



**PROGRESS TOWARD HIGH SCHOOL GRADUATION:
Citizen Schools' Youth Outcomes in Boston**

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Executive Summary

Citizen Schools partners with middle schools to provide enriched after-school programming for low-income youth in sixth, seventh, and eighth grades. The program supports skill development intended to promote the achievement of long-term academic, social, career, and civic success. To accomplish its mission, Citizen Schools extends the student learning day by offering hands-on learning opportunities in areas that include career exposure, high school and college preparation, and academic enrichment. Since 2001, Citizen Schools has sponsored a longitudinal evaluation of the program's progress in advancing the development of the academic and real-world skills of middle school students, so that they can apply those skills in high school and beyond. This report is the sixth in a series of reports presenting findings from the evaluation of the middle and high school experiences of former Citizen Schools participants in Boston.

Earlier phases of the evaluation found evidence that Citizen Schools supports the transition and success of students from the middle grades into high school. Former participants were found to be at greater educational risk than Boston Public Schools (BPS) students prior to enrolling in Citizen Schools, based on their fourth-grade performance on tests administered through the Massachusetts Comprehensive Assessment System (MCAS) (Fabiano, Pearson, & Williams, 2005). Despite the challenges that at-risk students face, evaluation findings indicate that Citizen Schools participants were more engaged and made greater academic gains in middle and high school relative to a matched comparison group. In addition, Citizen Schools participants reported experiencing positive relationships with adults and peers and feeling more confident in their public speaking skills as a result of program participation (Fabiano et al., 2005; Fabiano, Pearson, Reisner, & Williams, 2006). In eighth grade, Citizen Schools participants attended school more and achieved at higher levels in English Language Arts compared with matched nonparticipants (Pearson, Vile, & Reisner, 2008). Following their participation in Citizen Schools' 8th Grade Academy, students enrolled in high-quality high schools at more than twice the rate of matched comparison students (Pearson et al., 2008).

The fifth report of the evaluation described participants' academic engagement and achievement as they progressed through high school. In ninth through eleventh grades, former Citizen Schools participants consistently attended school more often than did matched nonparticipants. Former participants also achieved at higher levels than did matched nonparticipants in several academic areas, as measured by passing scores in ninth-grade English, tenth-grade math, and the state test in English Language Arts. Former participants were also more likely to be promoted to tenth grade on time (Pearson et al., 2008).

Generally speaking, at-risk and urban students are more likely to drop out of high school than are students from families with higher incomes, students from non-urban school districts, and students from historically advantaged racial and ethnic groups (Laird, DeBell, Kienzl, & Chapman, 2007; Swanson, 2004). Findings presented in the fifth report of the evaluation demonstrated that former Citizen Schools participants were more likely to be on track to graduate from high school in four years than were matched nonparticipants (Pearson et al., 2008).

The current report updates academic engagement and achievement analyses included in previous reports with data from the 2006-07 school year. It also incorporates new analyses, including persistence in a high-quality high school and four-year graduation rate. Twelfth-grade outcomes are included in this report.

Similar to previous reports, evaluators found that former Citizen Schools participants were more likely to enroll in a high-quality high school than were their counterparts. In addition, of the students enrolled in a high-quality high school in ninth grade, former participants were more likely to persist in a high-quality high school from ninth to eleventh grade than were matched nonparticipants who were also enrolled in a high-quality high school in ninth grade.

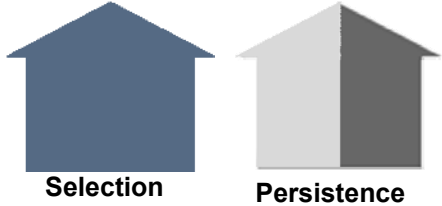
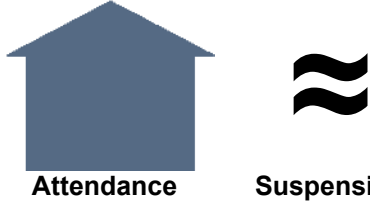
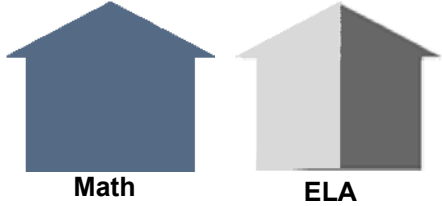
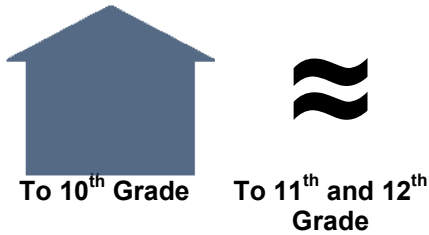

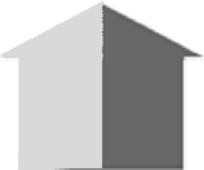



High school engagement findings were consistent with previous reports. Former Citizen Schools participants had, on average, significantly higher attendance rates in high school than did matched nonparticipants. However, there were no statistical differences in suspension rates between former participants and matched nonparticipants.

Citizen Schools participation was associated with higher math performance, as measured by high school course grades and MCAS test scores. Former participants were more likely than matched nonparticipants to pass math at every grade level, and former participants had higher pass rates and proficiency rates on the Mathematics MCAS. Comparing participant performance to BPS district performance, evaluators found that former participants were more likely to pass and also to earn proficient and advanced levels on the Mathematics MCAS than was the average BPS student.

Examining English Language Arts performance, evaluators found that former participants outperformed their comparison groups on eight performance indicators, while faring similarly to their peers on six indicators. Former participants passed English class at a higher rate than did matched nonparticipants in ninth and twelfth grades, but passed in similar rates to their matches in tenth and eleventh grades. On the English Language Arts MCAS, former participants were more likely to score at the proficient or advanced level than were matched nonparticipants. In a comparison of participant performance to district performance, evaluators found that former participants were more likely to pass the exam than was the average BPS student but were equally likely to earn proficient and advanced levels on the test compared to the typical BPS student.

Consistent with the findings in the fifth report, former Citizen Schools participants were more likely than matched nonparticipants to be on track to graduate from high school upon entering tenth grade. New analyses in this report found that former participants were also more likely to graduate from high school in four years, compared to BPS students overall.

The next and final report will continue to track former 8th Grade Academy participants through twelfth grade to confirm whether former participants continue to achieve positive academic and social outcomes and successfully complete high school.

Summary of Findings		
Measure	Trends	Findings
Selection of and persistence in a high-quality high school	 Selection  Persistence	Former Citizen Schools participants were more likely than nonparticipants to enroll in a high-quality high school. Former participants were more likely to persist in high-quality high schools from ninth to eleventh grade.
High school engagement	 Attendance  Suspension	Former participants attended school at higher rates in all high school grade levels. Former participants were suspended at rates similar to their matches.
High school academic achievement	 Math  ELA	Former participants outperformed their comparison groups on most math performance indicators. They outperformed their comparison group on some English Language Arts performance indicators but fared similarly to their peers in others.
Progress toward high school graduation	 To 10 th Grade  To 11 th and 12 th Grade	By tenth grade, former participants were more likely than matched nonparticipants to be on track to graduate. No notable difference was detected in the percent of former participants and nonparticipants reaching eleventh and twelfth grades on time.
High school graduation		Former participants were more likely to graduate from high school in four years than were BPS students overall.

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Evaluation Overview

Beginning in 2001, Policy Studies Associates has conducted a multi-phase evaluation to assess Citizen Schools' progress toward equipping at-risk students with the knowledge and skills that they will need to achieve long-term academic, social, career, and civic success. To assess the program's impact, the evaluation uses a quasi-experimental design that employs a matched-comparison group of similar Boston Public Schools (BPS) students not enrolled in Citizen Schools. Citizen Schools' headquarters office, BPS, and four Boston-area charter schools annually provide evaluators with data on the educational engagement and academic achievement of participants and former participants. In addition, BPS provides information on the matched comparison group, including educational-engagement and academic-achievement data that are equivalent to the data provided for participants. Information on comparison group students does not include their after-school experiences while in middle school.

The quasi-experimental design used in the evaluation matches participants with similar nonparticipants based on observable measures such as demographic characteristics and test scores. Evaluators found no statistical differences between participants and nonparticipants on measured characteristics at baseline, as shown in Appendix A. The design of the study is limited by hidden bias that may be present in unobservable measures, which may threaten the internal validity of the results. The primary cause of hidden bias occurs in the selection and attrition of participants. Because of these two types of self-selection effects, the evaluation may overestimate or underestimate the impact of Citizen Schools. Evaluators believe self-selection to the program overall may overestimate the impact of Citizen Schools on measured outcomes. In every case, participants chose to be part of Citizen Schools, and so they may have unmeasured traits that may be correlated with outcomes studied in the evaluation. Evaluators believe attrition overall may underestimate the impact of Citizen Schools by inflating the performance of the matched nonparticipant group. The impact of attrition on the nonparticipant group is larger than the participant group and it is likely that youth remaining in the BPS system have more positive academic outcomes than those leaving the BPS system. Refer to Appendix A for more information on the study's technical approach.

Findings through the Fifth Report

Results from the first three phases of the evaluation showed that Citizen Schools had been successful in setting educationally at-risk students on a path toward future success. Survey data collected in the first three years of the evaluation revealed that Citizen Schools students had a strong sense of connection to the program and experienced positive relationships with adults and peers (Fabiano, Pearson, & Williams, 2005). Students also reported feeling more confident in public speaking as a result of program participation, and they reported frequent opportunities to participate in hands-on learning and take on leadership roles at Citizen Schools. Evaluators found that Citizen Schools had a positive impact on short-term academic outcomes during the middle school years. Among students in their first year of program participation, positive outcomes were found in school attendance and promotion rates, suspension rates, and seventh-

grade scores on the English Language Arts test administered as part of the Massachusetts Comprehensive Assessment System (MCAS). For students who continued participating in Citizen Schools for a second or third year, analysis also showed a positive impact on school attendance and promotion rates, mathematics grades of returning students in the seventh grade, and eighth-grade Mathematics MCAS scores.

Findings from the fourth phase of the evaluation demonstrated that participation in Citizen Schools during the middle school years was associated with increased levels of student engagement and achievement in the early high school years (Fabiano, Pearson, Reisner, & Williams, 2006). In particular, former 8th Grade Academy participants enrolled in high-quality high schools at about twice the rate of matched nonparticipants. During their ninth-grade year, former participants earned higher grades than did matched nonparticipants in English courses.

A major finding of the Phase V report was that former Citizen Schools participants were more likely to be on track to graduate from high school on time than were matched nonparticipants (Pearson, Vile, & Reisner, 2008). Evaluators also found positive impacts on school attendance and on the achievement of passing scores in ninth-grade English Language Arts, tenth-grade math, and the English Language Arts MCAS.

Overview of the Current Evaluation Phase

In the fifth phase, evaluators added the final cohort of 8th Grade Academy participants to the evaluation sample (Pearson et al., 2008). The complete sample includes 448 former 8th Grade Academy participants from the classes of 2001-02 through 2005-06. This report follows these 448 8th Grade Academy participants through the 2006-07 school year and assesses their school engagement, academic achievement, and progress toward high school graduation. The size of each analysis sample is limited by the number of 8th Grade Academy classes eligible to be included in the analysis, given the cohorts' grade in school and the number of participant/matched nonparticipants pairs for which data were available for that measure. By 2006-07, the number of 8th Grade Academy classes reaching twelfth grade was sufficient to permit examination of twelfth-grade outcomes, in addition to the ninth- through eleventh-grade outcomes examined in the previous report.

Exhibit 1
Citizen Schools Participants in the Evaluation,
by 8th Grade Academy Class

8th Grade Academy Class	n
2001-02 class	48
2002-03 class	85
2003-04 class	118
2004-05 class	103
2005-06 class	94
Total	448

This report presents analyses that compare selection of and persistence in a high-quality high school, school engagement (i.e., school attendance and suspension), academic achievement (i.e., course grades and standardized test scores), and progress toward graduation (i.e., on-time promotion, on-track to graduation, and four-year graduation rate) of former 8th Grade Academy participants with the outcomes of the matched comparison group of nonparticipants and, in some cases, with the outcomes of BPS students as a whole. Comparing the outcomes of former 8th Grade Academy participants to two groups, the matched comparison group and BPS students as a whole, allows for the assessment of participant outcomes in two distinct contexts, a statistically similar group of students and the larger environment of the school system in which they are enrolled. Evaluators added the BPS comparison group to provide additional context to the findings given that the performance of the matched comparison group could be overstated or understated due to self-selection effects and attrition. Refer to Appendix B for definitions of the specific measures used in the analyses. Findings presented in this report are not reported by program exposure level. Refer to Appendix C for tables presenting findings disaggregated by Citizen Schools exposure level, consistent with previous reports.

Report Organization

This report presents findings on the high school outcomes of former Citizen Schools participants. The first chapter describes patterns of high school selection and persistence in a high-quality high school. The second chapter discusses engagement patterns, including school attendance and suspension rates. Academic achievement outcomes are presented in the third chapter, and the fourth chapter presents findings on high school graduation, including an on-track indicator predicting a student's likelihood of graduating high school, on-time promotion, and four-year graduation rate. The final chapter presents conclusions and a summary of findings discussed in the report.

High School Selection and Persistence

Previous reports concluded that 8th Grade Academy participants selected high-quality high schools more often than did matched nonparticipants. Analyses in this chapter support that finding and expand it by exploring whether participants remained enrolled in high-quality high schools. Evaluators found that, among the students entering a high-quality high school in ninth grade, participants were more likely to persist in a high-quality high school from ninth to eleventh grade than were matched nonparticipants, as shown in Exhibit 2.

Exhibit 2
Former Participants' Selection and Persistence in a High-Quality High School, Compared with Matched Nonparticipants, in Percentage Points

Indicator	Difference Between Participants and Matched Nonparticipants
Selection of a high-quality high school, ninth grade (n=396)	▲ + 31***
Persisting in a high-quality high school, ninth to tenth grade (n=47)	▲ + 10
Persisting in a high-quality high school, ninth to eleventh grade (n=32)	▲ + 31**

- * Participants outperformed matched nonparticipants, p<.05
- ** Participants outperformed matched nonparticipants, p<.01
- *** Participants outperformed matched nonparticipants, p<.001

High School Selection

The analysis of high school selection is a critical component of this evaluation. All BPS eighth-grade students may choose the high school they will attend in ninth grade. Citizen Schools supports 8th Grade Academy participants and their parents in this process by providing information and resources about Boston high schools. For the purposes of the evaluation, Citizen Schools rated the quality of local Boston high schools as high, middle, or low. A high-quality school is a school with a high level of educational culture, support, and achievement, as indicated by measures such as MCAS passing rates, attendance rates, suspension rates, promotion rates, drop-out rates, graduation rates, resources available at the school, college-preparation courses offered, and external partnerships.

Following their participation in 8th Grade Academy, students enrolled in high-quality high schools at more than twice the rate of matched comparison students.¹ Former participants

¹ This analysis only includes students who attended a rated high school. Among former participants and matched nonparticipants in the evaluation sample, 3 percent enrolled in a high school in ninth grade that was not rated by Citizen Schools, according to data provided by BPS and Citizen Schools.

selected a high-quality high school 59 percent of the time, while matched nonparticipants selected a high-quality high school 28 percent of the time, as shown in Exhibit 3.

Exhibit 3 Former Participants' Selection of High-Quality High Schools, Compared with Matched Nonparticipants

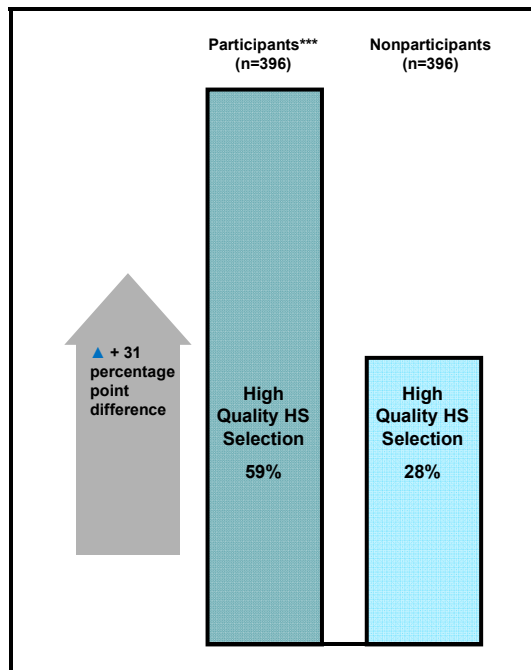


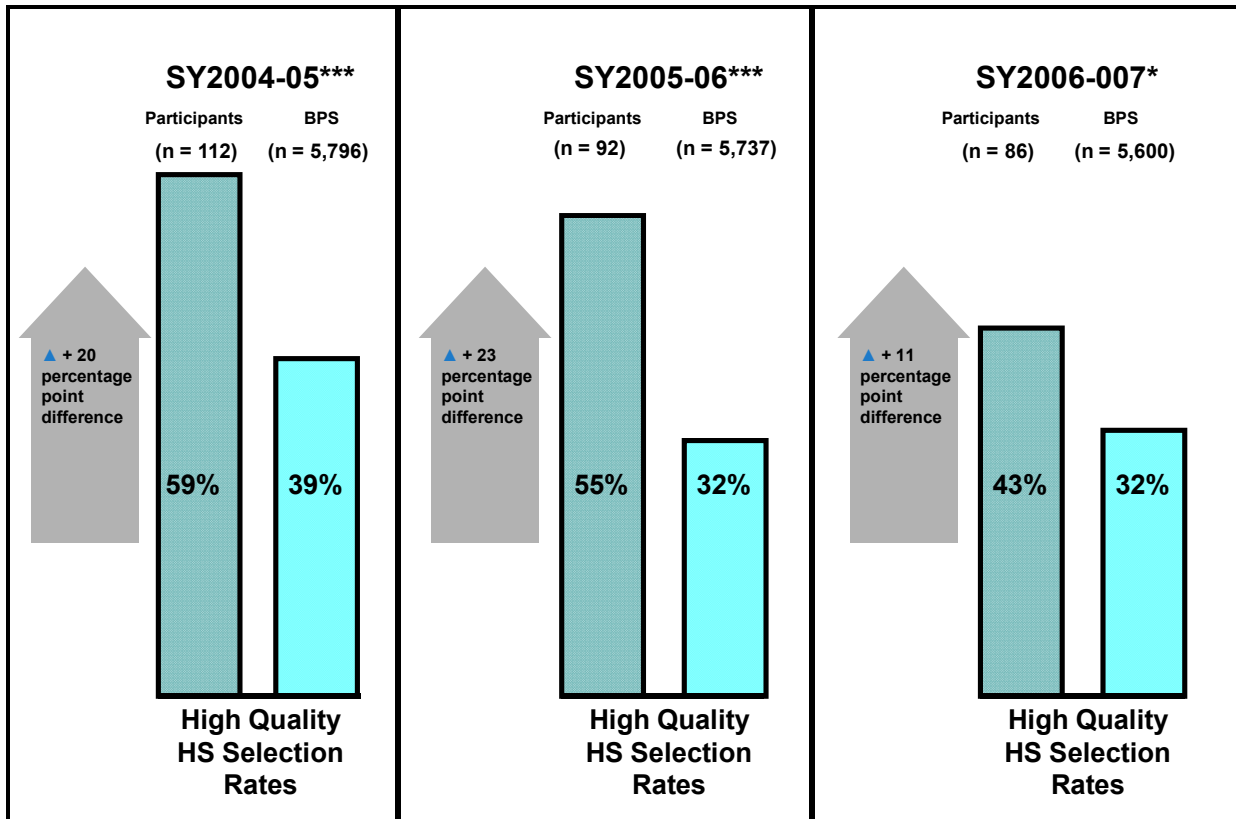
Exhibit Reads: Fifty-nine percent of former participants and 28 percent of nonparticipants selected a high-quality high school. Former participants outperformed matched nonparticipants on the high school selection indicator by 31 percentage points.

As described in the previous report (Pearson et al., 2008), the percent of former participants who enrolled in high-quality high schools declined over the five years of the evaluation. Nonetheless, former participants within each of the five 8th Grade Academy cohorts were more likely to enroll in high-quality high schools than were nonparticipants.

Consistent with findings from the matched comparison analysis, former 8th Grade Academy participants enrolled in high-quality high schools at a significantly higher rate than students in BPS overall.² In 2004-05, 59 percent of participants and 39 percent of BPS students enrolled in a high-quality high school, as shown in Exhibit 4. In 2005-06, 55 percent of participants and 32 percent of BPS students, and in 2006-07, 43 percent of participants and 32 percent of BPS students enrolled in a high-quality high school.

² This analysis only includes students who attended a rated high school. Evaluators calculated the total number of ninth-grade students enrolled in high schools rated by Citizen Schools in these years, including charter schools.

Exhibit 4
Former Participants' Selection of High-Quality High Schools,
Compared with BPS Students, by Cohort



Persistence in High-Quality High Schools

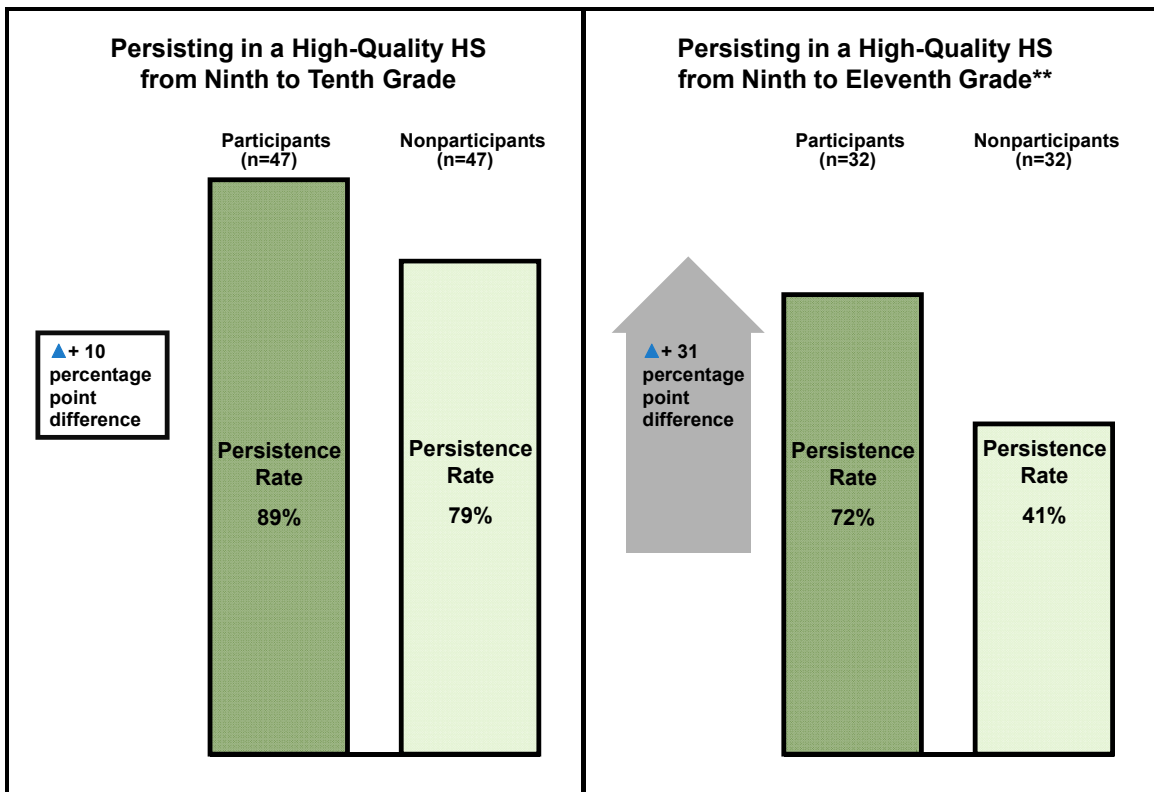
Persistence in a high-quality high school is an important measure of the expanded learning opportunities available to high school students. For example, a study by the Boston Foundation reported Boston charter schools to have a positive impact on the academic achievement of students, and students attending BPS examination schools consistently outperform other BPS students on achievement tests (Abdulkadiroglu, Angrist, Cohodes, Dynarski, Fullerton, Kane, & Pathak, 2009; Massachusetts Department of Education, 2008). Examination schools and several charter schools are included in the rankings used in this evaluation.

Of students enrolled in a high-quality high school in ninth grade,³ former 8th Grade Academy participants were more likely to persist in a high-quality high school than were their

³ The analysis described in these paragraphs only includes participants enrolled in high-quality high schools in ninth grade, each of whom was matched to a nonparticipant also enrolled in a high-quality high school in ninth grade.

matched counterparts.⁴ As shown in Exhibit 5, 89 percent of former participants, compared to 79 percent of matched nonparticipants, remained enrolled in a high-quality high school in tenth grade, although the difference was not statistically significant. The relationship changed as participants and matched nonparticipants progressed through high school. Seventy-two percent of former participants and 41 percent of nonparticipants persisted in a high-quality high school from ninth to eleventh grade, for a significant difference of 31 percentage points. The sample size for the twelfth grade persistence analysis was too small to report findings with confidence.

Exhibit 5
Former Participants' Persistence in High-Quality High Schools, Compared with Matched Nonparticipants in High-Quality High Schools



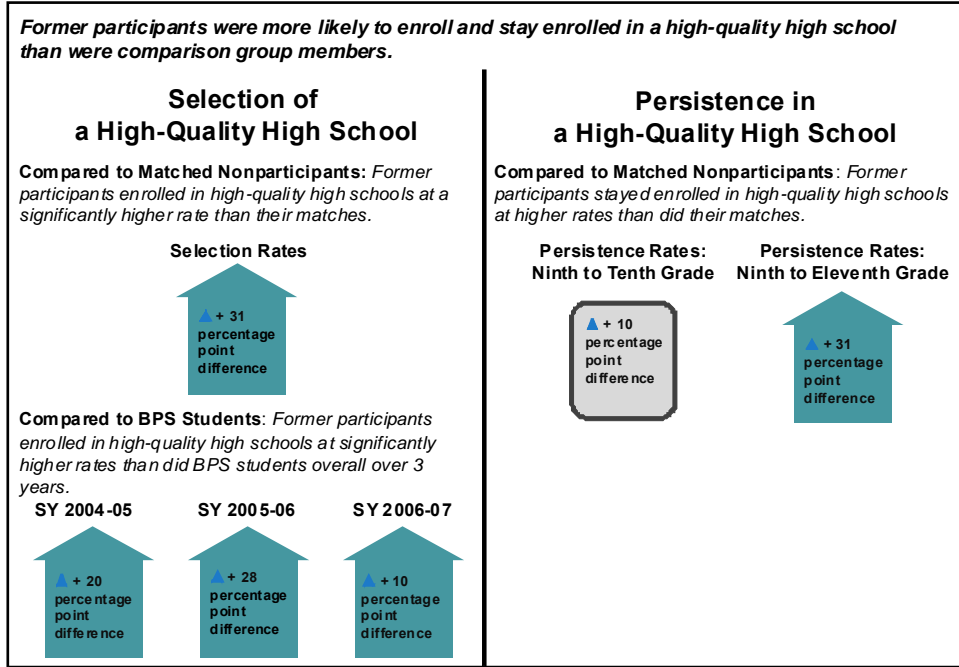
Summary Findings

As shown in Exhibit 6, former Citizen Schools participants were more likely than nonparticipants to enroll and stay enrolled in a high-quality high school. Given the enhanced opportunities and academic performance of students in high-quality high schools, former Citizen

⁴ Three high schools' rankings decreased from high to medium quality during the period of the evaluation. Evaluators considered students who enrolled in these schools in ninth grade before the change in ranking to be enrolled in a high-quality high school for each year they remained enrolled in the same school. Students who first enrolled in one of the three schools after the ranking change or who transferred to one of the three schools after the ranking change were not considered to be enrolled in a high-quality high school.

Schools participants appeared to be on a more positive academic trajectory than were their counterparts early in their high school experience.

Exhibit 6 Summary of High-Quality High School Selection and Persistence Indicators



High School Engagement

This chapter examines the engagement of former 8th Grade Academy participants in high school, as measured by school attendance and suspension rates. As shown in Exhibit 7, former 8th Grade Academy participants had significantly higher school attendance rates than did matched nonparticipants in all high school grade levels. Participants were suspended from school at rates similar to their matches.

Exhibit 7
Former Participants' Attendance and Suspension Rates, Compared with Matched Nonparticipants, in Percentage Points

Indicator	Difference Between Participants and Matched Nonparticipants
Ninth-grade school attendance rate (n=349)	▲ +5**
Tenth-grade school attendance rate (n=220)	▲ +3*
Eleventh-grade school attendance rate (n=134)	▲ +7**
Twelfth-grade school attendance rate (n=70)	▲ +5**
Ninth-grade school suspension rate (n=338)	▼ - 4
Tenth-grade school suspension rate (n=220)	▲ +1
Eleventh-grade school suspension rate (n=134)	▲ +2
Twelfth-grade school suspension rate (n=65)	0

School Attendance

Former participants attended school more often than did matched nonparticipants in all high school grade levels. Differences range from a low of 3 percentage points, equivalent to about 5 additional school days, in tenth grade to a high of 7 percentage points, equivalent to about 13 additional school days, in eleventh grade, as shown in Exhibit 8.

Exhibit 8
Former Participants' Attendance Rates,
Compared with Matched Nonparticipants

Difference Between Participants and Matched Nonparticipants		
Indicator	Percentage Points	Days Attended
Ninth-grade school attendance (n=349)	▲ + 5**	▲ + 9 days
Tenth-grade school attendance (n=220)	▲ + 3*	▲ + 5 days
Eleventh-grade school attendance (n=134)	▲ + 7**	▲ + 13 days
Twelfth-grade school attendance (n=70)	▲ + 5**	▲ + 9 days

Ninth-grade former participants attended school at significantly higher rates than did matched nonparticipants. As shown in Exhibit 9, former participants attended school at a rate of 86 percent, while matched nonparticipants attended school at a rate of 81 percent, for a difference of 5 percentage points or about 9 days of school.

Tenth-grade former participants also attended school at significantly higher rates than did matched nonparticipants, as shown in Exhibit 9. Former participants attended school at a rate of 87 percent, while matched nonparticipants attended school at a rate of 84 percent, for a difference of 3 percentage points or about 5 days of school.

Eleventh-grade former participants significantly outperformed matched nonparticipants on the measure of school attendance, as shown in Exhibit 10. Participants attended school at a rate of 88 percent, while matched nonparticipants attended at a rate of 81 percent, for a difference of 7 percentage points or about 13 days.

Twelfth-grade former participants also had significantly higher rates of attendance than did matched nonparticipants, as shown in Exhibit 10. Former participants attended school at a rate of 90 percent, while matched nonparticipants attended at a rate of 85 percent, for a difference of 5 percentage points or about 9 days.

Exhibit 9
Former Participants' Ninth-Grade and Tenth-Grade Attendance Rates, Compared with Matched Nonparticipants

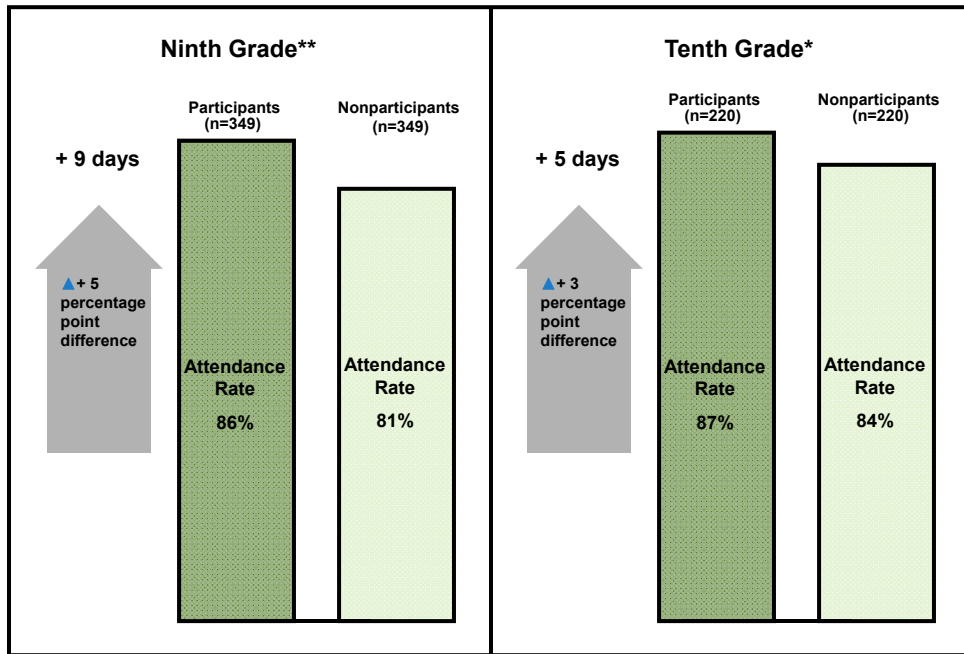
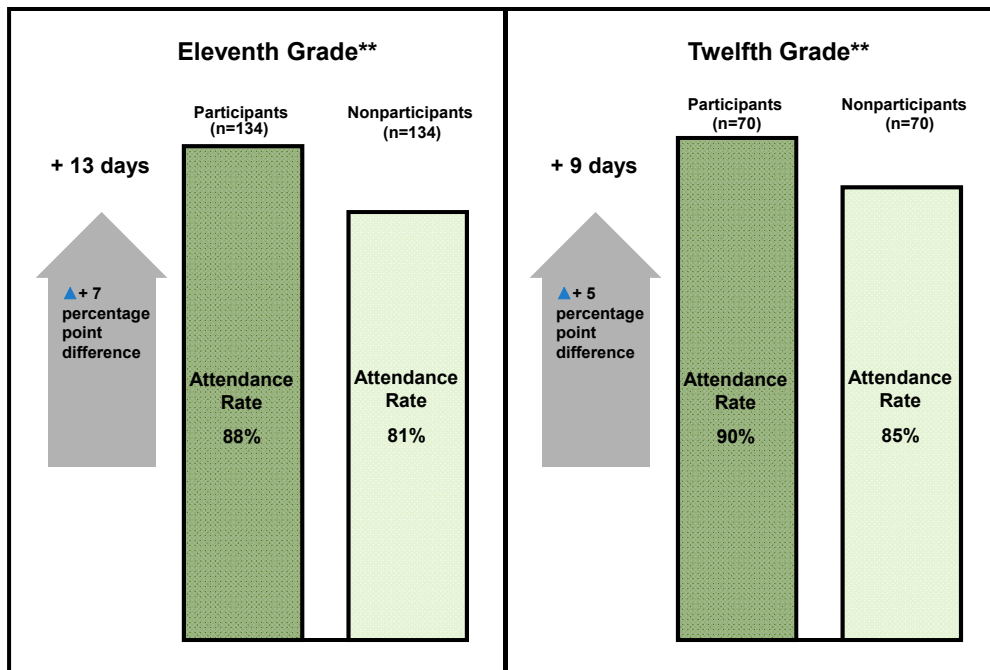


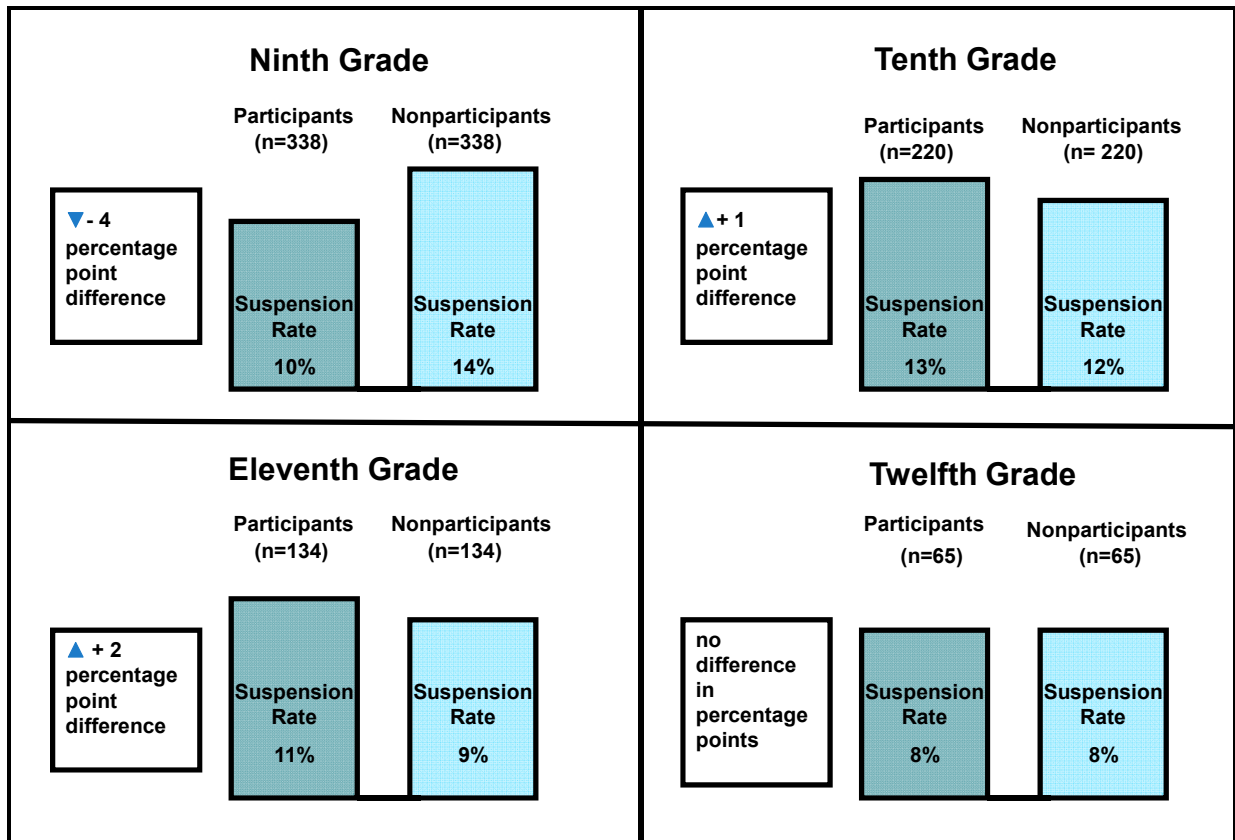
Exhibit 10
Former Participants' Eleventh-Grade and Twelfth-Grade Attendance Rates, Compared with Matched Nonparticipants



Suspensions

Consistent with earlier phases of the evaluation, evaluators found little difference in suspension rates between former participants and nonparticipants. As shown in Exhibit 11, no significant difference was found in the suspension rates of former participants and nonparticipants at any grade level.

Exhibit 11
Former Participants' Suspension Rates,
Compared with Matched Nonparticipants



Summary Findings

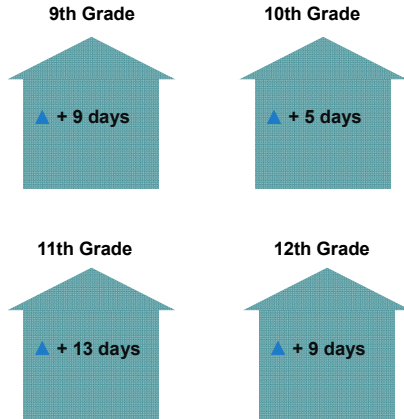
Overall, evaluators found different trends in attendance and suspension rates, as shown in Exhibit 12. Evaluators found prior participation in Citizen Schools' 8th Grade Academy to be consistently associated with higher school attendance, but they did not find prior participation to be associated with lower suspension rates.

Exhibit 12 Summary of High School Engagement Indicators

Former participants attended school more often than did matched nonparticipants at each high school grade level. However, former participants were suspended at rates similar to their matches.

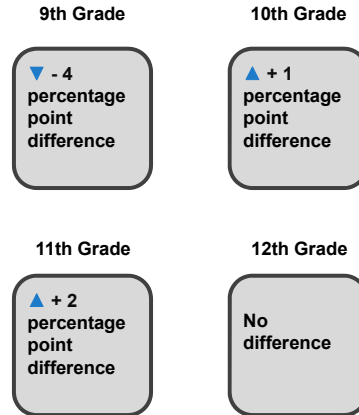
Attendance Rates

School Attendance: *Former participants attended school at significantly higher rates than did matched nonparticipants.*



Suspension Rates

Suspension: *Former participants performed about the same as matched nonparticipants on this measure.*



High School Academic Achievement

This chapter examines the academic achievement of former 8th Grade Academy participants in high school, as measured by course performance and MCAS performance in math and English Language Arts. In a departure from previous phases of the evaluation, evaluators found participation in 8th Grade Academy to be consistently associated with higher math performance in high school. Former participants had significantly higher pass rates in their math courses than did matched nonparticipants at each high school grade level, as shown in Exhibit 13. Former participants also outperformed nonparticipants in earning As and Bs in math courses in ninth and twelfth grades.

Evaluators found similar trends when examining performance patterns on the Mathematics MCAS. Former participants had significantly higher pass rates and proficiency rates than did nonparticipants on the tenth-grade Mathematics MCAS. Comparing participant performance to district performance, evaluators found that participants were more likely to pass and attain proficient and advanced levels on the Mathematics MCAS than was the average BPS student. Adjusting for former participants' high school selection patterns by excluding examination schools from the analysis, evaluators found that non-exam school participants were also more likely to pass and attain proficient and advanced levels on the Mathematics MCAS than was the average non-exam school BPS student. In sum, former participants outperformed their comparisons on nearly all mathematics performance indicators.

Consistent with earlier phases of the evaluation, evaluators found that former participants outperformed their comparison groups in some English Language Arts performance indicators and fared similarly to their peers in others, as shown in Exhibit 13. Overall, former participants outperformed their matches in eight out of fourteen ELA performance indicators. Evaluators found that former participants earned significantly higher pass rates in their English Language Arts courses than did matched nonparticipants in ninth grade. Former participants passed their English Language Arts courses at rates similar to nonparticipants in tenth grade but earned As and Bs at significantly higher rates than their matches. Former participants did not outperform their matches in eleventh grade. Former participants outperformed their matches in passing and earning As and Bs in their English Language Arts courses in twelfth grade.

In addition, former participants outperformed their comparison groups in four out of six analyses of English Language Arts MCAS performance. Evaluators found no significant differences in English Language Arts MCAS pass rates between former participants and nonparticipants. However, former participants outperformed nonparticipants in attaining proficient and advanced levels on the exam. Comparing participant performance to district performance, evaluators found that former participants were more likely to pass the ELA exam than was the average BPS student but were equally likely to earn proficient and advanced levels on the test, compared with their BPS peers. Excluding examination schools from the analysis, evaluators found that non-exam school participants were more likely to pass and attain proficient and advanced levels on the English Language Arts MCAS than was the average non-exam school BPS student. In sum, former participants outperformed their comparison groups in some English Language Arts performance indicators but fared similarly to their peers in others.

Exhibit 13
Differences in Course and MCAS Performance Among
Former Participants and Comparison Students by Grade, in Percentage Points

Difference in Math and English Language Arts Course Performance Between Former Participants and Nonparticipants in the Third Marking Period				
Grade	Math		English Language Arts	
	Pass Rate	A or B Rate	Pass Rate	A or B Rate
Ninth grade	▲ +8* (n=216)	▲ + 10* (n=216)	▲ +13** (n=222)	▲ + 6 (n=222)
Tenth grade	▲ +15** (n=142)	▲ + 8 (n=142)	▼ - 2 (n=126)	▲ + 16** (n=126)
Eleventh grade	▲ +11* (n=85)	▲ + 9 (n=85)	▼ - 5 (n=62)	▼ - 11 (n=62)
Twelfth grade	▲ +15* (n=40)	▲ + 20* (n=40)	▲ +21* (n=33)	▲ + 21* (n=33)
Difference in Mathematics MCAS Performance Between Former Participants, Nonparticipants, BPS Overall, and BPS with Exam Schools Excluded				
Indicator	Compared to Matched Nonparticipants	Compared to BPS Overall	Compared to BPS, Excluding Exam Schools	
Pass Math MCAS rate	▲ +7* (n=153)	▲ +16*** (n=205)	▲ +23*** (n=184)	
Proficient or advanced Math MCAS rate	▲ +13** (n=153)	▲ +5*** (n=205)	▲ +14*** (n=184)	
Difference in English Language Arts MCAS Performance Between Former Participants, Nonparticipants, BPS Overall, and BPS with Exam Schools Excluded				
Indicator	Compared to Matched Nonparticipants	Compared to BPS Overall	Compared to BPS, Excluding Exam Schools	
Pass ELA MCAS rate	▲ +3 (n=157)	▲ +13*** (n=205)	▲ +17*** (n=184)	
Proficient or advanced ELA MCAS rate	▲ +9* (n=157)	▲ + 1 (n=205)	▲ +10*** (n=184)	

Achievement in Math

Overall, former participants consistently outperformed matched nonparticipants in math courses and the Mathematics MCAS.

Math Course Performance

Ninth-grade former participants had significantly higher pass rates in math than did matched nonparticipants in the third marking period. As shown in Exhibit 14, former participants had a pass rate of 73 percent, while nonparticipants had a pass rate of 65 percent, for a difference of 8 percentage points. Former participants also earned As and Bs at a higher rate than matched nonparticipants. Thirty-four percent of ninth-grade participants earned an A or B in their math courses, while 24 percent of nonparticipants earned those grades, for a difference of 10 percentage points.

Tenth-grade former participants also had significantly higher math pass rates than did matched nonparticipants in the third marking period. As shown in Exhibit 15, former participants had a pass rate of 79 percent, while nonparticipants had a pass of 64 percent, a difference of 15 percentage points. Participants earned As and Bs at rates statistically similar to matched nonparticipants.

Exhibit 14
Ninth-Grade Math Course Performance of Former Participants in Third Marking Period, Compared with Matched Nonparticipants

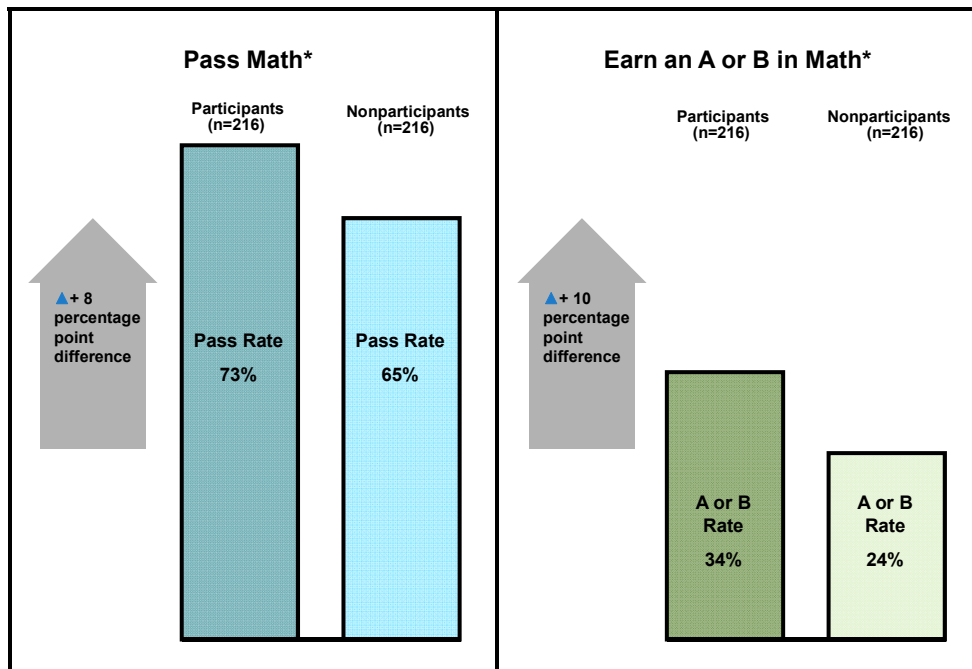
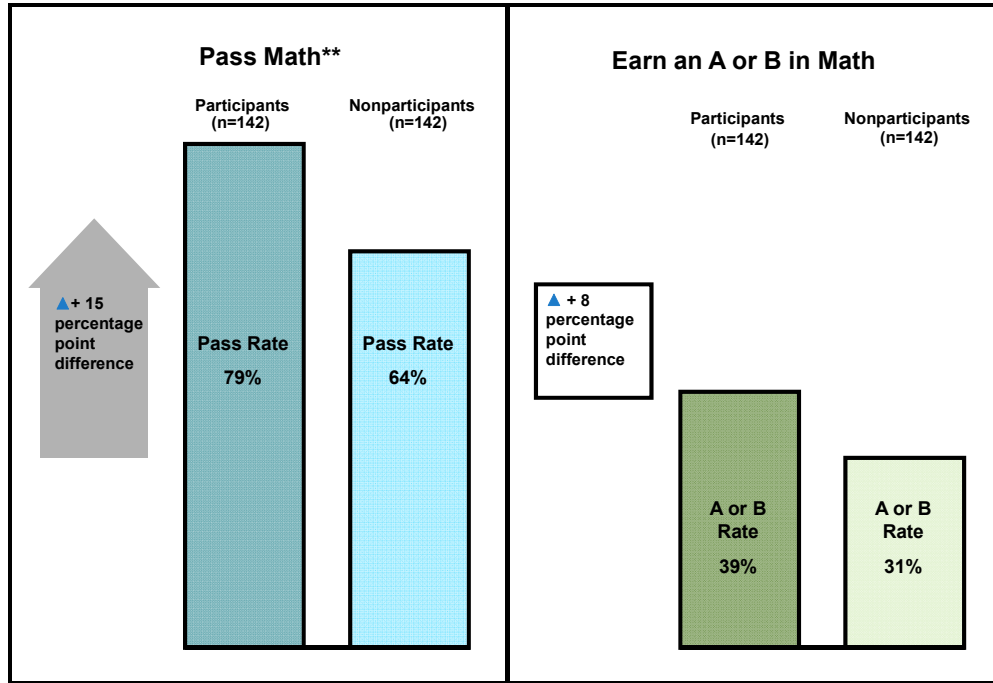


Exhibit 15
Tenth-Grade Math Course Performance of Former Participants
in Third Marking Period, Compared with Matched Nonparticipants



Eleventh-grade former participants had significantly higher math pass rates than did matched nonparticipants in the third marking period. As shown in Exhibit 16, participants had a pass rate of 83 percent, while nonparticipants had a pass rate of 72 percent, for a difference of 13 percentage points. Participants earned As and Bs at rates similar to matched nonparticipants.

Twelfth-grade former participants also had significantly higher math pass rates than did matched nonparticipants in the third marking period. As shown in Exhibit 17, former participants had a pass rate of 85 percent, while nonparticipants had a pass rate of 70 percent, for a difference of 15 percentage points. Participants also outperformed matched nonparticipants in earning As and Bs in their math courses. Forty-three percent of twelfth-grade participants earned an A or B in their math courses, while 23 percent of nonparticipants earned similar grades, for a difference of 20 percentage points.

Exhibit 16
Eleventh-Grade Math Course Performance of Former Participants
in Third Marking Period, Compared with Matched Nonparticipants

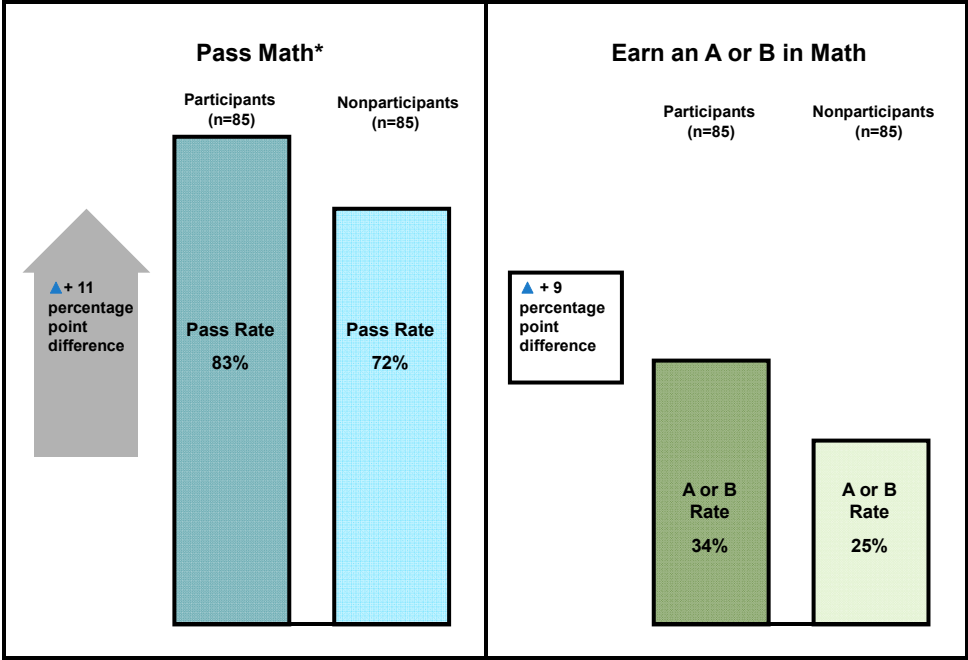
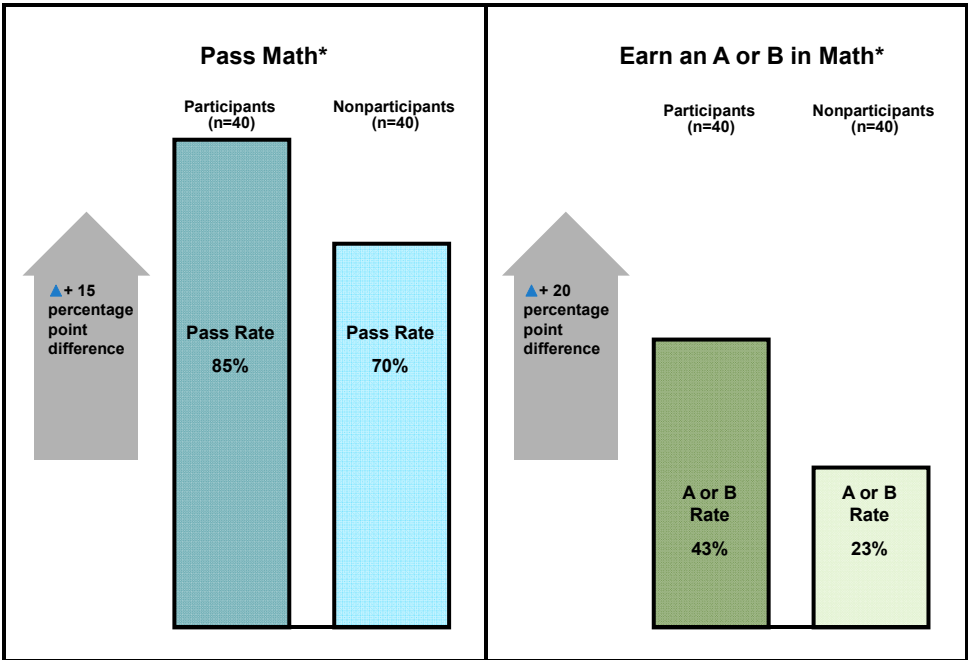


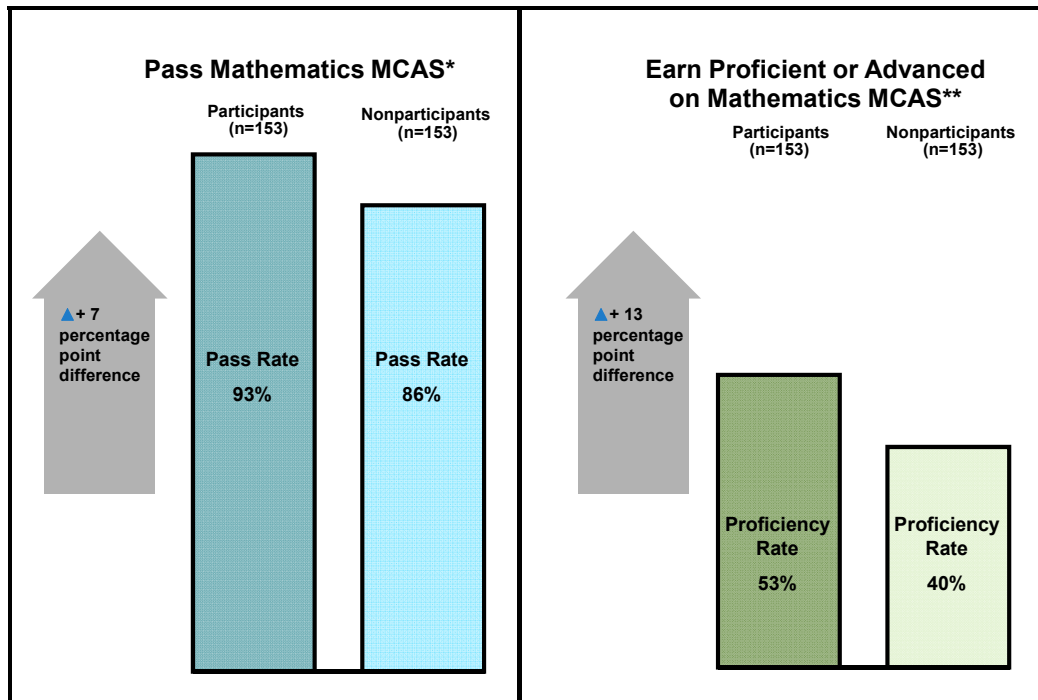
Exhibit 17
Twelfth-Grade Math Course Performance of Former Participants
in Third Marking Period, Compared with Matched Nonparticipants



Mathematics MCAS Performance

Evaluators examined whether former participants' achievement patterns in their high school math courses were confirmed by similar performance trends on the state math assessment. They found that performance patterns on the Mathematics MCAS mirrored the patterns found in grade-level math courses. Former participants had significantly higher pass rates than did nonparticipants on the MCAS and attained higher scores, earning proficient and advanced levels on the exam at significantly higher rates than did their matches. As shown in Exhibit 18, former participants had a Mathematics MCAS pass rate of 93 percent, while matched nonparticipants had a pass rate of 86 percent, for a difference of 7 percentage points. Former participants had a proficiency rate of 53 percent, while matched nonparticipants had a proficiency rate of 40 percent, for a difference of 13 percentage points.

Exhibit 18
Mathematics MCAS Performance of Former Participants,
Compared with Matched Nonparticipants

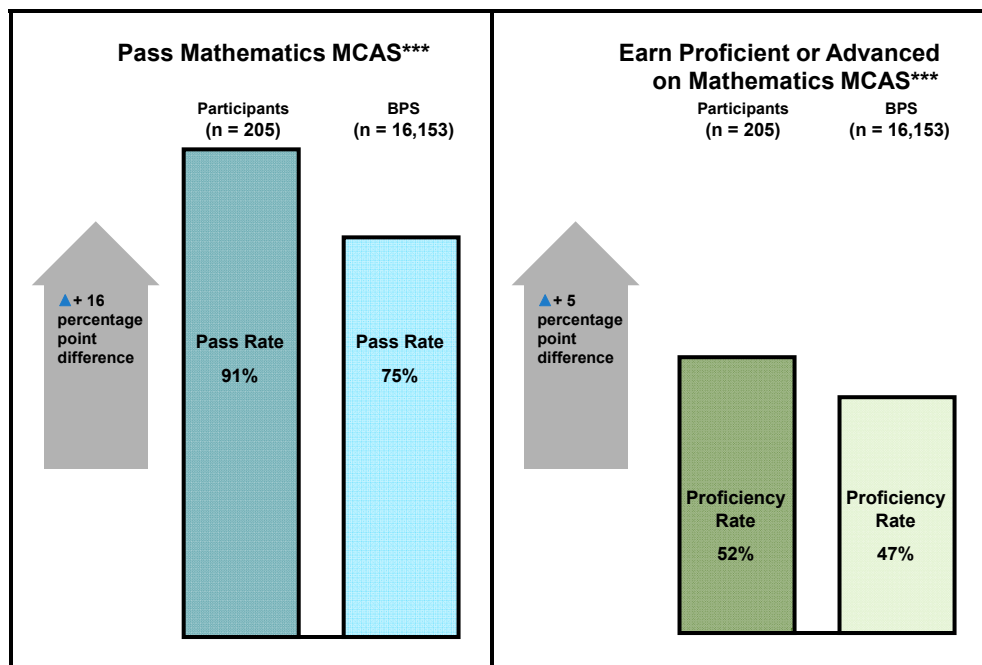


Comparing the MCAS performance of former participants with district performance. To view the outcomes of former 8th Grade Academy participants in the larger context of the school system they attend, evaluators compared the performance of former participants on the MCAS with the performance of BPS students overall during the years in which former participants took the test. Between 2004 and 2007, approximately 16,000 BPS students took the MCAS. Evaluators compared the percent of those students passing the MCAS and the percent

achieving proficiency on the exam to the percent of former 8th Grade Academy participants passing and achieving proficiency on the test.⁵

Comparing participant performance with district performance, evaluators found that participants were more likely to pass the tenth-grade Mathematics MCAS than were BPS students overall. As shown in Exhibit 19, former participants had a pass rate of 91 percent, and BPS students had a pass rate of 75 percent, for a difference of 16 percentage points. In addition, evaluators found that former participants were more likely to attain proficient and advanced levels on the exam than was the average BPS student. Participants had a proficiency rate of 52 percent, and BPS students had a proficiency rate of 47 percent on the Mathematics MCAS, for a difference of 5 percentage points.

**Exhibit 19
Mathematics MCAS Performance of Former Participants,
Compared with BPS Students Overall**



As established in previous reports, Citizen Schools attracts academically at-risk students who were less proficient than BPS students overall at baseline, as measured in part by the fourth-grade Mathematics MCAS (Pearson et al., 2008). While participants passed the fourth-grade Mathematics MCAS in rates similar to their BPS peers (51 percent vs. 53 percent), participants had significantly lower proficiency rates than the district overall. Specifically, 6 percent of

⁵ This analysis includes all 8th Grade Academy former participants for whom evaluators had sufficient data to calculate MCAS proficiency. The sample size for this analysis is larger than for the MCAS analysis using matched comparison students. In that analysis, a participant is only included if his/her individually matched nonparticipant has valid MCAS data.

participants scored at or above the proficient level on the fourth-grade Mathematics MCAS, compared with 13 percent of BPS students.⁶ By tenth grade, Citizen Schools participants had almost reversed the 7 percentage point gap that existed in fourth-grade Mathematics MCAS proficiency.

Comparing the MCAS performance of non-exam school former participants with their non-exam school peers. Evaluators also analyzed the tenth-grade Mathematics MCAS performance of former participants and BPS students not attending a BPS examination high school, in order to account for differences in the proportion of participants and BPS students attending those schools.⁷ BPS exam schools admit students on a competitive basis, based on results of an entrance exam and grade point average. Excluding exam schools from the analysis, tenth-grade pass and proficiency rates were lowered for both participant and nonparticipant groups, as expected since students in BPS exam schools typically score above the district average on the MCAS (Massachusetts Department of Education, 2008); however, former participants attending non-exam schools were more likely to pass the Mathematics MCAS than were BPS students attending non-exam schools. As shown in Exhibit 20, former participants attending a non-exam school had a pass rate of 90 percent, while BPS students in non-exam schools had a pass rate of 67 percent, for a difference of 23 percentage points. Non-exam school former participants were also more likely to attain proficient and advanced levels on the Mathematics MCAS than were their BPS peers in non-exam schools. Former participants attending non-exam schools had a proficiency rate of 46 percent, and BPS students attending non-exam schools had a proficiency rate of 32 percent, for a difference of 14 percentage points.

Summary Findings

In sum, evaluators found participation in 8th Grade Academy to be consistently associated with higher math achievement in high school. As shown in Exhibit 21, former participants outperformed their comparison groups on most math performance indicators.

⁶ Approximately 24,200 BPS students took the fourth-grade Mathematics MCAS between spring 1998 and spring 2002, and 339 Citizen Schools participants in the evaluation sample took the fourth-grade Mathematics MCAS during the same period.

⁷ Twenty-two percent of BPS high school students, compared to 10 percent of former 8th Grade Academy participants, attended a BPS examination high school from 2004 to 2007. According to Citizen Schools, approximately half of exam school students previously attended a private school or out-of-district public school.

Exhibit 20

Mathematics MCAS Performance of Former Participants in Non-Examination Schools, Compared with BPS Students in Non-Examination Schools

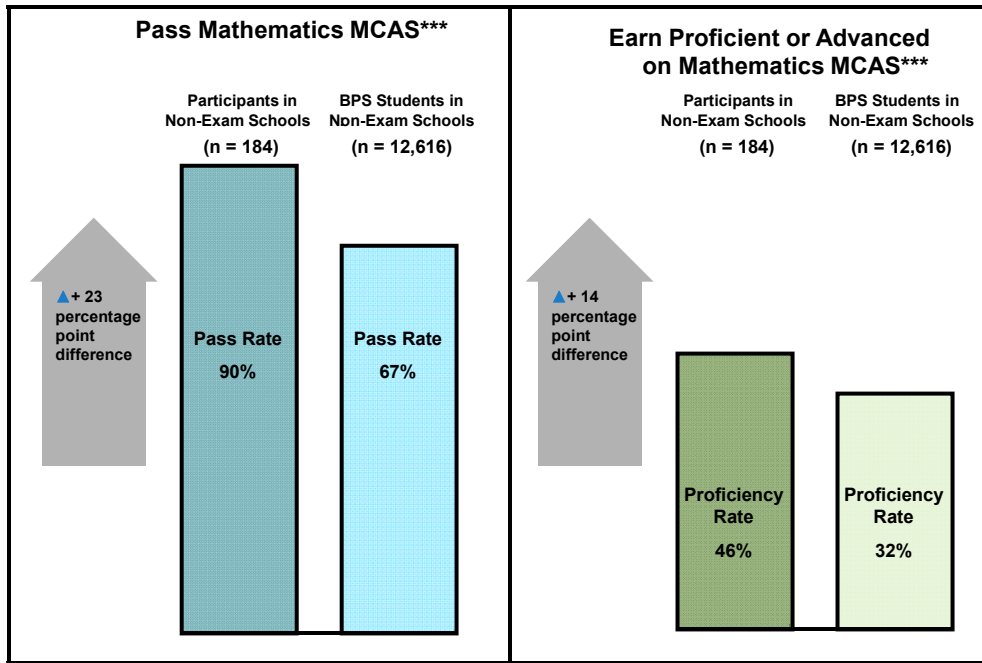
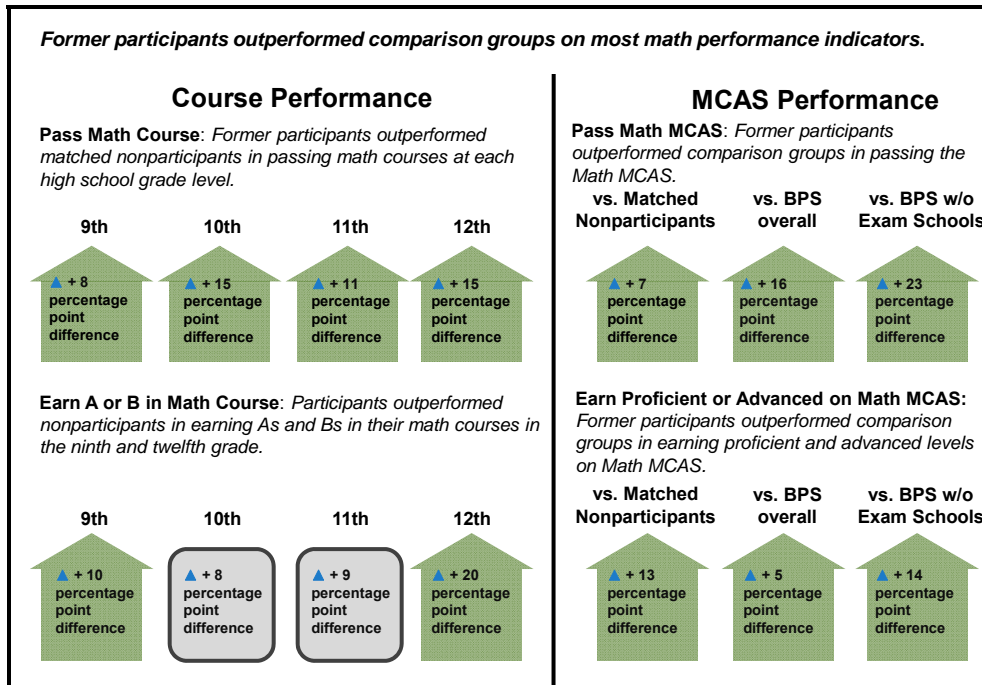


Exhibit 21

Summary of Math Performance Indicators



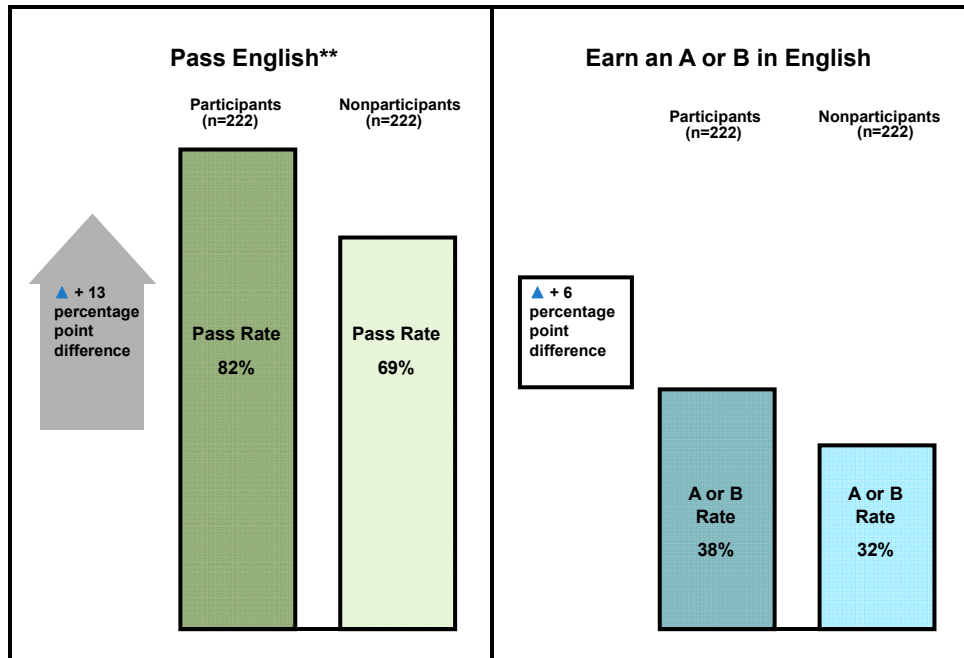
Achievement in English Language Arts

Former participants outperformed their matches on eight out of fourteen ELA performance indicators. Evaluators found that former participants achieved significantly higher pass rates in their English Language Arts courses than did matched nonparticipants in ninth grade. Former participants passed their English Language Arts courses at rates similar to nonparticipants but earned As and Bs at significantly higher rates than their matches in the tenth grade. Former participants performed similarly to their matches in their eleventh grade English Language Arts courses. However, former participants outperformed their matches in passing and in earning As and Bs in their English Language Arts courses in the twelfth grade. Former participants passed the English Language Arts MCAS at rates similar to matched nonparticipants but outperformed their matches in attaining proficient and advanced performance levels.

English Language Arts Course Performance

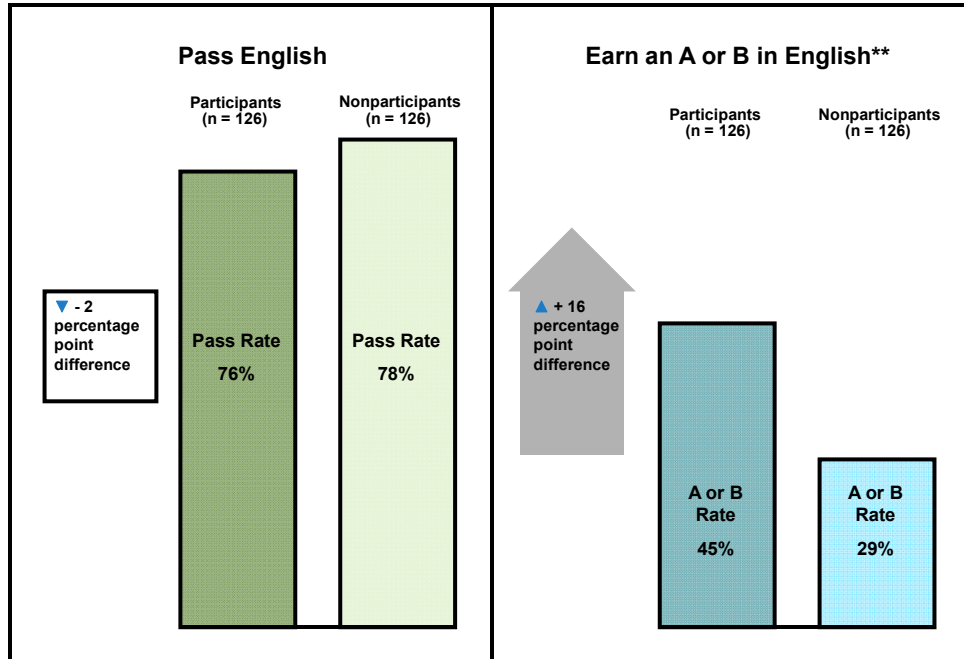
Overall, ninth-grade participants had significantly higher English Language Arts pass rates than did matched nonparticipants in the third marking period. As shown in Exhibit 22, former participants had a pass rate of 82 percent, while nonparticipants had a pass rate of 69 percent, for a difference of 13 percentage points. Participants earned As and Bs at rates similar to matched nonparticipants.

Exhibit 22
Ninth-Grade English Course Performance of Former Participants in Third Marking Period, Compared with Matched Nonparticipants



Tenth-grade former participants passed their English Language Arts courses at rates similar to nonparticipants. However, former participants earned As and Bs at significantly higher rates than their matches. As shown in Exhibit 23, 45 percent of tenth-grade former participants earned an A or B in their English Language Arts courses, while 29 percent of matched nonparticipants earned similar grades, for a difference of 16 percentage points.

Exhibit 23
Tenth-Grade English Course Performance of Former Participants
in Third Marking Period, Compared with Matched Nonparticipants



Eleventh-grade participants performed similarly to nonparticipants in their English Language Arts courses, as shown in Exhibit 24.

Twelfth-grade former participants had significantly higher English Language Arts pass rates than did matched nonparticipants in the third marking period. As shown in Exhibit 25, former participants had a pass rate of 91 percent, while nonparticipants had a pass rate of 70 percent, for a difference of 21 percentage points. Former participants also earned As and Bs at significantly higher rates than their matches. Fifty-one percent of participants earned an A or B in their English Language Arts courses, while 32 percent of matched nonparticipants earned similar grades, for a difference of 19 percentage points.

Exhibit 24
Eleventh-Grade English Course Performance of Former Participants
in Third Marking Period, Compared with Matched Nonparticipants

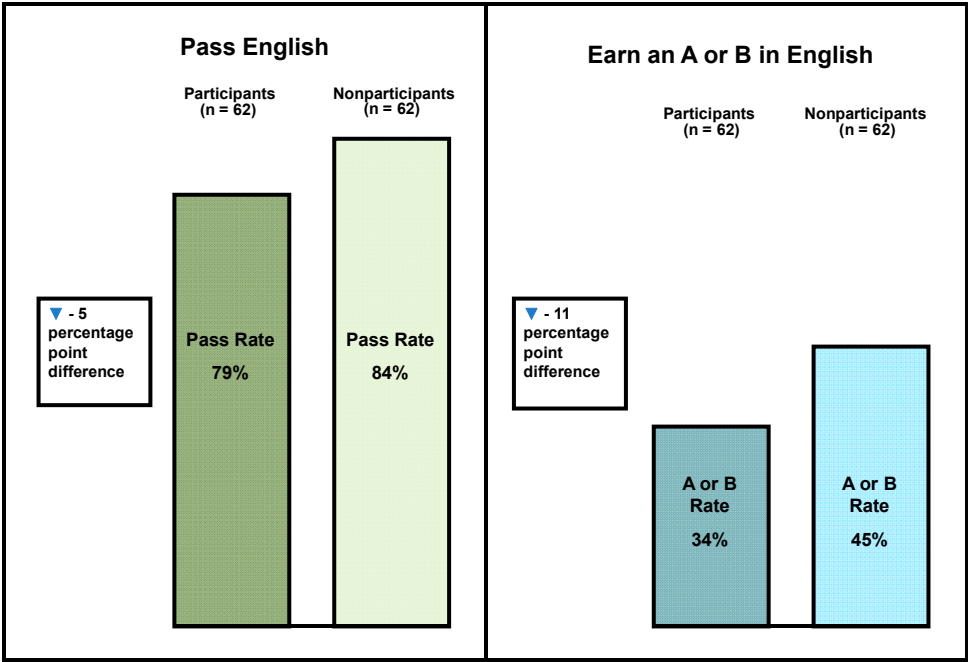
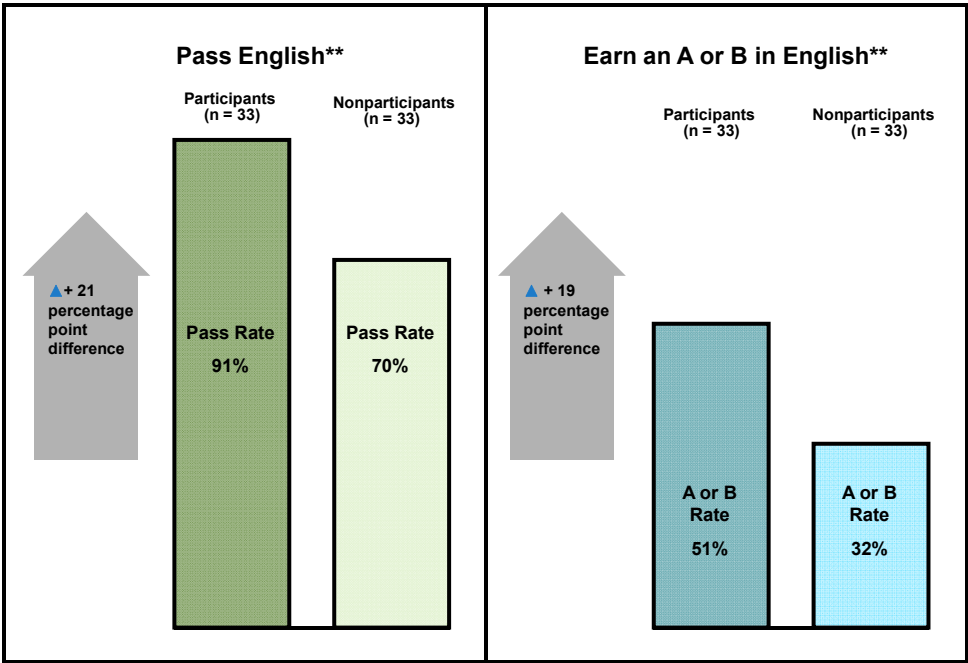


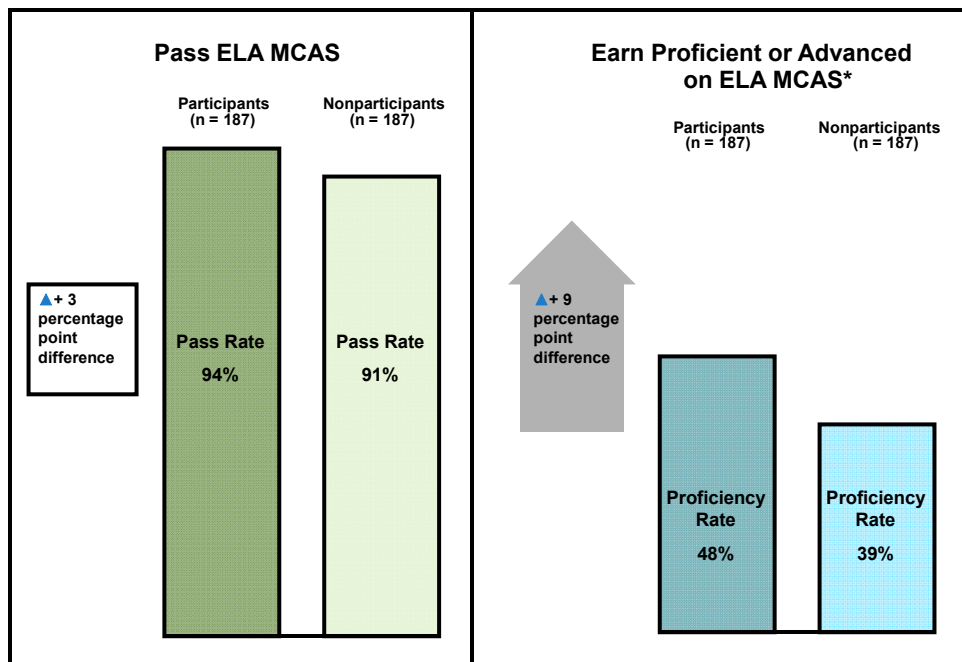
Exhibit 25
Twelfth-Grade English Course Performance of Former Participants
in Third Marking Period, Compared with Matched Nonparticipants



English Language Arts MCAS Performance

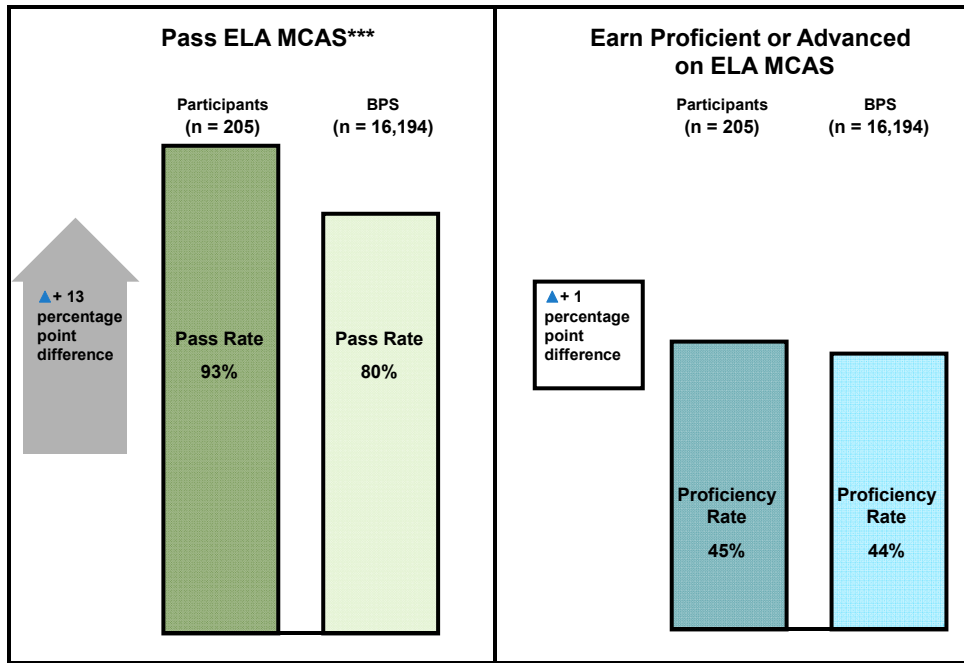
Former participants significantly outperformed comparison groups on four of six analyses of English Language Arts MCAS performance. Former participants passed the English Language Arts MCAS at rates similar to matched nonparticipants. As shown in Exhibit 26, former participants had a pass rate of 94 percent, while nonparticipants had a pass rate of 91 percent, for a difference of 3 percentage points. However, former participants significantly outpaced their counterparts in attaining proficient and advanced performance levels on the English Language Arts MCAS. Former participants had a proficiency rate of 48 percent, while nonparticipants had a proficiency rate of 39 percent, for a difference of 9 percentage points.

Exhibit 26
English Language Arts MCAS Performance of Former Participants, Compared with Matched Nonparticipants



Comparing the MCAS performance of former participants to district performance. Evaluators compared the English Language Arts MCAS pass and proficiency rates of former participants to the pass and proficiency rates of BPS students, as in the Mathematics MCAS analysis. Evaluators found that former participants were more likely to pass the English Language Arts MCAS than were BPS students overall. As shown in Exhibit 27, former participants had an English Language Arts pass rate of 93 percent, while BPS had an English Language Arts pass rate of 80 percent, for a difference of 13 percentage points. Participants earned a proficient score or higher at rates similar to the district proficiency rate on the tenth-grade English Language Arts MCAS.

Exhibit 27
English Language Arts MCAS Performance of Former Participants,
Compared with BPS Students Overall



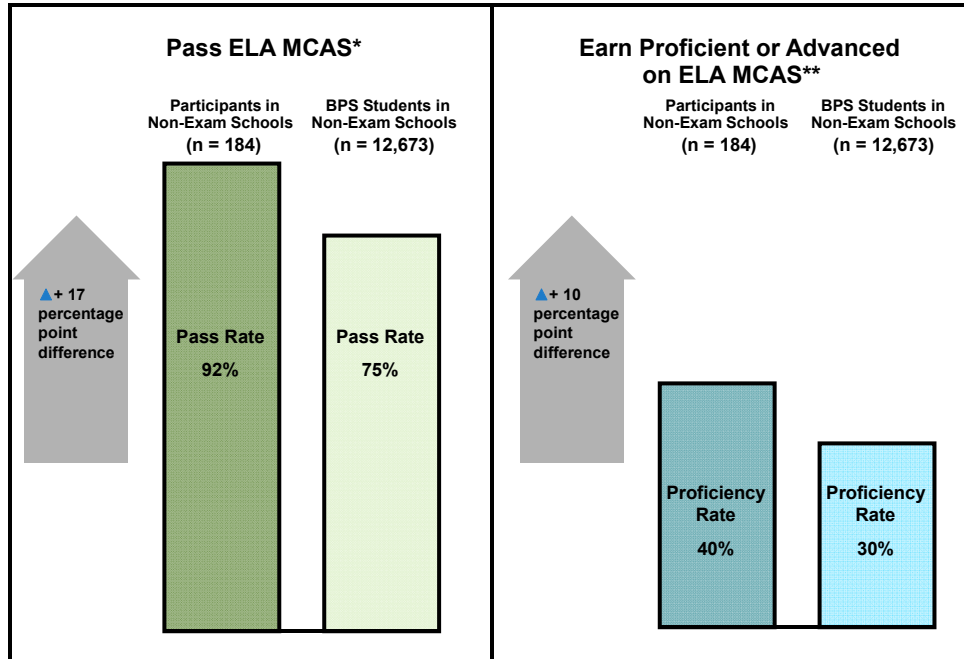
As with the Mathematics MCAS, former 8th Grade Academy participants passed the fourth-grade English Language Arts MCAS at rates similar to their BPS peers (69 percent vs. 68 percent) but had significantly lower proficiency rates than BPS students overall in fourth grade (8 percent vs. 13 percent) (Pearson et al., 2008).⁸ By tenth grade, however, former Citizen Schools participants outperformed the district overall in passing the English Language Arts MCAS and attained proficient or advanced levels at about the same rates as BPS students.

Comparing the MCAS performance of non-exam school former participants with their peers. In the analysis of tenth-grade English Language Arts MCAS performance excluding BPS examination school attendees, evaluators found that former participants attending non-exam schools were more likely to pass the English Language Arts MCAS than were their BPS peers in non-exam schools.

Former participants in non-exam schools had a pass rate of 92 percent, while BPS students in non-exam schools had a pass rate of 75 percent, as shown in Exhibit 28. Evaluators also found that former participants attending non-exam schools were more likely to score at proficient or advanced levels than were BPS students attending non-exam schools. Former participants attending non-exam schools had a proficiency rate of 40 percent, and BPS students attending non-exam schools had a proficiency rate of 30 percent.

⁸ Approximately 23,300 BPS students took the fourth-grade English Language Arts MCAS between spring 1998 and spring 2002, and 334 Citizen Schools participants in the evaluation sample took the fourth-grade Mathematics MCAS during the same period.

Exhibit 28
English Language Arts MCAS Performance of Former Participants in Non-Examination Schools, Compared with BPS Students in Non-Examination Schools



Summary Findings

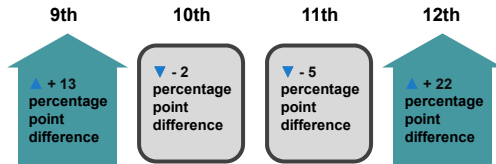
In sum, evaluators found that more than half of the English Language Arts performance comparisons showed significant positive results for former participants. Former participants outperformed their comparison groups on eight English Language Arts performance indicators but fared similarly to their peers on six indicators, as summarized in Exhibit 29.

Exhibit 29 Summary of English Language Arts Performance Indicators

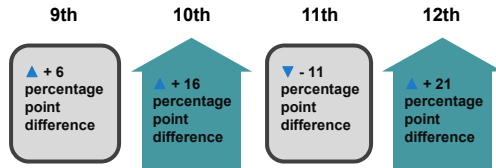
Former participants outperformed their comparison groups on some ELA performance indicators but fared similarly to their peers on others.

Course Performance

Pass ELA Course: *Former participants outperformed matched nonparticipants in passing ELA courses in the ninth and twelfth grade.*

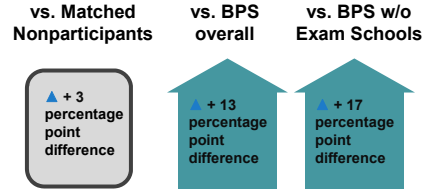


Earn A or B in ELA Course: *Former participants outperformed nonparticipants in earning As and Bs in their ELA courses in the tenth and twelfth grade.*

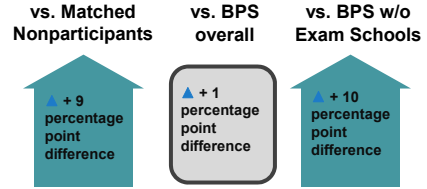


MCAS Performance

Pass ELA MCAS: *Former participants outperformed BPS students in passing the ELA MCAS.*



Earn Proficient or Advanced on ELA MCAS: *Former participants outperformed nonparticipants and non-exam school BPS students in earning proficient and advanced levels on the ELA MCAS.*



High School Graduation

Evaluators found that former 8th Grade Academy participants made positive progress toward graduation during high school. An on-track indicator of whether students were likely to graduate from high school on time indicates that former participants were more likely to be on-track than were matched nonparticipants, as shown in Exhibit 30. Evaluators also measured on-time promotion to tenth, eleventh, and twelfth grade. Former 8th Grade Academy participants were more likely than matched nonparticipants to be promoted to tenth grade on time but were about equally likely to be promoted to eleventh and twelfth grades on time. This chapter also presents the graduation rate of the 8th Grade Academy class of 2002-03. Those former participants were more likely to graduate from high school in four years than were members of the BPS class of 2007 generally.

Exhibit 30
Differences in On-time Promotion, On-track to Graduation,
and Graduation Between Former Participants and Comparison Groups,
in Percentage Points

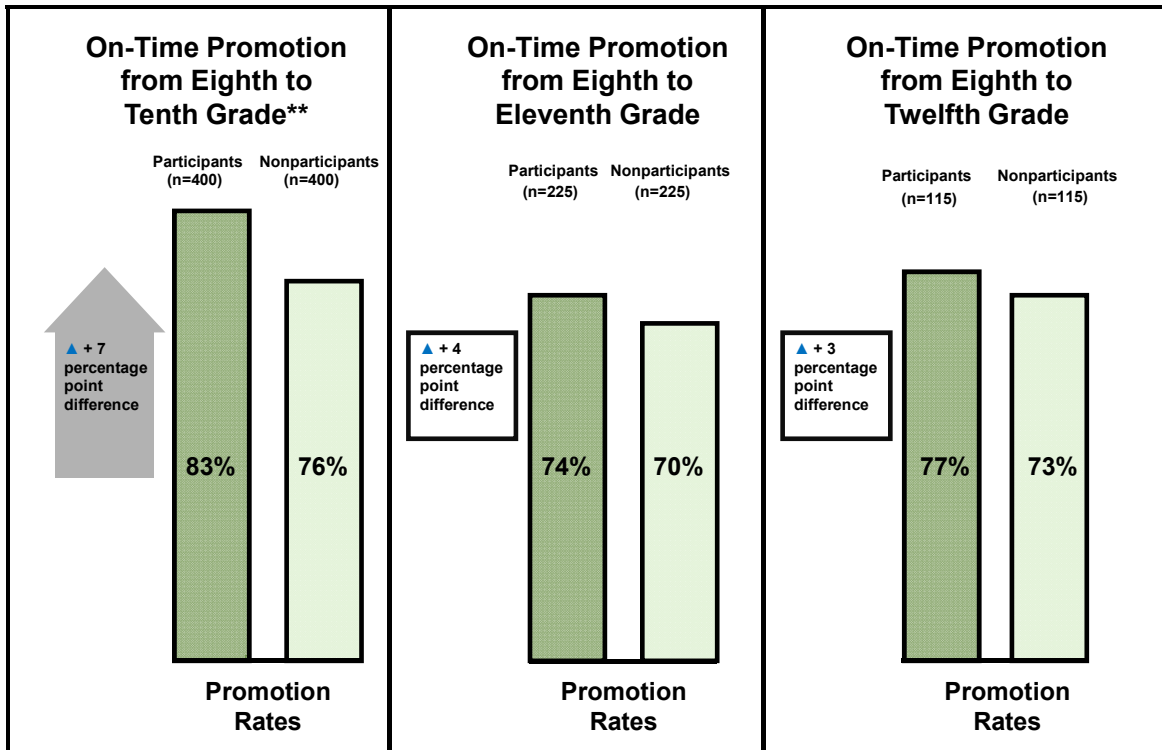
Indicator	Difference Between Participants and Matched Nonparticipants
On-time promotion to tenth grade (n=400)	▲ + 7**
On-time promotion to eleventh grade (n=225)	▲ + 4
On-time promotion to twelfth grade (n=115)	▲ + 4
On-track to graduation (n=266)	▲ +12**
Indicator	Difference Between Participants and BPS Overall
Four-year graduation rate (n=67)	▲ +17***

On-time Promotion

Overall, former participants were promoted from eighth grade to tenth grade on time at a significantly higher rate than were matched nonparticipants. Eighty-three percent of former participants were promoted to tenth grade on time, compared to 76 percent of nonparticipants, as shown in Exhibit 31. Former participants were promoted on time to eleventh and twelfth grade in rates similar to their matches. Seventy-four percent of former participants were promoted to eleventh grade on time, compared to 70 percent of nonparticipants. Seventy-seven percent of

former participants were promoted to twelfth grade on time, compared to 73 percent of nonparticipants.

Exhibit 31
On-Time Promotion Rates of Former Participants,
Compared with Matched Nonparticipants

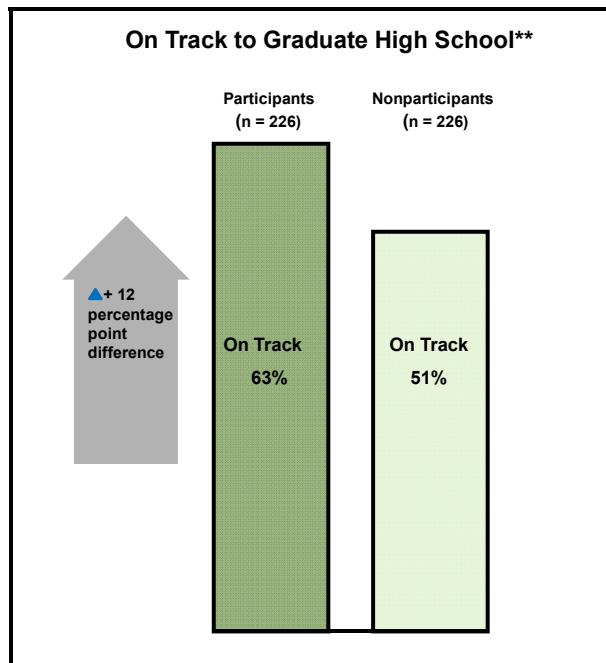


On-track Indicator

Allensworth and Easton (2005, 2007) found the transition year of ninth grade to be important in predicting whether a student will graduate from high school. Evaluators used the studies that Allensworth and Easton conducted in the Chicago Public Schools to create an on-track indicator of a student’s likelihood of graduating high school, using the data available in this study. In this evaluation, youth are considered to be on track for high school graduation if they were promoted to tenth grade on time and did not fail a core math or English Language Arts course in ninth grade.

Overall, a significantly larger proportion of former participants were on track to graduate than were matched nonparticipants. Sixty-three percent of former participants and 51 percent of nonparticipants were on track upon entering tenth grade, as shown in Exhibit 32.

Exhibit 32 Percent of Former Participants On Track to Graduate High School, Compared with Matched Nonparticipants



The on-track indicator designed by Allensworth and Easton (2005, 2007) correctly identified graduates and non-graduates 80 percent of the time. Evaluators found the on-track indicator created for this evaluation to be slightly less accurate in identifying graduates and non-graduates. Using the graduation rate data available from the 8th Grade Academy class of 2002-03, the on-track indicator correctly predicted graduates and non-graduates 71 percent of the time.⁹ Of the students predicted incorrectly, youth were equally likely to be identified as on-track and then did not receive a diploma as to be identified as not on-track and later received a diploma.

Four-year Graduation Rate

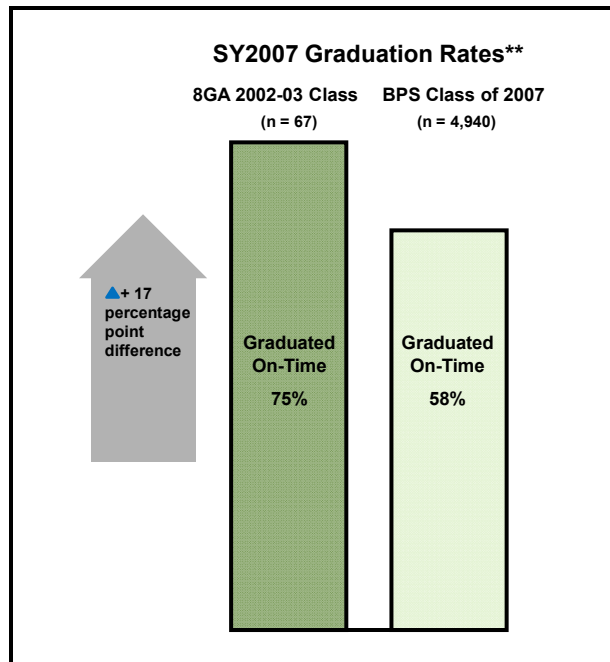
Evaluators calculated the four-year graduation rate of the 8th Grade Academy class of 2002-03.¹⁰ Seventy-five percent of the 8th Grade Academy class of 2002-03 graduated from

⁹ Seventy-three percent of the 8th Grade Academy class of 2002-03 was on track to graduate upon entering tenth grade and 75 percent of the class graduated in four years.

¹⁰ Participant graduation data were provided by BPS and the guidance counselors of two charter schools. BPS officials note that the process of verifying the graduation data maintained by the district is under development. The graduation rate presented in this report is limited by the quality of data provided by the district and school guidance counselors. Students without data in 2007 are not included in the graduation rate calculation because evaluators do not know those students' circumstances. Students may not have data in 2007 because they dropped out or because they transferred to a private school or a school outside Boston. The participant graduation rate is not compared to

high school in 2007, four years after participants entered ninth grade. These former 8th Grade Academy participants graduated at a higher rate than did the BPS class of 2007, as shown in Exhibit 33. Boston Public Schools reported that 58 percent of the class of 2007 graduated from high school in four years (BPS Communications Office, 2008).¹¹ This finding is particularly noteworthy given that upon entering middle school Citizen Schools participants were more educationally at-risk than BPS students overall.

Exhibit 33
Four-Year Graduation Rate of the 8th Grade Academy Class of 2002-03,
Compared with the BPS Class of 2007



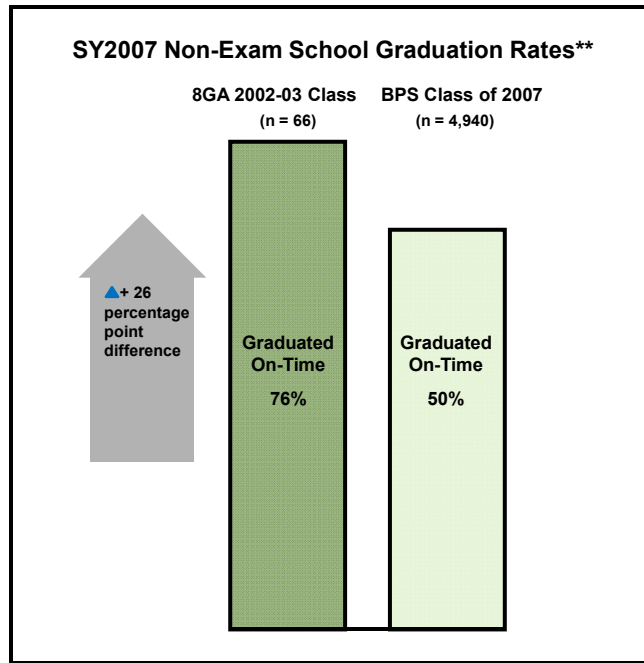
Evaluators analyzed the four-year graduation rate of former participants and BPS students not attending BPS examination high schools, as shown in Exhibit 34. Excluding exam schools from the analysis, 76 percent of the 8th Grade Academy class of 2002-03 graduated from high school in four years, as shown in Exhibit 34. In comparison, 50 percent of the BPS class of 2007 attending non-exam schools graduated from high school in four years (BPS Office of Research, Assessment, & Evaluation, 2008).¹²

the rate of the matched comparison group because of the limited number of matches with complete graduation data available.

¹¹ Transfers in and out of BPS are included in the four-year graduation rate.

¹² Authors' calculation based on publically available school-level graduation rates for 2007.

Exhibit 34
Four-Year Graduation Rate of the 8th Grade Academy Class of 2002-03 in Non-Exam Schools, Compared with the BPS Class of 2007 in Non-Exam Schools



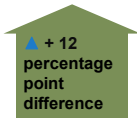
Summary Findings

Trends on indicators measuring progress to high school graduation were generally positive, as summarized in Exhibit 35. Former 8th Grade Academy participants were more likely than matched nonparticipants to be on track to graduate upon entering tenth grade; however, there were no statistical differences in the percent of participants and nonparticipants reaching eleventh and twelfth grades on time. In a comparison of the 8th Grade Academy class of 2002-03 with the BPS class of 2007, former participants were more likely to graduate from high school in four years than were BPS students overall.

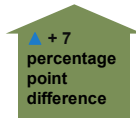
Exhibit 35 Summary of High School Graduation Indicators

Former participants were more likely than matched nonparticipants to be on track to graduate and to be promoted to tenth grade on time. Former participants did not outperform nonparticipants in being promoted on time to eleventh and twelfth grade. However, former participants were more likely to graduate in four years than were BPS students overall. In addition, former participants in non-exam schools were more likely to graduate on time than were their BPS peers in non-exam schools.

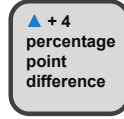
On Track to Graduate



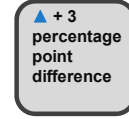
On-Time Promotion to Tenth Grade



On-Time Promotion to Eleventh Grade

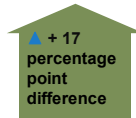


On-Time Promotion to Twelfth Grade

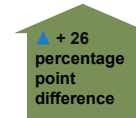


High School Graduation

vs. BPS overall



vs. BPS without Exam Schools



Conclusion

Findings from the current phase of the evaluation suggest that Citizen Schools participation helps educationally at-risk youth to develop skills needed to follow a path of academic success through high school graduation. Participation in Citizen Schools' 8th Grade Academy is associated with positive results on several important indicators in the areas of selecting and persisting in a high-quality high school and high school engagement, achievement, and graduation, as shown in Exhibit 36. The validity of the findings presented in this report is limited by selection effects and attrition, as described in Appendix A. However, evaluators conclude that the overall impact of Citizen Schools is positive. The evaluation finds that youth identified as at-risk prior to participation in Citizen School often outperform similar youth and youth in BPS overall after participation in Citizen Schools.

Former participants enrolled in high-quality high schools at more than twice the rate of their counterparts who did not participate in Citizen Schools. Of those youth who enrolled in high-quality high schools, former participants were more likely than matched nonparticipants to stay enrolled in a high-quality high school through eleventh grade.

Citizen Schools participation was associated with increased attendance and academic achievement in high school. At all grade levels, former participants attended school at higher rates than matched nonparticipants. In math, former participants were more likely than nonparticipants to pass math class at all grade levels and to pass and perform at the proficient or advanced level on the Mathematics MCAS. Former 8th Grade Academy participants were also more likely than BPS students, on average, to pass and achieve proficient or advanced scores on the Mathematics MCAS. In English Language Arts, the performance patterns of former participants compared to nonparticipants varied by grade level. In ninth and twelfth grades, former participants were more likely to pass their English Language Arts course, in tenth and twelfth grade participants were more likely to earn an A or B in their English Language Arts course, and former participants were more likely than matched nonparticipants to perform at the proficient or advanced level on the English Language Arts MCAS. Additionally, former participants were more likely to pass the English Language Arts MCAS than were BPS students overall.

The progress of former 8th Grade Academy participants toward high school graduation was promising. Former participants were more likely than matched nonparticipants to be promoted to tenth grade on time and to be on-track to graduate high school on time. Compared to the BPS class of 2007, participants in the 8th Grade Academy class of 2002-03 were more likely to graduate high school in four years.

The next and final report of this evaluation will follow the same 448 former participants and their matched nonparticipants through the 2007-08 school year. With the addition of 2007-08 data, evaluators will be able to report on the academic outcomes of three cohorts of twelfth-graders, four cohorts of eleventh-graders, and five cohorts of ninth- and tenth-graders. The evaluation will continue to report the academic progress of participants in the larger context of the district, Boston Public Schools.

Exhibit 36
Summary of Statistically Significant Differences Between Participants and Comparison Students by Grade, in Percentage Points

Progress Area	Indicator	Difference Between Participants and Comparison Group
Selection and persistence in a high-quality high school	High-quality high school selection rate	▲ +31***
	Ninth- to eleventh-grade persistence rate	▲ +31**
High school engagement	Ninth-grade attendance rate	▲ +5**
	Tenth-grade attendance rate	▲ +3*
	Eleventh-grade attendance rate	▲ +7**
	Twelfth-grade attendance rate	▲ +5**
High school achievement	Ninth-grade pass math course rate	▲ +8*
	Tenth-grade pass math course rate	▲ +15**
	Eleventh-grade pass math course rate	▲ +11*
	Twelfth-grade pass math course rate	▲ +15*
	Twelfth-grade earn A or B in math course rate	▲ +20*
	Mathematics MCAS pass rate	▲ +7*
	Mathematics MCAS pass rate ¹	▲ +16**
	Mathematics MCAS proficiency rate	▲ +13***
	Mathematics MCAS proficiency rate ¹	▲ +5***
	Ninth-grade pass ELA course rate	▲ +13**
	Twelfth-grade pass ELA course rate	▲ +21*
	Tenth-grade earn A or B in ELA course rate	▲ +16**
	Twelfth-grade earn A or B in ELA course rate	▲ +19**
	English Language Arts MCAS pass rate ¹	▲ +13**
	English Language Arts MCAS proficiency rate	▲ +9*
Progress toward high school graduation	On-time promotion to tenth grade rate	▲ +7**
	On-track to graduation rate	▲ +12**
	High school graduate rate ¹	▲ +17**

¹ Difference is between former participants and BPS overall. All unnoted differences are between former participants and matched nonparticipants.

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Appendix A

Analytic Approach

Analytic Approach

Measuring Impact

To analyze program impact over time, the evaluation employs a quasi-experimental design that compares the school engagement and academic achievement of Citizen Schools participants to a group of similar students who do not participate in the after-school program. Given the benefits of individual matching, the evaluation employs one-to-one matching, whereby matched nonparticipants are selected based on their similarity to an individual Citizen Schools participant. The records that the evaluators receive on matched nonparticipants are stripped of individual identifiers but include a scrambled identification number to permit linkage of nonparticipant records from year to year.

To analyze the impact of Citizen Schools participation on school engagement and academic achievement, participants are compared with matched nonparticipants using paired samples t-tests with a one-tailed test of significance (i.e., the evaluation tests whether participants outperform matched nonparticipants and not vice versa). Both the participant and his/her individually matched nonparticipant must have valid data on a measure to be included in the analysis for that measure. Analyses comparing participants to students district-wide are based on two-tailed tests of significance (i.e., the evaluation tests whether participants perform differently from BPS students overall).

Matching Participants to Nonparticipants

Many factors are statistically associated with students' school engagement and academic achievement, including family income, gender, race, and eligibility for specialized educational services, such as special education and bilingual education. Therefore, to measure the impact of Citizen Schools participation, analyses must compare participants and nonparticipants who are similar in terms of these and other characteristics. To select such matches, PSA and Citizen Schools identified and ranked a set of characteristics to serve as the matching criteria. In consultation with PSA, a programmer in the BPS Office of Information Services selected the matched nonparticipants based on these matching criteria and prepared the data files of participants and nonparticipants that the evaluators analyzed and present in this report. Given the high rate of student mobility in the BPS system and the fact that the evaluation would not be able to follow up with nonparticipants to obtain missing data, the programmer was asked to identify three matched nonparticipants for every participant.

The matching criteria included the following characteristics: gender, race, grade in school, eligibility for free or reduced-price lunch, student test scores on the fourth-grade MCAS tests in mathematics and English Language Arts, school attended, bilingual education status, and special education status. With the exception of constants like gender, race, and students' scores on the fourth-grade MCAS tests, these data were to be based on the year prior to a student's participation in Citizen Schools. Five of the characteristics—gender, race, grade in school, free

or reduced-price lunch eligibility, and MCAS test scores—were to serve as the core matching variables. Ideally, a nonparticipant would match a participant exactly on each of these variables. The remaining characteristics were then to be considered in the following order of priority: school and then bilingual status and special education status.

As shown in Exhibit A-1, the groups of matched nonparticipants and participants included in each analysis section are similar on all matching and ranking criteria. Among both groups within each section, about three-quarters are African American, between 16 and 21 percent are Hispanic, and the remaining students are either Asian, Native American, or white. About half of participants and matched nonparticipants are female, except for the twelfth-grade analysis sample, where 63 percent of both participants and matched nonparticipants are female. Nearly equal percentages of participants and matched nonparticipants were eligible for free- or reduced-price lunch (between 84 and 91 percent), enrolled in special education (about 20 percent), and enrolled in bilingual education (3 percent or less) at baseline within each section. Participants and matched nonparticipants scored at proficiency on their fourth-grade English Language Arts and Mathematics MCAS exams at similar rates. No statistically significant differences between participants and matched nonparticipants were found within any of the four analysis groups.

Evaluators made an important change to the matching process in the fifth phase of the study, in order to minimize the need to replace matches and to increase the sample size. In Phase V, unlike earlier phases, students are included in analysis regardless of on-time promotion. For example, the analyses of tenth-grade indicators in this report may include tenth-graders who were promoted on time to the tenth grade as well as tenth-graders who repeated the eighth or ninth grade. In cases where students repeated the tenth grade, evaluators analyzed data from their first tenth-grade year only. As a result of this change, the analysis sample size increased as participant/matched-nonparticipant pairs that were excluded in previous phases because one or both of them were not promoted on time were included in the fifth-phase analyses.

Exhibit A-1
Demographics and Prior Achievement of Participants and Matched Nonparticipants

Demographics and Prior Achievement of Participants and Matched Nonparticipants								
	Ninth Grade		Tenth Grade		Eleventh Grade		Twelfth Grade	
	Participants	Matched Nonparticipants	Participants	Matched Nonparticipants	Participants	Matched Nonparticipants	Participants	Matched Nonparticipants
Race/Ethnicity	(n=358)	(n=415)	(n=200)	(n=236)	(n=116)	(n=143)	(n=58)	(n=76)
African American	74	73	75	73	72	71	72	78
Asian	2	2	2	2	2	3	3	1
Hispanic	19	20	19	21	21	21	17	16
Native American	1	1	1	1	0	0	0	0
White	4	4	4	3	6	5	7	5
Gender	(n=439)	(n=439)	(n=238)	(n=238)	(n=145)	(n=145)	(n=76)	(n=76)
Female	51	51	52	52	52	52	63	63
Male	49	49	48	48	48	48	37	37
Free- or Reduced-Price Lunch Eligibility	(n=387)	(n=379)	(n=208)	(n=199)	(n=212)	(n=118)	(n=62)	(n=61)
Eligible	86	91	85	91	87	90	84	85
Special Education Status	(n=439)	(n=439)	(n=238)	(n=238)	(n=145)	(n=145)	(n=76)	(n=76)
Enrolled	23	19	22	22	19	21	20	16
Bilingual Education Program Status	(n=439)	(n=439)	(n=238)	(n=238)	(n=145)	(n=145)	(n=76)	(n=76)
Enrolled	3	2	1	1	1	1	3	1
Fourth-Grade ELA MCAS	(n=328)	(n=359)	(n=187)	(n=202)	(n=120)	(n=132)	(n=66)	(n=71)
Percent Proficient	8	10	7	6	8	7	14	11
Fourth-Grade Math MCAS	(n=333)	(n=362)	(n=184)	(n=201)	(n=119)	(n=132)	(n=65)	(n=71)
Percent Proficient	6	6	4	7	1	2	2	3

Evaluation Limitations

The design of the study is limited by hidden bias that may be present in unobservable student characteristics. This hidden bias may threaten the internal validity of the results, thus overestimating or underestimating the impact of Citizen Schools. The primary causes of hidden bias in this evaluation occur in the selection and attrition of participants and matched nonparticipants.

Participants choose, or self-select, to be part of Citizen Schools and therefore could have unmeasured traits that may be correlated with outcomes studied in the evaluation. For example, participants in Citizen Schools may perform better academically than matched nonparticipants even without participation in Citizen Schools because of unmeasured differences in the academic motivation of students or their families. Further contributing to the possible hidden bias is the unknown after-school experiences of matched nonparticipants. It may be that the most academically motivated students were already enrolled in another after-school program before the Citizen Schools recruitment and enrollment period. Citizen Schools recruits educationally at-risk youth in September, after youth have the opportunity to enroll in other after-school programs available to BPS students. Overall, evaluators believe self-selection to the program may inflate the measured impact of Citizen Schools in this evaluation but the level of inflation may be reduced by the recruitment practices of Citizen Schools.

In addition to self-selection to the program, attrition is another source of bias in this study. The evaluation is unable to track participants and nonparticipants once they leave the BPS system and does not obtain accurate information on these students' reasons for leaving BPS. The availability of three matched nonparticipants mitigates the effect of attrition and allows the evaluation to continue to compare participants against a statistically similar comparison group of the same size. The evaluation ranks each participant's three nonparticipant matches based on how similar they are to the participant on the matching criteria detailed above.¹³ Whenever possible, participants are compared to their most similar nonparticipant match. Over the course of the evaluation, as students progress through the BPS system, it sometimes becomes necessary to compare a participant to his/her second or third most similar nonparticipant. This replacement occurs if a matched nonparticipant leaves the BPS system. This means that a participant's matched nonparticipant may change from year to year (i.e., they are compared to a different nonparticipant in the ninth-grade and tenth-grade analyses) but not within a year (i.e., a participant is assigned the same match for the analysis of ninth-grade suspension and ninth-grade course grades). If a participant's best match leaves the BPS system and later returns, the participant and best match will be paired again in the year that the matched nonparticipants returns to the BPS system. It is unknown whether a participant's original matched nonparticipant who leaves the BPS data system fares worse (e.g., because he or she dropped out of school) or better (e.g., because he or she transferred to a high-quality private school), compared with the replacement match. Exhibit A-2 shows the percent of participants in each analysis section of the report who were paired with their first, second, or third most similar matched nonparticipant.

¹³ In addition to the matching criteria, students without fourth-grade MCAS scores were ranked using course grades from the first marking period in the year prior to participation in the evaluation.

Exhibit A-2
**Participants in Analysis Pool Matched to First, Second,
and Third Most Similar Matched Nonparticipant, in Percents**

Grade Level	<i>n</i>	First Match	Second Match	Third Match
Ninth-grade analysis	439	65	25	10
Tenth-grade analysis	238	56	29	15
Eleventh-grade analysis	145	56	28	17
Twelfth-grade analysis	76	54	36	11

Evaluators believe attrition may inflate the measured outcomes of both the participant and nonparticipant groups in this evaluation. Youth remaining in the sample are likely to achieve greater academic success than youth dropping out of the sample. Additionally, evaluators believe the degree to which the measured outcomes is inflated is greater for the nonparticipant comparison group. Nonparticipants left the BPS system at a higher rate than did former Citizen Schools participants in the ninth-, tenth-, and eleventh-grade analysis groups. That fact compounded with the replacement of nonparticipants who drop out of the BPS system with nonparticipants who remain in the BPS system leads evaluators to believe that disparate patterns of attrition may result in understatement of the true difference between the groups.

Appendix B

Evaluation Measures

Evaluation Measures

The *quality of the high school* in which a student enrolled during the ninth-grade year is determined through a ranking system created by Citizen Schools.

Persistence in a high-quality high school includes students who enrolled in a high-quality high school in ninth grade and is computed as the percent of those students who remain in a high-quality high school.

On-time promotion is computed as the percent of students who are promoted from eighth to tenth grade within two years, from eighth to eleventh grade within three years, and from eighth to twelfth grade within four years.

School attendance rate is based on the number of days a student attended school divided by the number of days his/her school was open.

School suspension rate is the percent of students who were suspended during a school year, regardless of the within-year frequency of each student's suspension.

Course grades in English Language Arts and math reflect whether students passed their course in these subject areas in the third marking period of the school year. The evaluation reports on the percent of students passing their courses based on their schools' definitions of passing. In schools within the BPS system, a D- or higher is considered passing. At some Boston-area charter schools, students must earn a C- or higher to pass a course.

English Language Arts and Mathematics MCAS tests provide two categories of measures for this evaluation. The evaluation reports the *percent of students scoring at the proficient or advanced level* on the fourth- and tenth-grade MCAS tests. For the tenth-grade MCAS tests, which students are required to pass in order to graduate from high school, evaluators also report the *percent of students passing the test* (i.e., scoring at the "needs improvement" level or above, which is the state standard for passing).

On-track to graduation rate is based on a composite indicator developed by the evaluators. The indicator is based on prior research and incorporates measures of grade promotion and final grades in core English Language Arts and math courses.

Four-year graduation rate is computed as the percent of students receiving a diploma within four years of enrolling in ninth grade.

Appendix C
Findings by Exposure Level

Findings by Exposure Level

Previous reports in this series presented findings disaggregated by the level of Citizen Schools' program exposure participants experienced. Of the former 8th Grade Academy participants included in this report, 201 (45 percent) participated in Citizen Schools for two or more years at an attendance rate of 60 percent or more each semester for all semesters. The evaluation considers these students to have experienced high levels of program exposure. Students who did not meet this participation criterion are considered to have low levels of program exposure (n=247). The following tables in Exhibit C-1 present the findings from this report disaggregated by exposure level.

**Exhibit C-1
Indicator Rates of Participants and Matched Nonparticipants, By Exposure Level**

Selection and Persistence in a High-Quality High School									
Indicator	All			High Exposure			Low Exposure		
	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants
Selection of a high-quality high school	396	59%***	28%	179	60%***	25%	217	58%***	30%
Persisting in a high-quality high school, ninth to tenth grade	47	89%	79%	NA	NA	NA	NA	NA	NA
Persisting in a high-quality high school, ninth to eleventh grade	32	72%**	41%	NA	NA	NA	NA	NA	NA

High School Engagement									
Indicator	All			High Exposure			Low Exposure		
	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants
Ninth-grade school attendance rate	349	86%**	81%	159	90%**	82%	190	83%	80%
Tenth-grade school attendance rate	220	87%*	84%	106	92%**	86%	114	83%	82%
Eleventh-grade school attendance rate	134	88%**	81%	54	89%	85%	80	88%*	79%
Twelfth-grade school attendance rate	70	90%**	85%	37	90%	87%	33	91%**	84%
Ninth-grade school suspension rate	338	10%	14%	153	6%*	12%	185	13%	15%
Tenth-grade school suspension rate	220	13%	12%	106	12%	11%	114	13%	11%
Eleventh-grade school suspension rate	134	11%	9%	54	6%	6%	80	15%	11%
Twelfth-grade school suspension rate	65	8%	8%	33	6%	6%	32	9%	9%

High School Achievement: Course Performance									
Indicator	All			High Exposure			Low Exposure		
	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants
Pass ninth-grade English Language Arts course in third marking period	222	82%**	69%	99	82%**	65%	123	82%	73%
Pass tenth-grade English Language Arts course in third marking period	126	76%	78%	59	72%	74%	65	80%	82%
Pass eleventh-grade English Language Arts course in third marking period	62	79%	84%	30	83%	83%	32	75%	84%
Pass twelfth-grade English Language Arts course in third marking period	33	91%*	70%	NA	NA	NA	NA	NA	NA
Earn an A or a B in ninth-grade English Language Arts course in third marking period	222	38%	32%	NA	NA	NA	NA	NA	NA
Earn an A or a B in tenth-grade English Language Arts course in third marking period	126	45%*	29%	NA	NA	NA	NA	NA	NA
Earn an A or a B in eleventh-grade English Language Arts course in third marking period	62	34%	45%	NA	NA	NA	NA	NA	NA
Earn an A or a B in twelfth-grade English Language Arts course in third marking period	33	51%*	32%	NA	NA	NA	NA	NA	NA
Pass ninth-grade math course in third marking period	216	73%*	65%	102	73%	67%	114	73%	63%
Pass tenth-grade math course in third marking period	142	79%**	64%	73	81%*	65%	69	77%*	64%
Pass eleventh-grade math course in third marking period	85	83%*	72%	37	92%	81%	48	75%	65%

High School Achievement: Course Performance									
Indicator	All			High Exposure			Low Exposure		
	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants
Pass twelfth-grade math course in third marking period	40	85%*	70%	NA	NA	NA	NA	NA	NA
Earn an A or a B in ninth-grade math course in third marking period	216	34%*	24%	NA	NA	NA	NA	NA	NA
Earn an A or a B in tenth-grade math course in third marking period	142	39%	31%	NA	NA	NA	NA	NA	NA
Earn an A or a B in eleventh-grade math course in third marking period	85	34%	25%	NA	NA	NA	NA	NA	NA
Earn an A or a B in twelfth-grade Math course in third marking period	40	43%**	23%	NA	NA	NA	NA	NA	NA

High School Achievement: MCAS Performance									
Indicator	All			High Exposure			Low Exposure		
	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants
Pass tenth-grade English Language Arts MCAS	157	94%	91%	76	92%	91%	81	95%	91%
Achieve proficiency on tenth-grade English Language Arts MCAS	157	48%*	39%	76	42%	45%	81	53%**	33%
Pass tenth-grade Mathematics MCAS	153	93%*	86%	74	94%	86%	79	92%	86%
Achieve proficiency on tenth-grade Mathematics MCAS	153	53%**	40%	74	61%**	43%	79	46%	37%

High School Graduation									
Indicator	All			High Exposure			Low Exposure		
	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants	n	Participants	Matched Nonparticipants
On-time Promotion to Tenth Grade	400	83%**	76%	NA	NA	NA	NA	NA	NA
On-time Promotion to Eleventh Grade	225	74%	70%	NA	NA	NA	NA	NA	NA
On-time Promotion to Twelfth Grade	115	77%	73%	NA	NA	NA	NA	NA	NA
On-track to Graduation	226	63%**	51%	93	71%**	52%	133	58%	52%
Graduated from high school in four years	67	75%***	58%	NA	NA	NA	NA	NA	NA