 | -1.3 | 5.0 ** |

(continued)

**The Talent Development Evaluation**

**TR Table B.2 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Math Total Scores At or Above Grade Level for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -0.4 | -4.2 | 3.0 | 6.3 | -0.7 | -0.01 | -0.13 | 0.09 | 0.19 | -0.02 |
| School B | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -8.5 | -7.0 | -20.3 ** | -3.7 | -8.2 | -0.26 | -0.22 | -0.63 ** | -0.11 | -0.25 |
| School C | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 2.4 | 2.7 | 0.0 | 0.6 | | 0.07 | 0.08 | 0.00 | 0.02 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -4.4 | -10.6 ** | 2.3 | 1.3 | | -0.14 | -0.33 ** | 0.07 | 0.04 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 0.5 | -1.9 | -4.4 | | | 0.01 | -0.06 | -0.14 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 8.5 * | 5.5 | | | | 0.26 * | 0.17 | | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -0.3 | -2.6 | -3.9 | 1.1 | -4.5 | -0.01 | -0.08 | -0.12 | 0.03 | -0.14 |

(continued)

## TR Table B.2 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2o and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.3**

**Year-by-Year Levels and Impacts for SAT-9 Math Total Scores in the Bottom Quartile for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | 54.1 | 56.9 | 58.9 | 54.8 | 49.5 | 50.1 | 51.4 | 57.3 | 65.3 | 52.5 |
| Deviation from baseline | -12.0 | -9.2 | -7.2 | -11.3 | -16.6 | -10.0 *** | -8.8 ** | -2.9 | 5.1 | -7.6 ** |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | 44.0 | 46.3 | 53.3 | 46.4 | 39.5 | 43.5 | 47.7 | 42.9 | 62.0 | 45.6 |
| Deviation from baseline | -5.4 | -3.1 | 3.9 | -3.0 | -9.9 | -10.3 | -6.1 | -10.8 | 8.2 | -8.2 |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | 62.5 | 80.7 | 75.4 | 63.5 | | 65.2 | 73.9 | 70.5 | 67.6 | |
| Deviation from baseline | -11.8 | 6.5 | 1.2 | -10.8 | | -4.9 | 3.8 | 0.3 | -2.5 | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | 66.0 | 71.9 | 65.4 | 54.7 | | 56.6 | 62.4 | 71.7 | 57.6 | |
| Deviation from baseline | -2.5 | 3.4 | -3.1 | -13.8 * | | -10.1 * | -4.2 | 5.0 | -9.0 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | 60.9 | 59.9 | 58.5 | | | 65.8 | 68.6 | 56.6 | | |
| Deviation from baseline | 13.9 | 12.8 | 11.5 | | | 8.4 ** | 11.2 *** | -0.8 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | 56.7 | 53.6 | | | | 72.7 | 71.0 | | | |
| Deviation from baseline | -8.4 | -11.4 | | | | 8.5 *** | 6.8 ** | | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | 57.4 | 61.5 | 62.3 | 54.8 | 44.5 | 59.0 | 62.5 | 59.8 | 63.1 | 49.0 |
| Deviation from baseline | -4.3 | -0.2 | 1.3 | -9.7 ** | -13.2 * | -3.1 * | 0.5 | -1.8 | 0.4 | -7.9 ** |

(continued)

**The Talent Development Evaluation**

**TR Table B.3 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Math Total Scores in the Bottom Quartile for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -1.9 | -0.4 | -4.3 | -16.3 | -9.0 | -0.04 | -0.01 | -0.09 | -0.34 | -0.19 |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 4.9 | 3.0 | 14.7 | -11.2 | -1.7 | 0.10 | 0.06 | 0.31 | -0.24 | -0.04 |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -6.8 | 2.7 | 0.8 | -8.2 | | -0.14 | 0.06 | 0.02 | -0.17 | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 7.6 | 7.7 | -8.1 | -4.7 | | 0.16 | 0.16 | -0.17 | -0.10 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 5.4 | 1.6 | 12.3 | | | 0.11 | 0.03 | 0.26 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -16.8 * | -18.2 * | | | | -0.35 * | -0.38 * | | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -1.3 | -0.6 | 3.1 | -10.1 * | -5.3 | -0.03 | -0.01 | 0.06 | -0.21 * | -0.11 |

(continued)

## TR Table B.3 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.4**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving NCE Scores for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 7th-grade average NCE | 36.4 | 38.4 | 36.5 | 38.7 | 40.1 | 37.3 | 37.7 | 35.2 | 33.2 | 37.8 |
| Deviation from baseline | 4.4 | 6.4 * | 4.5 | 6.7 * | 8.1 ** | 4.1 *** | 4.5 *** | 2.0 * | 0.0 | 4.6 *** |
| School B | | | | | | | | | | |
| 7th-grade average NCE | 39.2 | 41.3 | 36.9 | 39.3 | 42.6 | 38.7 | 38.8 | 39.7 | 35.0 | 39.4 |
| Deviation from baseline | -0.4 | 1.8 | -2.6 | -0.3 | 3.0 | 4.2 ** | 4.3 ** | 5.3 ** | 0.6 | 5.0 ** |
| School C | | | | | | | | | | |
| 7th-grade average NCE | 31.9 | 25.9 | 30.1 | 34.0 | | 32.6 | 29.7 | 31.4 | 33.2 | |
| Deviation from baseline | 2.4 | -3.6 | 0.6 | 4.5 | | 2.2 | -0.7 | 1.0 | 2.8 ** | |
| School D | | | | | | | | | | |
| 7th-grade average NCE | 32.9 | 32.0 | 32.0 | 37.3 | | 35.8 | 34.7 | 33.1 | 33.9 | |
| Deviation from baseline | 1.7 | 0.8 | 0.8 | 6.1 ** | | 3.3 * | 2.2 | 0.6 | 1.4 | |
| School E | | | | | | | | | | |
| 7th-grade average NCE | 35.5 | 33.9 | 38.2 | | | 32.3 | 31.9 | 36.6 | | |
| Deviation from baseline | -3.0 | -4.6 | -0.3 | | | -2.9 ** | -3.3 *** | 1.4 | | |
| School F | | | | | | | | | | |
| 7th-grade average NCE | 36.4 | 35.1 | | | | 29.9 | 31.3 | | | |
| Deviation from baseline | 3.2 | 2.0 | | | | -2.8 *** | -1.4 | | | |
| All early-implementing schools | | | | | | | | | | |
| 7th-grade average NCE | 35.4 | 34.4 | 34.8 | 37.3 | 41.3 | 34.4 | 34.0 | 35.2 | 33.8 | 38.6 |
| Deviation from baseline | 1.4 | 0.4 | 0.6 | 4.2 *** | 5.6 ** | 1.4 ** | 0.9 * | 2.1 *** | 1.2 | 4.8 *** |

(continued)

**The Talent Development Evaluation**

**TR Table B.4 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving NCE Scores for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.3 | 1.8 | 2.5 | 6.7 * | 3.5 | 0.02 | 0.12 | 0.16 | 0.44 * | 0.23 |
| School B | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -4.6 | -2.6 | -7.9 ** | -0.9 | -1.9 | -0.31 | -0.17 | -0.52 ** | -0.06 | -0.13 |
| School C | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.2 | -2.9 | -0.4 | 1.7 | | 0.01 | -0.19 | -0.02 | 0.11 | |
| School D | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -1.6 | -1.4 | 0.2 | 4.6 | | -0.11 | -0.09 | 0.01 | 0.31 | |
| School E | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.1 | -1.3 | -1.7 | | | -0.01 | -0.09 | -0.11 | | |
| School F | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 6.0 * | 3.4 | | | | 0.40 * | 0.22 | | | |
| All early-implementing schools | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.0 | -0.5 | -1.5 | 3.1 * | 0.8 | 0.00 | -0.03 | -0.10 | 0.20 * | 0.05 |

(continued)

## TR Table B.4 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.5**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving Scores At or Above Grade Level for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | 21.4 | 20.2 | 18.5 | 16.5 | 20.3 | 19.2 | 20.3 | 16.2 | 10.8 | 20.4 |
| Deviation from baseline | 11.7 | 10.4 | 8.8 | 6.8 | 10.6 | 6.2 ** | 7.3 *** | 3.2 | -2.2 | 7.4 *** |
| School B | | | | | | | | | | |
| At or above grade level (%) | 28.4 | 29.2 | 19.4 | 18.7 | 26.8 | 21.8 | 23.7 | 26.5 | 15.0 | 23.3 |
| Deviation from baseline | 2.3 | 3.1 | -6.7 | -7.4 | 0.7 | 7.2 * | 9.2 ** | 11.9 *** | 0.5 | 8.8 ** |
| School C | | | | | | | | | | |
| At or above grade level (%) | 14.0 | 7.1 | 6.0 | 8.7 | | 12.8 | 6.9 | 7.4 | 10.2 | |
| Deviation from baseline | 6.0 | -0.9 | -2.0 | 0.7 | | 5.1 ** | -0.9 | -0.4 | 2.4 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | 10.6 | 5.3 | 7.3 | 15.7 | | 14.8 | 15.5 | 10.2 | 11.3 | |
| Deviation from baseline | 0.3 | -5.0 | -3.0 | 5.4 | | 3.9 | 4.6 * | -0.7 | 0.4 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | 13.5 | 10.4 | 17.9 | | | 10.7 | 7.9 | 18.0 | | |
| Deviation from baseline | -7.0 | -10.1 | -2.6 | | | -5.3 ** | -8.1 *** | 2.0 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | 15.9 | 12.7 | | | | 6.4 | 7.4 | | | |
| Deviation from baseline | 3.4 | 0.3 | | | | -5.2 *** | -4.3 *** | | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | 17.3 | 14.1 | 13.8 | 14.9 | 23.5 | 14.3 | 13.6 | 15.7 | 11.8 | 21.8 |
| Deviation from baseline | 2.8 | -0.4 | -1.1 | 1.4 | 5.7 | 2.0 * | 1.3 | 3.2 *** | 0.3 | 8.1 *** |

(continued)

**The Talent Development Evaluation**

**TR Table B.5 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving Scores At or Above Grade Level for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 5.5 | 3.1 | 5.5 | 9.0 | 3.2 | 0.17 | 0.10 | 0.17 | 0.28 | 0.10 |
| School B | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -4.9 | -6.1 | -18.6 ** | -7.9 | -8.1 | -0.15 | -0.19 | -0.58 ** | -0.25 | -0.25 |
| School C | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 0.9 | 0.0 | -1.6 | -1.8 | | 0.03 | 0.00 | -0.05 | -0.06 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -3.6 | -9.6 ** | -2.3 | 5.1 | | -0.11 | -0.30 ** | -0.07 | 0.16 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -1.7 | -2.0 | -4.7 | | | -0.05 | -0.06 | -0.15 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 8.6 | 4.5 | | | | 0.27 | 0.14 | | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 0.8 | -1.7 | -4.3 | 1.1 | -2.4 | 0.03 | -0.05 | -0.14 | 0.03 | -0.08 |

(continued)

**TR Table B.5 (continued)**

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data was not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.6**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving Scores in the Bottom Quartile for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | 52.6 | 44.9 | 55.7 | 42.5 | 35.4 | 52.9 | 51.7 | 56.2 | 61.4 | 50.4 |
| Deviation from baseline | -13.6 | -21.3 ** | -10.5 | -23.6 ** | -30.8 *** | -9.2 *** | -10.3 *** | -5.8 * | -0.7 | -11.6 *** |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | 43.9 | 45.4 | 52.7 | 39.3 | 34.1 | 48.6 | 49.2 | 44.3 | 56.7 | 45.7 |
| Deviation from baseline | -5.2 | -3.7 | 3.6 | -9.7 | -15.0 | -10.3 * | -9.7 * | -14.6 ** | -2.2 | -13.2 ** |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | 62.7 | 83.0 | 72.7 | 63.0 | | 64.5 | 72.8 | 65.5 | 62.7 | |
| Deviation from baseline | -10.6 | 9.7 | -0.6 | -10.3 | | -6.4 * | 1.8 | -5.4 | -8.2 ** | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | 63.3 | 65.8 | 62.3 | 54.0 | | 53.9 | 57.6 | 62.3 | 60.8 | |
| Deviation from baseline | -5.8 | -3.3 | -6.8 | -15.1 * | | -10.3 * | -6.6 | -1.9 | -3.4 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | 56.9 | 60.0 | 49.6 | | | 63.9 | 64.9 | 54.3 | | |
| Deviation from baseline | 9.6 | 12.7 | 2.3 | | | 5.6 * | 6.6 ** | -4.0 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | 57.9 | 59.8 | | | | 71.7 | 66.4 | | | |
| Deviation from baseline | -4.6 | -2.7 | | | | 6.9 ** | 1.6 | | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | 56.2 | 59.8 | 58.6 | 49.7 | 34.8 | 59.3 | 60.4 | 56.5 | 60.4 | 48.1 |
| Deviation from baseline | -5.0 | -1.4 | -2.4 | -14.7 *** | -22.9 *** | -3.9 ** | -2.8 * | -6.4 *** | -3.6 | -12.4 *** |

(continued)

**The Talent Development Evaluation**

**TR Table B.6 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving Scores in the Bottom Quartile for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -4.4 | -10.9 | -4.7 | -22.9 ** | -19.1 * | -0.09 | -0.23 | -0.10 | -0.48 ** | -0.40 * |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 5.0 | 6.0 | 18.2 | -7.5 | -1.8 | 0.11 | 0.13 | 0.38 | -0.16 | -0.04 |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -4.2 | 7.9 | 4.8 | -2.1 | | -0.09 | 0.17 | 0.10 | -0.04 | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 4.5 | 3.3 | -4.8 | -11.8 | | 0.09 | 0.07 | -0.10 | -0.25 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 4.1 | 6.2 | 6.3 | | | 0.09 | 0.13 | 0.13 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -11.6 | -4.3 | | | | -0.24 | -0.09 | | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -1.1 | 1.3 | 4.0 | -11.1 ** | -10.5 | -0.02 | 0.03 | 0.08 | -0.23 ** | -0.22 |

(continued)

## TR Table B.6 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4 and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4 and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4 and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all eighth-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.7**

**Year-by-Year Levels and Impacts for SAT-9 Reading NCE Scores for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 7th-grade average NCE | 36.9 | 37.0 | 41.7 | 38.3 | 39.5 | 39.0 | 38.8 | 36.4 | 34.7 | 40.0 |
| Deviation from baseline | -0.8 | -0.7 | 4.1 | 0.7 | 1.8 | 2.2 ** | 2.0 ** | -0.4 | -2.1 ** | 3.2 *** |
| School B | | | | | | | | | | |
| 7th-grade average NCE | 40.5 | 43.2 | 41.6 | 41.0 | 45.2 | 40.4 | 41.3 | 41.4 | 37.7 | 43.0 |
| Deviation from baseline | 0.5 | 3.1 | 1.6 | 0.9 | 5.1 | 1.0 | 1.9 | 2.0 | -1.7 | 3.5 * |
| School C | | | | | | | | | | |
| 7th-grade average NCE | 35.5 | 30.4 | 33.6 | 34.6 | | 35.7 | 32.2 | 33.9 | 35.8 | |
| Deviation from baseline | 4.2 | -1.0 | 2.2 | 3.2 | | 2.7 ** | -0.8 | 0.9 | 2.8 ** | |
| School D | | | | | | | | | | |
| 7th-grade average NCE | 33.4 | 32.3 | 31.7 | 36.3 | | 35.5 | 35.4 | 30.4 | 35.4 | |
| Deviation from baseline | -1.5 | -2.7 | -3.3 | 1.3 | | 0.6 | 0.5 | -4.4 * | 0.6 | |
| School E | | | | | | | | | | |
| 7th-grade average NCE | 36.5 | 36.1 | 39.6 | | | 34.3 | 33.4 | 38.8 | | |
| Deviation from baseline | -2.9 | -3.3 | 0.2 | | | -2.8 *** | -3.7 *** | 1.7 * | | |
| School F | | | | | | | | | | |
| 7th-grade average NCE | 34.4 | 32.4 | | | | 32.3 | 33.3 | | | |
| Deviation from baseline | 1.4 | -0.6 | | | | -2.9 *** | -1.8 ** | | | |
| All early-implementing schools | | | | | | | | | | |
| 7th-grade average NCE | 36.2 | 35.2 | 37.6 | 37.5 | 42.3 | 36.2 | 35.7 | 36.2 | 35.9 | 41.5 |
| Deviation from baseline | 0.1 | -0.8 | 1.0 | 1.5 | 3.5 | 0.2 | -0.3 | -0.1 | -0.1 | 3.3 *** |

(continued)

**The Talent Development Evaluation**

**TR Table B.7 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Reading NCE Scores for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -3.0 | -2.7 | 4.5 | 2.8 | -1.3 | -0.17 | -0.16 | 0.26 | 0.16 | -0.08 |
| School B | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.5 | 1.2 | -0.4 | 2.6 | 1.6 | -0.03 | 0.07 | -0.02 | 0.15 | 0.09 |
| School C | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 1.4 | -0.1 | 1.4 | 0.4 | | 0.08 | -0.01 | 0.08 | 0.02 | |
| School D | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -2.2 | -3.2 | 1.1 | 0.7 | | -0.13 | -0.19 | 0.07 | 0.04 | |
| School E | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | -0.1 | 0.4 | -1.5 | | | -0.01 | 0.02 | -0.09 | | |
| School F | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 4.2 | 1.2 | | | | 0.25 | 0.07 | | | |
| All early-implementing schools | | | | | | | | | | |
| 7th-grade average NCE | | | | | | | | | | |
| Deviation from baseline | 0.0 | -0.5 | 1.0 | 1.6 | 0.1 | 0.00 | -0.03 | 0.06 | 0.09 | 0.01 |

(continued)

## TR Table B.7 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.8**

**Year-by-Year Levels and Impacts for SAT-9 Reading Scores At or Above Grade Level for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | 24.0 | 22.2 | 34.1 | 25.3 | 27.0 | 24.4 | 25.8 | 22.8 | 18.9 | 24.7 |
| Deviation from baseline | -0.4 | -2.2 | 9.7 | 0.9 | 2.6 | 0.3 | 1.7 | -1.2 | -5.2 ** | 0.6 |
| School B | | | | | | | | | | |
| At or above grade level (%) | 31.5 | 36.3 | 31.5 | 27.7 | 34.4 | 25.6 | 30.4 | 34.3 | 25.6 | 30.4 |
| Deviation from baseline | 2.6 | 7.4 | 2.6 | -1.2 | 5.5 | -3.1 | 1.7 | 5.7 * | -3.0 | 1.8 |
| School C | | | | | | | | | | |
| At or above grade level (%) | 24.0 | 10.0 | 14.1 | 13.9 | | 20.3 | 13.7 | 17.8 | 15.8 | |
| Deviation from baseline | 9.5 * | -4.5 | -0.4 | -0.6 | | 3.8 ** | -2.8 | 1.3 | -0.7 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | 16.1 | 14.9 | 11.2 | 19.7 | | 17.8 | 20.3 | 13.3 | 16.7 | |
| Deviation from baseline | -1.1 | -2.2 | -5.9 | 2.5 | | -0.9 | 1.6 | -5.4 | -2.1 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | 22.7 | 19.9 | 23.9 | | | 17.9 | 16.0 | 22.3 | | |
| Deviation from baseline | -5.7 | -8.5 | -4.5 | | | -5.4 *** | -7.4 *** | -1.1 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | 14.7 | 11.2 | | | | 13.7 | 16.1 | | | |
| Deviation from baseline | -2.6 | -6.2 | | | | -5.7 *** | -3.3 ** | | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | 22.2 | 19.1 | 23.0 | 21.6 | 30.7 | 20.0 | 20.4 | 22.1 | 19.2 | 27.6 |
| Deviation from baseline | 0.4 | -2.7 | 0.3 | 0.4 | 4.0 | -1.8 * | -1.4 | -0.2 | -2.8 * | 1.2 |

(continued)

**The Talent Development Evaluation**

**TR Table B.8 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Reading Scores At or Above Grade Level for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -0.7 | -3.9 | 11.0 * | 6.1 | 2.0 | -0.02 | -0.10 | 0.28 * | 0.16 | 0.05 |
| School B | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 5.6 | 5.7 | -3.1 | 1.8 | 3.7 | 0.14 | 0.14 | -0.08 | 0.05 | 0.09 |
| School C | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 5.7 | -1.6 | -1.7 | 0.1 | | 0.14 | -0.04 | -0.04 | 0.00 | |
| School D | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -0.2 | -3.9 | -0.5 | 4.6 | | -0.01 | -0.10 | -0.01 | 0.12 | |
| School E | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | -0.2 | -1.1 | -3.4 | | | -0.01 | -0.03 | -0.09 | | |
| School F | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 3.1 | -2.8 | | | | 0.08 | -0.07 | | | |
| All early-implementing schools | | | | | | | | | | |
| At or above grade level (%) | | | | | | | | | | |
| Deviation from baseline | 2.2 | -1.3 | 0.4 | 3.2 | 2.9 | 0.06 | -0.03 | 0.01 | 0.08 | 0.07 |

(continued)

## TR Table B.8 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.9**

**Year-by-Year Levels and Impacts for SAT-9 Reading Scores in the Bottom Quartile for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | 51.7 | 46.2 | 41.4 | 43.7 | 45.0 | 43.8 | 44.8 | 50.5 | 54.9 | 43.5 |
| Deviation from baseline | 5.7 | 0.2 | -4.6 | -2.3 | -1.0 | -5.3 * | -4.3 | 1.4 | 5.8 ** | -5.6 ** |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | 38.9 | 32.9 | 39.4 | 36.9 | 30.2 | 40.2 | 38.4 | 38.9 | 44.4 | 36.0 |
| Deviation from baseline | -3.5 | -9.4 | | -5.5 | -12.2 | -2.4 | -4.2 | -3.7 | 1.8 | -6.6 |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | 50.3 | 69.5 | 56.3 | 58.9 | | 52.1 | 61.6 | 57.4 | 54.7 | |
| Deviation from baseline | -14.2 * | 4.9 | -8.2 | -5.6 | | -6.4 ** | 3.1 | -1.0 | -3.8 | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | 57.8 | 62.7 | 63.3 | 49.9 | | 50.2 | 50.9 | 64.2 | 54.6 | |
| Deviation from baseline | 4.7 | 9.6 | 10.2 | -3.2 | | -6.4 | -5.7 | 7.6 | -2.0 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | 49.0 | 52.3 | 46.2 | | | 56.3 | 59.1 | 46.1 | | |
| Deviation from baseline | 6.4 | 9.7 | 3.6 | | | 7.6 *** | 10.4 *** | -2.6 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | 55.3 | 63.4 | | | | 61.2 | 58.9 | | | |
| Deviation from baseline | -7.1 | 1.0 | | | | 7.2 *** | 4.9 ** | | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | 50.5 | 54.5 | 49.3 | 47.3 | 37.6 | 50.6 | 52.3 | 51.4 | 52.2 | 39.8 |
| Deviation from baseline | -1.3 | 2.7 | -0.4 | -4.1 | -6.6 | -0.9 | 0.7 | 0.3 | 0.5 | -6.1 ** |

(continued)

**The Talent Development Evaluation**

**TR Table B.9 (continued)**

**Year-by-Year Levels and Impacts for SAT-9 Reading Scores in the Bottom Quartile for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 11.1 | 4.5 | -6.0 | -8.1 | 4.6 | 0.22 | 0.09 | -0.12 | -0.16 | 0.09 |
| School B | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -1.1 | -5.2 | 0.7 | -7.3 | -5.6 | -0.02 | -0.11 | 0.01 | -0.15 | -0.11 |
| School C | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -7.8 | 1.8 | -7.2 | -1.8 | | -0.16 | 0.04 | -0.14 | -0.04 | |
| School D | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | 11.2 | 15.3 * | 2.6 | -1.2 | | 0.22 | 0.31 * | 0.05 | -0.02 | |
| School E | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -1.3 | -0.7 | 6.2 | | | -0.03 | -0.01 | 0.12 | | |
| School F | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -14.3 * | -4.0 | | | | -0.29 * | -0.08 | | | |
| All early-implementing schools | | | | | | | | | | |
| In the bottom quartile (%) | | | | | | | | | | |
| Deviation from baseline | -0.4 | 2.0 | -0.7 | -4.6 | -0.5 | -0.01 | 0.04 | -0.01 | -0.09 | -0.01 |

(continued)

## TR Table B.9 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

**The Talent Development Evaluation**

**TR Table B.10**

**Year-by-Year Levels and Impacts for Attendance Rate for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 7th-grade attendance rate (%) | 85.9 | 87.2 | 88.5 | 87.5 | 86.9 | 87.4 | 86.8 | 86.3 | 86.2 | 86.3 |
| Deviation from baseline | -1.2 | 0.1 | 1.3 | 0.4 | -0.2 | 1.5 * | 0.8 | 0.3 | 0.3 | 0.4 |
| School B | | | | | | | | | | |
| 7th-grade attendance rate (%) | 88.0 | 88.6 | 89.4 | 88.1 | 89.3 | 88.8 | 87.9 | 87.2 | 87.8 | 87.5 |
| Deviation from baseline | -0.9 | -0.3 | 0.5 | -0.7 | 0.5 | 0.6 | -0.2 | -1.0 | -0.4 | -0.7 |
| School C | | | | | | | | | | |
| 7th-grade attendance rate (%) | 82.2 | 84.3 | 80.1 | 76.8 | | 84.9 | 85.0 | 84.8 | 84.5 | |
| Deviation from baseline | 0.2 | 2.3 | -1.9 | -5.2 ** | | 0.7 | 0.9 | 0.7 | 0.3 | |
| School D | | | | | | | | | | |
| 7th-grade attendance rate (%) | 86.1 | 86.3 | 83.6 | 85.0 | | 82.5 | 85.0 | 82.6 | 86.4 | |
| Deviation from baseline | 0.5 | 0.7 | -2.0 | -0.6 | | 0.7 | 3.2 * | 0.8 | 4.7 ** | |
| School E | | | | | | | | | | |
| 7th-grade attendance rate (%) | 85.2 | 88.4 | 90.6 | | | 85.7 | 85.5 | 85.9 | | |
| Deviation from baseline | -2.0 | 1.1 | 3.4 * | | | -0.3 | -0.5 | 0.0 | | |
| School F | | | | | | | | | | |
| 7th-grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| 7th-grade attendance rate (%) | 85.5 | 87.0 | 86.4 | 84.4 | 88.1 | 85.8 | 86.0 | 85.3 | 86.2 | 86.9 |
| Deviation from baseline | -0.7 | 0.8 | 0.3 | -1.5 | 0.1 | 0.7 | 0.8 ** | 0.2 | 1.2 ** | -0.2 |

(continued)

**The Talent Development Evaluation**

**TR Table B.10 (continued)**

**Year-by-Year Levels and Impacts for Attendance Rate for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| 7th-grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | -2.7 | -0.7 | 1.0 | 0.1 | -0.6 | -0.09 | -0.02 | 0.03 | 0.00 | -0.02 |
| School B | | | | | | | | | | |
| 7th-grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | -1.5 | 0.0 | 1.5 | -0.3 | 1.2 | -0.05 | 0.00 | 0.05 | -0.01 | 0.04 |
| School C | | | | | | | | | | |
| 7th-grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | -0.5 | 1.5 | -2.6 | -5.5 ** | | -0.02 | 0.05 | -0.09 | -0.18 ** | |
| School D | | | | | | | | | | |
| 7th-grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | -0.2 | -2.5 | -2.8 | -5.2 * | | -0.01 | -0.08 | -0.09 | -0.17 * | |
| School E | | | | | | | | | | |
| 7th-grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | -1.7 | 1.7 | 3.5 | | | -0.06 | 0.06 | 0.12 | | |
| School F | | | | | | | | | | |
| 7th-grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| 7th-grade attendance rate (%) | | | | | | | | | | |
| Deviation from baseline | -1.3 | 0.0 | 0.1 | -2.8 ** | 0.3 | -0.04 | 0.00 | 0.00 | -0.09 ** | 0.01 |

(continued)

## TR Table B.10 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

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.

**The Talent Development Evaluation**

**TR Table B.11**

**Year-by-Year Levels and Impacts for Attendance Rates Greater Than or Equal to 90 Percent for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 50.0 | 52.0 | 54.6 | 49.9 | 49.2 | 55.4 | 51.2 | 51.2 | 50.8 | 50.3 |
| Deviation from baseline | 0.0 | 2.0 | 4.6 | -0.1 | -0.8 | 3.6 | -0.6 | -0.6 | -1.0 | -1.5 |
| School B | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 62.1 | 60.7 | 61.3 | 61.7 | 63.6 | 58.8 | 55.1 | 52.1 | 56.5 | 53.8 |
| Deviation from baseline | 2.6 | 1.2 | 1.8 | 2.2 | 4.1 | 0.0 | -3.7 | -6.7 ** | -2.3 | -5.0 |
| School C | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 34.1 | 42.0 | 41.8 | 35.0 | | 46.8 | 46.4 | 44.2 | 43.6 | |
| Deviation from baseline | -1.8 | 6.1 | 6.0 | -0.9 | | 1.7 | 1.3 | -0.9 | -1.5 | |
| School D | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 44.4 | 49.3 | 40.5 | 45.1 | | 36.1 | 43.9 | 35.1 | 51.1 | |
| Deviation from baseline | -2.0 | 2.8 | -6.0 | -1.3 | | -4.0 | 3.8 | -5.0 | 11.0 ** | |
| School E | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 43.9 | 53.5 | 65.4 | | | 49.7 | 47.3 | 49.3 | | |
| Deviation from baseline | -13.6 ** | -4.0 | 7.9 | | | -0.9 | -3.2 | -1.3 | | |
| School F | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | 46.9 | 51.5 | 52.7 | 47.9 | 56.4 | 49.4 | 48.8 | 46.4 | 50.5 | 52.1 |
| Deviation from baseline | -2.9 | 1.6 | 2.9 | 0.0 | 1.7 | 0.1 | -0.5 | -2.9 ** | 1.6 | -3.2 * |

(continued)

**The Talent Development Evaluation**

**TR Table B.11 (continued)**

**Year-by-Year Levels and Impacts for Attendance Rates Greater Than or Equal to 90 Percent for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | -3.6 | 2.7 | 5.2 | 0.8 | 0.7 | -0.07 | 0.05 | 0.11 | 0.02 | 0.01 |
| School B | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | 2.7 | 4.9 | 8.5 | 4.5 | 9.1 * | 0.05 | 0.10 | 0.17 | 0.09 | 0.18 * |
| School C | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | -3.5 | 4.8 | 6.8 | 0.6 | | -0.07 | 0.10 | 0.14 | 0.01 | |
| School D | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | 2.0 | -0.9 | -1.0 | -12.3 | | 0.04 | -0.02 | -0.02 | -0.25 | |
| School E | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | -12.8 * | -0.8 | 9.1 | | | -0.26 * | -0.02 | 0.18 | | |
| School F | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| Attendance rate of 90% or higher (%) | | | | | | | | | | |
| Deviation from baseline | -3.0 | 2.1 | 5.7 * | -1.6 | 4.9 | -0.06 | 0.04 | 0.12 * | -0.03 | 0.10 |

(continued)

## TR Table B.11 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared to individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years as compared Year 4 and Year 5.

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.

**The Talent Development Evaluation**

**TR Table B.12**

**Year-by-Year Levels and Impacts for Attendance Rates Less Than or Equal to 80 Percent for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Outcome Levels Compared with Baseline Average | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Talent Development Schools | | | | | Non-Talent Development Schools | | | | |
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 18.1 | 22.6 | 21.8 | 23.5 | 24.2 | 19.5 | 24.8 | 24.1 | 25.4 | 25.0 |
| Deviation from baseline | -5.1 | -0.6 | -1.4 | 0.3 | 1.0 | -4.7 ** | 0.6 | -0.2 | 1.1 | 0.7 |
| School B | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 17.6 | 14.7 | 17.3 | 18.3 | 14.9 | 16.6 | 21.9 | 22.3 | 22.6 | 23.7 |
| Deviation from baseline | 2.0 | -0.9 | 1.7 | 2.7 | -0.7 | -2.8 | 2.4 | 2.8 | 3.2 | 4.3 * |
| School C | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 41.5 | 28.5 | 35.4 | 36.9 | | 28.9 | 27.3 | 27.6 | 28.8 | |
| Deviation from baseline | 4.7 | -8.3 | -1.4 | 0.1 | | 0.2 | -1.4 | -1.1 | 0.2 | |
| School D | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 22.6 | 21.9 | 34.4 | 28.2 | | 35.2 | 30.5 | 36.0 | 27.1 | |
| Deviation from baseline | 0.0 | -0.8 | 11.7 * | 5.5 | | 1.7 | -3.0 | 2.5 | -6.4 | |
| School E | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 23.6 | 19.6 | 13.4 | | | 26.0 | 27.2 | 25.2 | | |
| Deviation from baseline | 1.8 | -2.2 | -8.3 | | | 1.3 | 2.5 | 0.5 | | |
| School F | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | 24.7 | 21.5 | 24.5 | 26.7 | 19.6 | 25.2 | 26.3 | 27.0 | 26.0 | 24.4 |
| Deviation from baseline | 0.7 | -2.5 | 0.5 | 2.2 | 0.2 | -0.9 | 0.2 | 0.9 | -0.5 | 2.5 * |

(continued)

**The Talent Development Evaluation**

**TR Table B.12 (continued)**

**Year-by-Year Levels and Impacts for Attendance Rates Less Than or Equal to 80 Percent for Seventh-Grade Students in Early-Implementing Talent Development Schools and Their Comparison Schools, Five-Year Follow-Up Results, by School Cluster**

| | Impact | | | | | Impact Effect Size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| School Cluster | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| School A | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | -0.4 | -1.2 | -1.2 | -0.8 | 0.3 | -0.01 | -0.03 | -0.03 | -0.02 | 0.01 |
| School B | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | 4.8 | -3.3 | -1.2 | -0.4 | -5.0 | 0.10 | -0.07 | -0.03 | -0.01 | -0.11 |
| School C | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | 4.5 | -6.8 | -0.3 | 0.0 | | 0.10 | -0.15 | -0.01 | 0.00 | |
| School D | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | -1.8 | 2.2 | 9.3 | 11.9 | | -0.04 | 0.05 | 0.20 | 0.26 | |
| School E | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | 0.5 | -4.7 | -8.9 | | | 0.01 | -0.10 | -0.19 | | |
| School F | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | | | | | | | | | | |
| All early-implementing schools | | | | | | | | | | |
| Attendance rate of 80% or lower (%) | | | | | | | | | | |
| Deviation from baseline | 1.5 | -2.8 | -0.5 | 2.7 | -2.3 | 0.03 | -0.06 | -0.01 | 0.06 | -0.05 |

(continued)

## TR Table B.12 (continued)

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

NOTES: Sample includes 7th-grade students from 6 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of between 2 and 11 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, Year 3, Year 4, and Year 5 was calculated as the difference between the baseline average and the Year 1, Year 2, Year 3, Year 4, and Year 5 averages, respectively.

The impacts for Year 1, Year 2, Year 3, Year 4, and Year 5 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Blank spaces under the Year 4 and Year 5 columns indicate that, at the time of analysis, some clusters had not yet completed a fourth or fifth year of implementation or data were not available for that outcome.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates. Similarly, across-school averages at the bottom of each page include a larger sample of schools in the first three follow-up years, as compared with Year 4 and Year 5.

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

**Unit 2c**

# Expanded Tables for Eighth-Grade Students in Later-Implementing Schools

**The Talent Development Evaluation**

**TR Table C.1**

**Year-by-Year Levels and Impacts for Math NCE Scores for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| 8th-grade average NCE | 28.5 | 31.8 | 3.2 | 31.3 | 33.0 | 1.7 | 1.5 | 0.10 |
| School H | | | | | | | | |
| 8th-grade average NCE | 29.7 | 29.4 | -0.4 | 26.1 | 28.6 | 2.5 *** | -2.9 | -0.20 |
| School I | | | | | | | | |
| 8th-grade average NCE | 26.2 | 33.1 | 6.9 ** | 24.6 | 27.6 | 2.9 ** | 3.9 | 0.27 |
| School J | | | | | | | | |
| 8th-grade average NCE | 26.9 | 31.3 | 4.4 | 25.3 | 26.8 | 1.5 | 2.9 | 0.20 |
| School K | | | | | | | | |
| 8th-grade average NCE | 27.0 | 29.2 | 2.1 | 28.4 | 29.6 | 1.3 * | 0.9 | 0.06 |
| All later-implementing schools | | | | | | | | |
| 8th-grade average NCE | 27.7 | 30.9 | 3.3 *** | 27.1 | 29.1 | 2.0 *** | 1.3 | 0.09 |

(continued)

**TR Table C.1 (continued)**

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared wtih individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.2**

**Year-by-Year Levels and Impacts for Math Scores At or Above Grade Level for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| At or above grade level (%) | 9.6 | 9.2 | -0.4 | 11.2 | 11.9 | 0.7 | -1.1 | -0.05 |
| School H | | | | | | | | |
| At or above grade level (%) | 8.7 | 10.0 | 1.3 | 6.0 | 6.0 | -0.1 | 1.4 | 0.06 |
| School I | | | | | | | | |
| At or above grade level (%) | 5.1 | 9.4 | 4.3 | 4.2 | 3.7 | -0.5 | 4.8 | 0.22 |
| School J | | | | | | | | |
| At or above grade level (%) | 7.3 | 10.7 | 3.3 | 6.1 | 3.7 | -2.4 | 5.7 | 0.26 |
| School K | | | | | | | | |
| At or above grade level (%) | 6.8 | 5.4 | -1.4 | 8.2 | 7.7 | -0.5 | -0.9 | -0.04 |
| All later-implementing schools | | | | | | | | |
| At or above grade level (%) | 7.5 | 8.9 | 1.4 | 7.1 | 6.6 | -0.5 | 2.0 | 0.09 |

(continued)

## TR Table C.2 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.3**

**Year-by-Year Levels and Impacts for Math Scores in the Bottom Quartile for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Impact Effect Size |
| School G | | | | | | | | |
| In the bottom quartile (%) | 72.5 | 67.4 | -5.1 | 64.3 | 58.9 | -5.4 | 0.3 | 0.01 |
| School H | | | | | | | | |
| In the bottom quartile (%) | 68.8 | 65.7 | -3.0 | 77.5 | 72.9 | -4.6 * | 1.6 | 0.04 |
| School I | | | | | | | | |
| In the bottom quartile (%) | 76.1 | 56.8 | -19.3 *** | 80.9 | 76.3 | -4.6 ** | -14.7 ** | -0.37 ** |
| School J | | | | | | | | |
| In the bottom quartile (%) | 73.0 | 72.8 | -0.2 | 77.4 | 80.1 | 2.7 | -2.9 | -0.07 |
| School K | | | | | | | | |
| In the bottom quartile (%) | 76.1 | 72.3 | -3.8 | 71.6 | 68.9 | -2.6 | -1.2 | -0.03 |
| All later-implementing schools | | | | | | | | |
| In the bottom quartile (%) | 73.3 | 67.0 | -6.3 ** | 74.3 | 71.4 | -2.9 ** | -3.4 | -0.09 |

(continued)

## TR Table C.3 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.4**

**Year-by-Year Levels and Impacts for Reading NCE Scores for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| 8th-grade average NCE | 29.4 | 30.4 | 1.0 | 31.7 | 34.0 | 2.4 ** | -1.4 | -0.09 |
| School H | | | | | | | | |
| 8th-grade average NCE | 25.1 | 27.3 | 2.3 | 27.6 | 30.9 | 3.3 *** | -1.0 | -0.06 |
| School I | | | | | | | | |
| 8th-grade average NCE | 26.0 | 30.7 | 4.7 | 26.0 | 30.6 | 4.7 *** | 0.0 | 0.00 |
| School J | | | | | | | | |
| 8th-grade average NCE | 28.6 | 35.3 | 6.6 ** | 26.6 | 25.5 | -1.1 | 7.7 ** | 0.48 ** |
| School K | | | | | | | | |
| 8th-grade average NCE | 30.4 | 30.6 | 0.2 | 29.8 | 31.7 | 1.9 ** | -1.7 | -0.11 |
| All later-implementing schools | | | | | | | | |
| 8th-grade average NCE | 27.9 | 30.9 | 2.9 *** | 28.3 | 30.5 | 2.2 *** | 0.7 | 0.05 |

(continued)

## TR Table C.4 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.5**

**Year-by-Year Levels and Impacts for Reading Scores At or Above Grade Level for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| At or above grade level (%) | 9.0 | 5.8 | -3.3 | 12.9 | 11.6 | -1.4 | -1.9 | -0.07 |
| School H | | | | | | | | |
| At or above grade level (%) | 5.0 | 4.8 | -0.2 | 7.8 | 7.9 | 0.1 | -0.3 | -0.01 |
| School I | | | | | | | | |
| At or above grade level (%) | 6.0 | 9.3 | 3.3 | 6.3 | 6.5 | 0.2 | 3.1 | 0.11 |
| School J | | | | | | | | |
| At or above grade level (%) | 11.2 | 13.5 | 2.3 | 6.1 | 3.9 | -2.2 | 4.5 | 0.16 |
| School K | | | | | | | | |
| At or above grade level (%) | 10.7 | 9.3 | -1.4 | 10.0 | 9.2 | -0.8 | -0.6 | -0.02 |
| All later-implementing schools | | | | | | | | |
| At or above grade level (%) | 8.4 | 8.5 | 0.1 | 8.6 | 7.8 | -0.8 | 1.0 | 0.03 |

(continued)

## TR Table C.5 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.6**

**Year-by-Year Levels and Impacts for Reading Scores in the Bottom Quartile for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| In | 69.3 | 67.6 | -1.7 | 65.2 | 58.7 | -6.4 * | 4.7 | 0.10 |
| School H | | | | | | | | |
| In the bottom quartile (%) | 78.0 | 78.6 | 0.6 | 74.2 | 68.5 | -5.7 ** | 6.3 | 0.14 |
| School I | | | | | | | | |
| In the bottom quartile (%) | 76.3 | 69.4 | -7.0 | 77.6 | 68.5 | -9.1 *** | 2.2 | 0.05 |
| School J | | | | | | | | |
| In the bottom quartile (%) | 72.5 | 54.0 | -18.4 ** | 73.8 | 80.2 | 6.4 | -24.8 ** | -0.54 ** |
| School K | | | | | | | | |
| In the bottom quartile (%) | 68.2 | 70.1 | 1.8 | 69.6 | 65.6 | -4.0 | 5.8 | 0.13 |
| All later-implementing schools | | | | | | | | |
| In the bottom quartile (%) | 72.9 | 67.9 | -4.9 * | 72.1 | 68.3 | -3.8 *** | -1.2 | -0.03 |

(continued)

**TR Table C.6 (continued)**

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.7**

**Year-by-Year Levels and Impacts for Attendance Rate for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| 8th-grade attendance rate (%) | 88.1 | 88.5 | 0.4 | 86.5 | 87.7 | 1.3 | -0.9 | -0.03 |
| School H | | | | | | | | |
| 8th-grade attendance rate (%) | 84.7 | 86.0 | 1.3 | 85.7 | 85.2 | -0.5 | 1.8 | 0.06 |
| School I | | | | | | | | |
| 8th-grade attendance rate (%) | 81.7 | 82.4 | 0.7 | 85.4 | 85.1 | -0.3 | 1.0 | 0.03 |
| School J | | | | | | | | |
| 8th-grade attendance rate (%) | 82.3 | 84.2 | 1.9 | 83.9 | 81.6 | -2.3 | 4.3 * | 0.14 * |
| School K | | | | | | | | |
| 8th-grade attendance rate (%) | 86.2 | 85.4 | -0.7 | 86.5 | 86.6 | 0.2 | -0.9 | -0.03 |
| All later-implementing schools | | | | | | | | |
| 8th-grade attendance rate (%) | 84.6 | 85.3 | 0.7 | 85.6 | 85.3 | -0.3 | 1.1 | 0.04 |

(continued)

## TR Table C.7 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.8**

**Year-by-Year Levels and Impacts for Attendance of 90 Percent or Higher for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Impact Effect Size |
| School G | | | | | | | | |
| Attendance rate of 90% or higher (%) | 59.7 | 64.1 | 4.4 | 53.9 | 58.4 | 4.5 | -0.1 | 0.00 |
| School H | | | | | | | | |
| Attendance rate of 90% or higher (%) | 47.3 | 48.1 | 0.8 | 50.8 | 49.7 | -1.0 | 1.8 | 0.04 |
| School I | | | | | | | | |
| Attendance rate of 90% or higher (%) | 35.1 | 43.5 | 8.4 | 50.4 | 49.8 | -0.6 | 9.0 | 0.18 |
| School J | | | | | | | | |
| Attendance rate of 90% or higher (%) | 41.3 | 46.9 | 5.6 | 40.9 | 38.9 | -2.0 | 7.6 | 0.16 |
| School K | | | | | | | | |
| Attendance rate of 90% or higher (%) | 52.3 | 50.7 | -1.5 | 52.7 | 54.1 | 1.4 | -2.9 | -0.06 |
| All later-implementing schools | | | | | | | | |
| Attendance rate of 90% or higher (%) | 47.1 | 50.7 | 3.5 | 49.8 | 50.2 | 0.4 | 3.1 | 0.06 |

(continued)

## TR Table C.8 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.9**

**Year-by-Year Levels and Impacts for Attendance Rates Less Than or Equal to 80 Percent for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| Attendance rate of 80% or lower (%) | 20.3 | 18.9 | -1.4 | 23.2 | 21.9 | -1.3 | -0.2 | 0.00 |
| School H | | | | | | | | |
| Attendance rate of 80% or lower (%) | 29.1 | 24.5 | -4.6 | 24.4 | 26.0 | 1.5 | -6.2 | -0.13 |
| School I | | | | | | | | |
| Attendance rate of 80% or lower (%) | 37.9 | 30.8 | -7.2 | 25.0 | 26.5 | 1.5 | -8.7 | -0.18 |
| School J | | | | | | | | |
| Attendance rate of 80% or lower (%) | 33.9 | 28.0 | -5.9 | 29.5 | 31.3 | 1.8 | -7.7 | -0.16 |
| School K | | | | | | | | |
| Attendance rate of 80% or lower (%) | 24.0 | 24.0 | -0.1 | 23.0 | 22.8 | -0.2 | 0.2 | 0.00 |
| All later-implementing schools | | | | | | | | |
| Attendance rate of 80% or lower (%) | 29.1 | 25.2 | -3.8 * | 25.0 | 25.7 | 0.7 | -4.5 ** | -0.09 ** |

(continued)

## TR Table C.9 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table C.10**

**Year-by-Year Levels and Impacts for One-Year Promotion Rates for Eighth-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| Promoted to 9th grade | 95.9 | 94.8 | -1.1 | 97.3 | 98.6 | 1.4 | -2.4 | -0.10 |
| School H | | | | | | | | |
| Promoted to 9th grade | 99.1 | 97.8 | -1.2 | 97.8 | 97.6 | -0.2 | -1.1 | -0.05 |
| School I | | | | | | | | |
| Promoted to 9th grade | 98.8 | 99.3 | 0.6 | 98.1 | 97.0 | -1.2 | 1.7 | 0.07 |
| School J | | | | | | | | |
| Promoted to 9th grade | 92.3 | 101.8 | 9.5 | 96.2 | 89.8 | -6.5 | 15.9 * | 0.68 * |
| School K | | | | | | | | |
| Promoted to 9th grade | 98.7 | 94.6 | -4.0 * | 97.5 | 98.4 | 0.9 | -5.0 ** | -0.21 ** |
| All later-implementing schools | | | | | | | | |
| Promoted to 9th grade | 96.9 | 97.7 | 0.7 | 97.4 | 96.3 | -1.1 | 1.8 | 0.08 |

(continued)

## TR Table C.10 (continued)

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

NOTES: Sample includes 8th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 8th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**Unit 2d**

# Expanded Tables for Seventh-Grade Students in Later-Implementing Schools

**The Talent Development Evaluation**

**TR Table D.1**

**Year-by-Year Levels and Impacts for SAT-9 Math Total NCE Scores for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| 7th-grade average NCE | 37.8 | 39.8 | 2.0 | 36.8 | 41.1 | 4.3 ** | -2.3 | -0.16 |
| School H | | | | | | | | |
| 7th-grade average NCE | 33.9 | 42.0 | 8.1 ** | 32.8 | 35.2 | 2.4 ** | 5.6 | 0.39 |
| School I | | | | | | | | |
| 7th-grade average NCE | 31.5 | 37.0 | 5.6 * | 31.0 | 33.3 | 2.4 * | 3.2 | 0.22 |
| School J | | | | | | | | |
| 7th-grade average NCE | 36.4 | 39.3 | 2.9 | 33.6 | 37.0 | 3.4 | -0.5 | -0.04 |
| School K | | | | | | | | |
| 7th-grade average NCE | 34.6 | 35.2 | 0.6 | 34.9 | 37.1 | 2.3 * | -1.6 | -0.11 |
| All later-implementing schools | | | | | | | | |
| 7th-grade average NCE | 34.8 | 38.7 | 3.8 ** | 33.8 | 36.8 | 3.0 *** | 0.9 | 0.06 |

(continued)

**TR Table D.1 (continued)**

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.2**

**Year-by-Year Levels and Impacts for SAT-9 Math Total Scores At or Above Grade Level for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| At or above grade level (%) | 19.1 | 21.2 | 2.1 | 19.2 | 27.0 | 7.8 * | -5.7 | -0.18 |
| School H | | | | | | | | |
| At or above grade level (%) | 12.0 | 28.9 | 16.9 * | 11.0 | 13.6 | 2.6 | 14.3 | 0.44 |
| School I | | | | | | | | |
| At or above grade level (%) | 8.7 | 15.0 | 6.3 | 8.7 | 8.5 | -0.1 | 6.4 | 0.20 |
| School J | | | | | | | | |
| At or above grade level (%) | 16.5 | 18.9 | 2.4 | 11.6 | 13.9 | 2.3 | 0.2 | 0.00 |
| School K | | | | | | | | |
| At or above grade level (%) | 14.7 | 13.9 | -0.8 | 14.8 | 18.4 | 3.5 | -4.3 | -0.13 |
| All later-implementing schools | | | | | | | | |
| At or above grade level (%) | 14.2 | 19.6 | 5.4 | 13.1 | 16.3 | 3.2 * | 2.2 | 0.07 |

(continued)

## TR Table D.2 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.3**

**Year-by-Year Levels and Impacts for SAT-9 Math Total Scores in the Bottom Quartile for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| In the bottom quartile (%) | 50.1 | 44.7 | -5.3 | 53.0 | 41.2 | -11.8 ** | 6.5 | 0.14 |
| School H | | | | | | | | |
| In the bottom quartile (%) | 63.3 | 40.9 | -22.3 * | 64.5 | 60.1 | -4.5 | -17.9 | -0.38 |
| School I | | | | | | | | |
| In the bottom quartile (%) | 67.8 | 54.2 | -13.6 | 69.2 | 66.7 | -2.5 | -11.1 | -0.23 |
| School J | | | | | | | | |
| In the bottom quartile (%) | 53.3 | 42.0 | -11.3 | 62.4 | 52.1 | -10.3 | -1.0 | -0.02 |
| School K | | | | | | | | |
| In the bottom quartile (%) | 57.9 | 56.8 | -1.2 | 58.5 | 53.0 | -5.6 | 4.4 | 0.09 |
| All later-implementing schools | | | | | | | | |
| In the bottom quartile (%) | 58.5 | 47.7 | -10.8 ** | 61.5 | 54.6 | -6.9 *** | -3.8 | -0.08 |

(continued)

**TR Table D.3 (continued)**

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.4**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving NCE Scores for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| 7th-grade average NCE | 38.5 | 40.7 | 2.2 | 37.3 | 41.5 | 4.2 ** | -2.0 | -0.13 |
| School H | | | | | | | | |
| 7th-grade average NCE | 33.6 | 41.7 | 8.1 ** | 33.2 | 35.8 | 2.6 ** | 5.4 | 0.36 |
| School I | | | | | | | | |
| 7th-grade average NCE | 31.7 | 38.7 | 7.0 ** | 31.5 | 33.6 | 2.1 | 4.9 | 0.32 |
| School J | | | | | | | | |
| 7th-grade average NCE | 36.6 | 39.8 | 3.2 | 35.4 | 32.1 | -3.4 | 6.6 * | 0.43 * |
| School K | | | | | | | | |
| 7th-grade average NCE | 33.7 | 36.4 | 2.7 | 35.2 | 37.6 | 2.4 ** | 0.3 | 0.02 |
| All later-implementing schools | | | | | | | | |
| 7th-grade average NCE | 34.8 | 39.5 | 4.6 *** | 34.5 | 36.1 | 1.6 ** | 3.0 * | 0.20 * |

(continued)

## TR Table D.4 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.5**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving Scores At or Above Grade Level for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| At or above grade level (%) | 22.1 | 22.1 | 0.0 | 20.1 | 29.2 | 9.2 ** | -9.2 | -0.29 |
| School H | | | | | | | | |
| At or above grade level (%) | 11.6 | 26.9 | 15.3 * | 11.6 | 16.0 | 4.4 * | 11.0 | 0.34 |
| School I | | | | | | | | |
| At or above grade level (%) | 10.3 | 18.6 | 8.3 | 9.4 | 10.7 | 1.3 | 7.0 | 0.22 |
| School J | | | | | | | | |
| At or above grade level (%) | 17.5 | 21.1 | 3.6 | 15.4 | 8.7 | -6.7 | 10.3 | 0.32 |
| School K | | | | | | | | |
| At or above grade level (%) | 14.0 | 17.8 | 3.8 | 15.5 | 20.3 | 4.9 * | -1.1 | -0.03 |
| All later-implementing schools | | | | | | | | |
| At or above grade level (%) | 15.1 | 21.3 | 6.2 * | 14.4 | 17.0 | 2.6 | 3.6 | 0.11 |

(continued)

## TR Table D.5 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.6**

**Year-by-Year Levels and Impacts for SAT-9 Math Problem Solving Scores in the Bottom Quartile for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| In the bottom quartile (%) | 48.0 | 37.9 | -10.1 | 51.4 | 41.4 | -10.0 ** | -0.1 | 0.00 |
| School H | | | | | | | | |
| In the bottom quartile (%) | 65.5 | 38.6 | -26.9 ** | 62.7 | 55.8 | -6.9 ** | -20.0 * | -0.42 * |
| School I | | | | | | | | |
| In the bottom quartile (%) | 65.9 | 45.3 | -20.6 ** | 67.0 | 62.1 | -4.9 | -15.7 | -0.33 |
| School J | | | | | | | | |
| In the bottom quartile (%) | 53.4 | 41.6 | -11.8 | 55.8 | 67.5 | 11.7 * | -23.5 ** | -0.50 ** |
| School K | | | | | | | | |
| In the bottom quartile (%) | 57.9 | 53.2 | -4.8 | 57.2 | 51.2 | -6.0 ** | 1.2 | 0.03 |
| All later-implementing schools | | | | | | | | |
| In the bottom quartile (%) | 58.1 | 43.3 | -14.8 *** | 58.8 | 55.6 | -3.2 ** | -11.6 *** | 3.25 *** |

(continued)

## TR Table D.6 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.7**

**Year-by-Year Levels and Impacts for SAT-9 Reading NCE Scores for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| 7th-grade average NCE | 39.3 | 42.3 | 3.0 | 39.0 | 42.7 | 3.8 ** | -0.8 | -0.05 |
| School H | | | | | | | | |
| 7th-grade average NCE | 31.1 | 41.4 | 10.2 *** | 34.9 | 37.7 | 2.8 *** | 7.4 ** | 0.43 ** |
| School I | | | | | | | | |
| 7th-grade average NCE | 33.7 | 41.1 | 7.3 ** | 34.4 | 35.9 | 1.5 | 5.8 * | 0.34 * |
| School J | | | | | | | | |
| 7th-grade average NCE | 38.0 | 38.6 | 0.6 | 35.5 | 32.3 | -3.2 | 3.8 | 0.22 |
| School K | | | | | | | | |
| 7th-grade average NCE | 36.5 | 38.5 | 2.0 | 36.5 | 39.9 | 3.4 *** | -1.4 | -0.08 |
| All later-implementing schools | | | | | | | | |
| 7th-grade average NCE | 35.7 | 40.4 | 4.6 *** | 36.0 | 37.7 | 1.7 ** | 3.0 * | 0.17 * |

(continued)

## TR Table D.7 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.8**

**Year-by-Year Levels and Impacts for SAT-9 Reading Scores At or Above Grade Level for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| At or above grade level (%) | 26.8 | 25.0 | -1.8 | 26.9 | 29.7 | 2.8 | -4.5 | -0.11 |
| School H | | | | | | | | |
| At or above grade level (%) | 14.2 | 30.5 | 16.3 ** | 18.8 | 20.2 | 1.5 | 14.8 * | 0.37 * |
| School I | | | | | | | | |
| At or above grade level (%) | 14.9 | 26.1 | 11.2 ** | 18.0 | 16.2 | -1.9 | 13.1 ** | 0.33 ** |
| School J | | | | | | | | |
| At or above grade level (%) | 25.4 | 27.3 | 1.9 | 20.2 | 8.3 | -11.9 * | 13.8 | 0.35 |
| School K | | | | | | | | |
| At or above grade level (%) | 21.3 | 14.8 | -6.5 | 21.8 | 24.2 | 2.4 | -8.9 | -0.23 |
| All later-implementing schools | | | | | | | | |
| At or above grade level (%) | 20.5 | 24.7 | 4.2 | 21.1 | 19.7 | -1.4 | 5.6 | 0.14 |

(continued)

## TR Table D.8 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.9**

**Year-by-Year Levels and Impacts for SAT-9 Reading Scores in the Bottom Quartile for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| In the bottom quartile (%) | 42.4 | 37.1 | -5.3 | 43.8 | 37.2 | -6.6 | 1.3 | 0.03 |
| School H | | | | | | | | |
| In the bottom quartile (%) | 62.5 | 46.1 | -16.4 * | 55.0 | 49.3 | -5.7 ** | -10.7 | -0.22 |
| School I | | | | | | | | |
| In the bottom quartile (%) | 57.9 | 37.6 | -20.3 ** | 55.9 | 54.5 | -1.4 | -18.9 ** | -0.38 ** |
| School J | | | | | | | | |
| In the bottom quartile (%) | 44.7 | 44.0 | -0.7 | 51.3 | 62.0 | 10.7 | -11.3 | -0.23 |
| School K | | | | | | | | |
| In the bottom quartile (%) | 51.8 | 41.4 | -10.4 | 50.5 | 43.7 | -6.7 ** | -3.7 | -0.07 |
| All later-implementing schools | | | | | | | | |
| In the bottom quartile (%) | 51.9 | 41.2 | -10.6 *** | 51.3 | 49.4 | -2.0 | -8.7 * | -0.17 * |

(continued)

## TR Table D.9 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.10**

**Year-by-Year Levels and Impacts for Attendance Rate for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| 7th-grade attendance rate (%) | 88.6 | 87.6 | -1.0 | 86.9 | 87.0 | 0.1 | -1.1 | -0.04 |
| School H | | | | | | | | |
| 7th-grade attendance rate (%) | 85.0 | 86.9 | 1.9 | 85.4 | 85.1 | -0.3 | 2.2 | 0.07 |
| School I | | | | | | | | |
| 7th-grade attendance rate (%) | 83.2 | 83.2 | 0.0 | 85.0 | 84.5 | -0.5 | 0.4 | 0.01 |
| School J | | | | | | | | |
| 7th-grade attendance rate (%) | 83.0 | 81.8 | -1.2 | 84.3 | 85.4 | 1.2 | -2.4 | -0.08 |
| School K | | | | | | | | |
| 7th-grade attendance rate (%) | 85.6 | 85.7 | 0.1 | 86.5 | 86.4 | -0.1 | 0.2 | 0.01 |
| All later-implementing schools | | | | | | | | |
| 7th-grade attendance rate (%) | 85.1 | 85.0 | -0.1 | 85.6 | 85.7 | 0.1 | -0.1 | 0.00 |

(continued)

## TR Table D.10 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.11**

**Year-by-Year Levels and Impacts for Attendance Rates Greater Than or Equal to 90 Percent for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | Impact |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Effect Size |
| School G | | | | | | | | |
| Attendance rate of 90% or higher (%) | 58.4 | 58.7 | 0.3 | 53.7 | 53.4 | -0.2 | 0.5 | 0.01 |
| School H | | | | | | | | |
| Attendance rate of 90% or higher (%) | 44.2 | 56.3 | 12.1 * | 47.7 | 46.1 | -1.6 | 13.7 * | 0.28 * |
| School I | | | | | | | | |
| Attendance rate of 90% or higher (%) | 41.0 | 43.3 | 2.3 | 46.3 | 44.0 | -2.3 | 4.6 | 0.09 |
| School J | | | | | | | | |
| Attendance rate of 90% or higher (%) | 38.3 | 28.9 | -9.5 | 38.8 | 49.8 | 11.0 * | -20.4 ** | -0.41 ** |
| School K | | | | | | | | |
| Attendance rate of 90% or higher (%) | 45.8 | 51.4 | 5.6 | 51.5 | 50.5 | -0.9 | 6.5 | 0.13 |
| All later-implementing schools | | | | | | | | |
| Attendance rate of 90% or higher (%) | 45.6 | 47.7 | 2.2 | 47.6 | 48.8 | 1.2 | 1.0 | 0.02 |

(continued)

## TR Table D.11 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.7.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.

**The Talent Development Evaluation**

**TR Table D.12**

**Year-by-Year Levels and Impacts for Attendance Rates Less Than or Equal to 80 Percent for Seventh-Grade Students in Later-Implementing Talent Development Schools and Their Comparison Schools, One-Year Follow-Up Results, by School Cluster**

| | Talent Development Schools | | | Non-Talent Development Schools | | | | |
|---|---|---|---|---|---|---|---|---|
| School Cluster | Baseline | Year 1 | Difference | Baseline | Year 1 | Difference | Impact | Impact Effect Size |
| School G | | | | | | | | |
| Attendance rate of 80% or lower (%) | 16.3 | 20.0 | 3.7 | 22.8 | 23.4 | 0.5 | 3.1 | 0.07 |
| School H | | | | | | | | |
| Attendance rate of 80% or lower (%) | 28.5 | 24.2 | -4.3 | 26.7 | 26.9 | 0.2 | -4.5 | -0.10 |
| School I | | | | | | | | |
| Attendance rate of 80% or lower (%) | 34.1 | 34.4 | 0.3 | 27.6 | 28.5 | 0.9 | -0.6 | -0.01 |
| School J | | | | | | | | |
| Attendance rate of 80% or lower (%) | 34.7 | 34.6 | -0.1 | 32.0 | 30.0 | -1.9 | 1.9 | 0.04 |
| School K | | | | | | | | |
| Attendance rate of 80% or lower (%) | 25.8 | 24.4 | -1.5 | 24.0 | 24.4 | 0.4 | -1.8 | -0.04 |
| All later-implementing schools | | | | | | | | |
| Attendance rate of 80% or lower (%) | 27.9 | 27.5 | -0.4 | 26.6 | 26.6 | 0.0 | -0.4 | -0.01 |

(continued)

## TR Table D.12 (continued)

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

NOTES: Sample includes 7th-grade students from 5 Talent Development middle schools and 18 non-Talent Development middle schools. The analysis sample includes students not designated as ESOL or special education for whom a test score record is available or who were enrolled for at least 145 days during a given school year.

Each school cluster consists of a Talent Development school matched with a group of 1 to 12 non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

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

Numbers in the "Year 1" columns reflect averages for the first year of Talent Development implementation.

Numbers in the "Difference" columns reflect the difference in deviations from the baseline average and the average in Year 1.

The impacts for Year 1 were calculated as the difference in deviations from baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 7th-grade students in the 11 Talent Development schools and the 18 non-Talent Development comparison schools from school years 1995-1996 through 1996-1997.

Estimates are regression-adjusted using ordinary least squares, controlling for 4th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade.

A two-tailed t-test was applied to the deviations from baseline for Talent Development and non-Talent Development comparison schools, and to the impact estimates. 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. Statistical significance, which in part depends on sample size, may be achieved with deviations of a smaller magnitude for non-Talent Development school estimates, which represent the average of several schools, as compared with individual Talent Development school estimates.