

# Archived Information

## III. Impacts Of Middle School Centers

Estimating the impacts of centers was a major goal of the national evaluation. This chapter presents estimates of impacts of middle school centers on a range of student outcomes. These outcomes include activities after school, grades, test scores, behavior in and out of school, and perceptions of safety after school. We also present estimates for the impacts of different types of centers and of centers for different types of students.

Results from the analysis suggest that middle school centers were associated with small increases in school attendance, classroom effort, and math grades, as well as with greater parental involvement in school-related events. On the other hand, centers had no effects on student classroom performance, student disciplinary problems, grades in English, science, and history and students' social development. These were all about the same for center participants and comparison students. Participants were also somewhat more likely to engage in negative behavior outside the classroom and to have been victimized in some way.

This pattern of mixed results has been observed in other studies of after-school programs for middle school students. For example, an evaluation of the Big Brothers and Big Sisters Program found that participants earned slightly higher grades and had slightly better attendance than control group students but that there were no differences between the groups on homework completion (Tierney et al. 1995). An evaluation of the LA's BEST after-school program (Brooks et al. 1995) found that the program improved grades but that its effects on test scores depended on the method used to estimate effects (Brooks et al. 1995). An evaluation of a 21st-Century program in San Francisco found no effects on test scores or grades, although the program did affect some types of students (Trousedale 2000).

## **A. Characteristics of Participant and Comparison Students Were Similar**

As noted in Chapter I, to estimate impacts of middle school centers, a random sample of grantees serving middle school students was selected, and for each grantee, comparison students were identified using propensity score matching (Rosenbaum and Rubin 1983). Propensity score matching selects comparison group students from a pool of potential students based on how closely their characteristics resemble those of participants. Potential comparison group members are matched to participants with similar propensity scores.

The score matching procedure ensures that the overall group of comparison students resembles participants on most observed characteristics, but some differences can arise for two reasons. First, the matching process is inexact and can yield participant and comparison groups that differ on some characteristics. Second, parents had to give their consent to be in the evaluation after matches were identified, and whether or not parents gave their consent could be related to the students' characteristics. We used regression modeling techniques to adjust for differences between participants and comparison students on characteristics that could be observed. Appendix B provides more details about the matching process and the regression techniques used to estimate impacts.

The success of the matching method is suggested by the small differences of the participants and comparison groups on a variety of characteristics (Table III.1). For example, 47.1 percent of the participant group and 46.5 percent of the comparison group were male, 12.3 percent of the participant group and 11.9 percent of the comparison group were Hispanic, and 52.0 percent of the participant group and 58.0 percent of the comparison group lived in a two-parent household.

On the other hand, because information from parent questionnaires was available only after matching was completed, the design could not use information about parents to match students.

Table III.I

Characteristics of Center Participants and Comparison Group Students:  
Middle School Centers

Characteristic	Percentage of Program Participants	Percentage of Comparison Group Members	p-Value <sup>a</sup>
<b>Gender</b>			
Male	47.1	46.5	0.70
Female	52.9	53.5	0.70
<b>Race/Ethnicity</b>			
White (non-Hispanic)	38.2	40.6	0.15
Black (non-Hispanic)	27.8	24.8	0.05*
Hispanic	12.3	11.9	0.73
Other	15.5	15.8	0.79
Mixed race	6.3	6.8	0.53
<b>Grade Level</b>			
6	20.5	21.3	0.63
7	37.6	38.2	0.62
8	34.3	34.4	0.82
Other or ungraded	7.7	6.0	0.03**
Primary Language at Home Is Not English	17.7	18.8	0.38
<b>Household Structure</b>			
Two parents	52.0	58.0	0.44
Single mother	28.5	24.3	0.09*
Single father	2.9	2.7	0.87
Other	16.6	15.0	0.16
<b>Parental Education</b>			
Mothers have at least a high school degree/GED	79.9	78.5	0.30
Mothers have a four-year college degree	10.8	14.4	0.00***
Fathers have at least a high school degree/GED	76.9	76.7	0.90
Fathers have a four-year college degree	11.7	16.0	0.00***
<b>Employment Status</b>			
Both parents with a full-time job	26.6	31.0	0.00***
Mothers with a full-time job	59.7	60.5	0.57
Mothers with a part-time job	14.3	15.8	0.21
Fathers with a full-time job	81.1	84.6	0.01***
Fathers with a part-time job	4.5	3.6	0.53
<b>Household Income</b>			
Less than \$10,999	16.1	15.0	0.35
\$11,000-\$24,999	27.5	24.8	0.07*
\$25,000-\$39,999	24.7	21.0	0.01***
\$40,000-\$59,999	17.5	18.4	0.49
More than \$60,000	14.1	20.7	0.00***
<b>Receipt of Government Assistance</b>			
Food stamps	18.3	17.3	0.44
TANF	7.4	6.8	0.51

Table III.1 (continued)

Characteristic	Percentage of Program Participants	Percentage of Comparison Group Members	p-Value <sup>a</sup>
Student-Reported Baseline Grades			
Mostly A's	30.3	34.1	0.02**
Mostly B's	35.7	36.4	0.31
Mostly C's	23.3	21.2	0.03**
Mostly D's or below	8.8	7.6	0.34
Not graded	1.8	0.7	0.00***
<b>Sample Size<sup>b</sup></b>	<b>1,752</b>	<b>2,437</b>	

SOURCE: Student survey, parent survey, school records.

<sup>a</sup>The p-value is the smallest level of significance at which the null hypothesis that the difference in means between program participants and comparison group members equals zero can be rejected. If the p-value is less than .01, the difference is significant at the 1 percent level; if the p-value is less than .05, the difference is significant at the 5 percent level, and so on.

<sup>b</sup>Sample sizes for some characteristics differ because of missing values.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

Data gathered from parents after matching found that a larger proportion of participants lived in households with low annual incomes, and participants were more likely to be from a single-parent household and to have a mother or father with less than a four-year college degree.

The differences between the participant and comparison groups underscore the importance of adjusting for student characteristics in measuring impacts. The regression models (discussed in Appendix B) used to estimate impacts adjust for observed participant-comparison differences in characteristics such as those shown in Table III.1.<sup>27</sup>

## **B. How Did Middle School Centers Affect Students?**

The conceptual framework presented in Chapter I links participation in centers with a range of outcomes. For example, participation might immediately influence students' after-school activities, location, and supervision. These factors could in turn influence other outcomes, such as school attendance, participation in class, and completion of homework. They could also extend to long-term outcomes such as course grades and test scores. Similarly, participation could influence student behavior and personal development through the activities and services centers provide.<sup>28</sup>

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<sup>27</sup>We tested the extent to which regression models were able to reduce baseline differences by estimating models in which the baseline outcome was regressed on student characteristics. Results from these models indicate that the baseline differences were substantially reduced by the adjustment. In practice, the regression adjustment approach is stronger than what is found in the test because the baseline value of the outcome variable is included in the model.

<sup>28</sup>Because impacts can represent different units and the absolute magnitude of the impacts is not always informative, the text sometimes refers to an impact's "effect size," which is the impact expressed as a percentage of the outcome's standard deviation. Effect sizes of 10 to 20 percent are common in program evaluation and effect sizes of 30 percent or more are considered large and are relatively uncommon.

## 1. Centers Increased Adult Supervision but Did Not Affect Self-Care

Centers decreased how often parents or older siblings cared for students and increased how often adults who were not their parents (for example, program staff members) cared for these students. Table III.2 shows that a parent cared for 53.2 percent of participants at least three days during a typical week, compared with 59.2 percent of comparison students.<sup>29</sup> It also shows that an older sibling cared for 4.6 percent of participants, compared with 7.2 percent of comparison group students. On the other hand, 20.2 percent of participants and 11.7 percent of comparison group students were being cared for by an adult who was not their parent. However, centers did not affect whether students were in self-care (defined as students being by themselves, with friends, or with younger siblings after school, and not being cared for by an adult). About 17 percent of both participants and comparison group students were in self-care at the time of the follow-up survey. The net effect was to increase the proportion of students being cared for by an adult (either a parent or a non-parent adult) by reducing the proportion being cared for by older siblings.<sup>30</sup>

Not surprisingly, centers also increased the time students spent at school during the after-school hours. Participants were more likely to remain at school after the regular school day ended, with 30 percent spending three or more days in a typical week at school, compared with 18 percent of comparison students (Table III.2). During the average week, participants spent twice as many days at school as comparison group members (1.2 versus 0.6 days, on average, an effect size of 10 percent). Participants also were less likely than comparison students to be in the

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<sup>29</sup>The results reported in Table III.2 are based on student reports of their after-school location and care arrangements. We also examined impacts based on parent reports of location and care arrangements. The patterns of impacts were similar, though parents were more likely to report their child was cared for by a parent.

<sup>30</sup>Defining self-care in other ways yielded similar results. There was no significant difference between treatment and comparison groups in whether students were home alone for three or more days a week, or for one or more days a week.

Table III.2

Center Impacts on Location, Supervision, and Student Activities After School:  
Middle School Centers

Outcome	Student-Reported Supervision and Location			
	Center Participants	Comparison Group	Estimated Impact of Participation	p-Value <sup>a</sup>
Percentage of Students in the Following Types of Supervision at Least Three Days after School in a Typical Week:				
Self-care	17.5	17.3	0.1	.92
Parent care	53.2	59.2	-6.0***	.00
Nonparent adult care	20.2	11.7	8.5***	.00
Sibling care	4.6	7.2	-2.6***	.00
Mixed care (not in any one category for at least three days)	4.6	4.6	0.0	.94
Percentage of Students in the Following Locations after School at Least Three Days in a Typical Week:				
Own home	67.5	78.4	-10.9***	.00
Someone else's home	8.9	13.3	-4.4***	.00
School or other place for activities	30.0	18.0	12.0***	.00
Somewhere to "hang out"	9.0	10.3	-1.3	.24
Mixed location (not in one location for at least three days)	8.7	7.2	1.4	.16
Mean Number of Days Stayed after School for Activities in Typical Week	1.2	0.6	0.6***	.00
Mean Number of Days Students Participate in Activity after School:				
Homework	3.2	3.1	0.1	.12
Tutoring	0.6	0.3	0.3***	.00
Non-homework reading, writing, or science activities	1.4	1.2	0.2**	.01
School activities (band, drama, etc.)	1.0	0.6	0.4***	.00
Lessons (music, art, dance, etc.)	0.6	0.5	0.1	.19
Organized sports	1.4	1.2	0.2***	.00
Clubs (Boy and Girl Scouts, Boys and Girls Club, etc.)	0.4	0.2	0.1***	.00
Activities at church, temple, mosque	0.5	0.5	0.0	.83
Watched TV or videos	3.5	3.5	0.0	.91
Surfed the Internet or did other things on a computer	2.0	1.8	0.2***	.01
"Hung out" with friends	2.7	2.4	0.3***	.00
Volunteered or did community service	0.4	0.3	0.1	.11
Worked at a job	0.5	0.4	0.0	.51
Did chores around the house	3.0	3.1	-0.1	.17
Took care of a brother or sister	1.6	1.6	0.0	.89
<b>Sample Size<sup>b</sup></b>	<b>1,750</b>	<b>2,437</b>		

SOURCE: Student survey.

NOTE: The percentages and mean values of outcomes for participants and comparison group members have been regression-adjusted for baseline differences between the groups. The control variables in the regression included 26 different student and household characteristics, such as indicators of students' demographic characteristics, household socioeconomic status, and students' baseline test scores, attendance, disciplinary problems, and self-reported grades. Due to rounding, estimated impacts shown in the table do not always equal the difference between center participants and the comparison group.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

<sup>a</sup>The p-value is the smallest level of significance at which the null hypothesis that the difference in means between program participants and control group members equals zero can be rejected. If the p-value is less than .01, the difference is significant at the 1 percent level. If the p-value is less than .05, the difference is significant at the 5 percent level, and so on.

<sup>b</sup>Sample sizes differ for some outcomes due to missing values.

homes of others after school. However, centers did not affect the amount of time students spent “hanging out” away from school or home—participants were as likely as comparison students to report going somewhere after school to “hang out.”<sup>31</sup>

## **2. Centers Affected After-School Activities**

Center participants were more likely to report doing academic activities after school. Students reported on whether they had engaged in up to 15 different activities after school during a recent typical week, including doing homework, being tutored, watching television, and doing chores around the house. Participants were significantly more likely than comparison students to have engaged in seven of these activities (Table III.2), and, in particular, participants were more likely to say that they received tutoring after school (with the average participant being tutored twice as often as the average comparison student during a typical week, an effect size of almost 30 percent). Participants also were more likely to say that they participated in some reading, writing, or science activity not related to homework.<sup>32</sup>

Centers also affected nonacademic activities. During a typical week, participants spent an average of 1.0 days participating in school activities such as band or drama, compared with 0.6 days for comparison students, an effect size of 27 percent (Table III.2). Participants also were more likely to engage in organized sports or activities at clubs, possibly because some after-school programs linked with clubs to provide activities during program hours. In addition, while the two groups spent the same amount of time watching television after school, participants spent

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<sup>31</sup>The term “hanging out” is used in the questionnaires completed by students and they were free to interpret the expression in their own way.

<sup>32</sup>As with location and care, we also examined student and parent reports about after-school activities. There were some differences between students and parents in reported activities after school, but student reports are presented here based on the assumption that student reports of their after school activities are more accurate.

more time doing things on a computer, such as surfing the Internet (2.0 versus 1.8 days, effect size is 10 percent).<sup>33</sup>

The location and care information in Table III.2 provides some information about how students spend after-school time that may have a bearing on impacts. Interestingly, most students in the comparison group reported that they were at home for at least part of the after-school time, and many also reported that they were with a parent. Additional analyses not reported here found that the majority (53 percent) of comparison-group students reported being at home *and* being with a parent after school. Centers and center staff can have impacts by being a possibly more academically oriented form of care, but may not be a better form of care in other dimensions.

Also, differences in location and care arrangements (shown in Table III.2) were related to differences in participation in after-school activities, but the largest differences were for activities that are more likely to take place in school (for example, band and drama, and sports). Being cared for by other adults and being at school were associated with higher levels of these kinds of after-school activities for all students. However, activities that could occur either at school or elsewhere, such as music lessons, often were similar for students in various locations or types of care. For example, 24 percent of comparison students in the care of other adults reported participating in lessons, compared with 23 percent of comparison students being cared for by a parent and 22 percent of comparison students in self-care. And participation in homework generally was high for all care and location categories.<sup>34</sup> The data are not detailed

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<sup>33</sup>Participants possibly considered time at the center as time spent “hanging out with friends.” In this case, even if they reported that one of their activities was “hanging out with friends,” they may have reported their location as being at school.

<sup>34</sup>Across location and care categories, the lowest rate of doing homework (77 percent) was for students who said they went somewhere to “hang out” after school. The highest rate of doing homework (88 percent) was for

enough to describe after-school activities of students who attend other types of formal after-school programs such as church-based programs or Boys and Girls Clubs.

### **3. Centers Improved Some Academic Outcomes**

#### **a. Centers Improved Attendance and Classroom Effort but Not Homework Completion**

Centers were associated with slightly higher school attendance. School records indicated that center participants were absent an average of 9.0 days during the 2000-2001 school year and comparison students an average of 10.1, an effect size of 11 percent (Table III.3). Similarly, participants were less likely to be late to school (5.0 days late, versus 6.2 days late, effect size 11 percent).<sup>35</sup>

Centers did not increase homework completion, with 83.4 percent of both groups reporting that they “often” or “always” did the homework their teachers assigned (Table III.3). (Teachers reported that about half of participants and comparison students completed their homework.) Participants, however, were more likely to complete assignments to the teacher’s satisfaction (58.0 versus 53.3 percent, effect size 9 percent).<sup>36</sup> Another indication of greater classroom effort among participants is that a composite measure of student effort as reported by teachers was

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*(continued)*

students in parent care. Students in parent care were more likely to do homework (88 percent) than students in self-care (81 percent), but the difference is not as large as might be expected.

<sup>35</sup>We also examined impacts on attendance and tardiness based on teachers reports. Attendance impacts were consistent with impacts based on records data. Tardiness impacts based on teacher reports were small and statistically insignificant.

<sup>36</sup>The difference between teacher evaluations of whether students completed homework and whether they completed assignments to teachers’ satisfaction may arise because the more general term “assignments” includes work done in class as well as work done at home.

Table III.3

Impacts on Homework Completion and Level of Effort and Behavior in the Classroom:  
Middle School Centers

Outcome	Center Participants	Comparison Group	Estimated Impact of Participation	p-Value <sup>a</sup>
Percentage of Students Who Report That They “Often” or “Always” Do the Homework Teachers Assign	83.4	83.4	0.1	.97
Percentage of Students Whose Teachers Report That They “Often” Complete Their Homework	50.3	49.6	0.7	.69
Percentage of Students Whose Teachers “Agree” or “Strongly Agree” That They Complete Assignments to the Teacher’s Satisfaction	58.0	53.3	4.8***	.01
Percentage of Students Whose Teachers Report That They “Usually Try Hard” in English Class	51.3	48.4	2.9	.12
Teacher-Reported Level of Effort Composite <sup>b</sup> (Mean)	3.6	3.5	0.1***	.00
Percentage of Students Whose Parents “Agree” or “Strongly Agree” That Their Child Works Hard at School	75.1	75.3	-0.2	.91
Student-Based Discipline Problem Composite <sup>c</sup> (Mean)	1.4	1.4	0.0	.91
Teacher-Based Discipline Problem Composite <sup>d</sup> (Mean)	1.4	1.4	0.0	.26
Mean Number of Days Student Was:				
Absent from class	9.0	10.1	-1.1***	.00
Late for class	5.0	6.2	-1.1***	.00
<b>Sample Size<sup>e</sup></b>	<b>1,752</b>	<b>2,437</b>		

SOURCE: Student survey; teacher survey.

NOTE: The percentages and mean values of outcomes for program participants and comparison group members have been regression-adjusted for baseline differences between the groups. The regression’s control variables included 26 different student and household characteristics, such as indicators of students’ demographic characteristics, household socioeconomic status, and students’ baseline test scores, attendance, disciplinary problems, and self-reported grades. Due to rounding, estimated impacts shown in the table do not always equal the difference between center participants and the comparison group.

<sup>a</sup>The p-value is the smallest level of significance at which the null hypothesis that the difference in means between program participants and control group members equals zero can be rejected. If the p-value is less than .01, the difference is significant at the 1 percent level. If the p-value is less than .05, the difference is significant at the 5 percent level, and so on.

<sup>b</sup>The level of effort composite is based on five items reported by teachers: whether the student (1) usually tries hard, (2) often performs at or above his or her ability level, (3) is attentive in class, (4) participates in class, and (5) volunteers in class. The composite is equal to the mean of the five variables. Values on these items range from 1 to 5; a value of 1 on the composite indicates a low level of effort, and a value of 5 indicates a high level of effort.

<sup>c</sup>The student-based discipline problem composite is based on four items: the extent to which students report (1) skipping school or class, (2) getting sent to the office for doing something wrong, (3) getting detention, and (4) having their parents called to school about a problem they are having. The composite is equal to the mean of the four variables. A value of 1 on the composite indicates infrequent discipline problems, while a value of 4 indicates frequent discipline problems.

<sup>d</sup>The teacher-based discipline problem composite is based on four items: the extent to which the teacher reports that the student is (1) skipping school or class, (2) getting sent to the office for doing something wrong, (3) getting detention, and (4) having their parents called to school about a problem they are having. The composite is equal to the mean of the four variables. A value of 1 on the composite indicates infrequent discipline problems, while a value of 4 indicates frequent discipline problems.

<sup>e</sup>Sample sizes may differ for some outcomes due to nonresponse.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

higher for participants, although this evidence is tempered by two factors.<sup>37</sup> First, as with the impact on attendance, the impact on classroom effort was small. For example, one of the items contributing to the effort composite is whether the student “usually tries hard” in English class. Teachers were more likely to report that participants usually tried hard, but the difference is only 3 percentage points (51.3 percent among participants, versus 48.4 percent among comparison students) and the effect size is only 7 percent. Second, according to their parents, participants were no more likely to “work hard in school”: about three-fourths of the parents of both groups reported that their child works hard.

**b. Centers Did Not Affect Classroom Behavior**

According to students and their teachers, participants were equally likely to skip school, be sent to the office, get a detention for misbehaving, or have their parents called because of a behavior problem. Table III.3 shows that participants and comparison group students had the same value of a composite measure of disciplinary problems.

**c. Centers Increased Grades in Math but Not in Other Subjects**

Centers improved grades in math but not in other subjects (Table III.4). Participants and comparison students had about the same English, science, and social studies or history grades (in each case, the average grade was about 81). In math, however, participants had a marginally higher grade (80.3 points, compared to 79.5 points). This effect was statistically significant at the 10 percent level, but the effect size is only 6 percent.<sup>38</sup>

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<sup>37</sup>The five items on the effort composite are whether the student (1) usually tries hard, (2) often performs at or above ability level, (3) is attentive in class, (4) participates in class, and (5) volunteers in class.

<sup>38</sup>Impacts on test scores also were estimated but not reported here, as the magnitude and direction of the estimated impacts was sensitive to the method used to impute missing baseline test scores. Only a fourth of the sample had a follow-up score available and only a tenth of the sample had both a baseline and a followup score available.

Despite reporting slightly higher levels of classroom effort among participants, teachers were no more likely to report that program participants performed better than comparison students academically. Teachers reported that about one-third of each group achieved at an “above-average” or “very high” level (Table III.4), and 52 percent of teachers reported that the two groups “get good grades on tests.”

#### **4. Centers Did Not Improve Behavioral and Youth Development Outcomes**

##### **a. Centers Did Not Improve Social and Personal Development**

In general, centers did not improve developmental outcomes measured by the evaluation (Table III.5). For example, participants and comparison students had about the same values of a social engagement composite variable based on a set of variables that reflect how the students get along with others and how easily they can make and keep friends (however, the high value of the variable, 3.5 on a scale of 4, may have made impacts difficult to generate). In addition, no effect was found on a peer interaction and empathy composite, which reflects the extent to which students work well with others, have empathy for others, and believe the best about others. Centers had a small positive effect on educational expectations, with 83 percent of participants versus 80 percent of comparison students reporting that they expect to graduate from college, an effect size of 9 percent.<sup>39</sup>

##### **b. Centers Increased Parent Involvement**

Parents of participants were more likely to report that they regularly participated in school events and school-related activities. For example, 27 percent of the parents of participants

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<sup>39</sup>We also estimated insignificant impacts on student confidence in their reading ability, whether students had a positive attitude toward learning according to their teacher, whether students go along well with others, students’ ability to plan and solve problems, and the extent to which students helped their parents.

Table III.4

Impacts on Teacher-Reported Achievement and Grades:  
Middle School Centers

Outcome	Center Participants	Comparison Group Members	Estimated Impact of Participation	p-Value <sup>a</sup>
Percentage of Students Whose Teachers Report That They Achieve at an “Above-Average” or “Very High” Level	33.6	32.9	0.7	.67
Percentage of Students Whose Teachers “Agree” or “Strongly Agree” That They Get Good Grades on Tests	52.2	52.2	0.0	.99
Teacher-Reported Achievement Composite (Mean) <sup>b</sup>	3.4	3.4	0.0	.58
Mean Grade				
Math	80.3	79.5	0.7*	.06
English	80.9	80.9	0.1	.87
Science	81.3	81.1	0.1	.81
Social studies/history	81.0	80.5	0.4	.33
<b>Sample Size</b>	<b>1,752</b>	<b>2,437</b>		

SOURCE: Teacher survey; school records.

NOTE: The percentages and mean values of outcomes for program participants and comparison group members have been regression-adjusted for baseline differences between the groups. The control variables in the regression included 26 different student and household characteristics, such as indicators of students’ demographic characteristics, household socioeconomic status, and students’ baseline test scores, attendance, disciplinary problems, and self-reported grades.

<sup>a</sup>The p-value is the smallest level of significance at which the null hypothesis that the difference in means between program participants and control group members equals zero can be rejected. If the p-value is less than .01, the difference is significant at the 1 percent level. If the p-value is less than .05, the difference is significant at the 5 percent level, and so on.

<sup>b</sup>The teacher-reported achievement composite is based on teacher responses to five questions: (1) At what level is this student performing in reading? (2) Does this student get good grades on tests? (3) Does this student complete assignments to my satisfaction? (4) Does this student have good communication skills? (5) Is this student a proficient reader? Values on these items range from 1 to 5; a value of 1 on the composite indicates low achievement, and a value of 5 indicates high achievement.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

Table III.5

Impacts on Social Engagement, Educational Expectations, and Parental Involvement:  
Middle School Centers

Outcome	Center Participants	Comparison Group Members	Estimated Impact of Participation	p-Value <sup>a</sup>
Student-Reported Social Engagement Composite <sup>b</sup> (Mean)	3.5	3.5	0.0	.43
Peer Interaction/Empathy Composite <sup>c</sup> (Mean)	3.0	3.1	0.0	.12
Percentage of Students Who Rate Themselves as “Good” or “Excellent” at Working Out Conflicts with Others	60.7	65.0	-4.2**	.01
Percentage of Students Who Rate Themselves as “Good” or “Excellent” on Using a Computer to Look Up Information	36.8	34.4	2.3	.18
Percentage of Students Who Think They Will:				
Graduate from college	82.9	79.7	3.2**	.01
Graduate from high school but not college	15.3	18.0	-2.7**	.03
Attend high school but not graduate	1.9	2.3	-0.5	.34
Percentage of Students Whose Parents Did the Following at Least Three Times Last Year				
Attended an open house at the school	27.4	19.1	8.4***	.00
Attended parent-teacher organization meetings	33.8	27.6	6.1***	.00
Attended an after-school event	47.0	40.2	6.8***	.00
Volunteered to help out at school	17.8	14.5	3.3**	.02
<b>Sample Size<sup>d</sup></b>	<b>1,752</b>	<b>2,437</b>		

SOURCE: Student survey; teacher survey; parent survey.

NOTE: The percentages and mean values of outcomes for program participants and comparison group members have been regression-adjusted for baseline differences between the groups. The control variables in the regression included 26 different student and household characteristics, such as indicators of students’ demographic characteristics, household socioeconomic status, and students’ baseline test scores, attendance, disciplinary problems, and self-reported grades. Due to rounding, estimated impacts shown in the table do not always equal the difference between center participants and the comparison group.

<sup>a</sup>The p-value is the smallest level of significance at which the null hypothesis that the difference in means between program participants and control group members equals zero can be rejected. If the p-value is less than .01, the difference is significant at the 1 percent level. If the p-value is less than .05, the difference is significant at the 5 percent level, and so on.

<sup>b</sup>The social engagement composite is based on five items: the extent to which students report that they (1) have friends to “hang out with,” (2) are never lonely, (3) get along with others their age, (4) find it easy to make new friends, and (5) never feel left out of things. The composite is equal to the mean of the five variables. Values on these items range from 1 to 4; a value of 1 on the composite indicates a low level of social engagement, and a value of 4 indicates a high level of engagement.

<sup>c</sup>The peer interaction/empathy composite is based on three items: students’ rating of their ability to (1) work with others in a team or group, (2) feel bad for other people who are having difficulties, and (3) believe the best about other people. Values on these items range from 1 to 4; a value of 1 on the composite indicates poor peer interactions, while a value of 4 indicates excellent peer interactions.

<sup>d</sup>Sample sizes may differ for some outcomes due to nonresponse.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

attended an open house at the school three or more times during the year, compared with 19 percent of comparison parents, an effect size of 21 percent (Table III.5). Parents of participants were more likely to attend parent-teacher organization meetings (34 versus 28 percent, effect size 14 percent), to attend after-school events (47 versus 40 percent, effect size 14 percent), and to volunteer to help out at school (18 versus 15 percent, effect size 8 percent).

**c. Centers Did Not Affect Feelings of Safety and Increased Some Negative Behaviors**

Centers did not affect feelings of safety after school. More than 60 percent of students reported that they felt “very safe” after school, and only 3 percent reported that they feel “not at all safe” (Table III.6). The rest of the students reported feeling “somewhat safe.” However, center participants were somewhat more likely to report having had their property (such as clothing or books) damaged on purpose, with 17 percent of participants and 14 percent off comparison students reporting having been victimized in this way, an effect size of 7 percent (Table III.6).

Students were asked about different types of negative behavior, including the extent to which they break things on purpose, punch or hit others, argue with or lie to their parents, give a teacher a “hard time,” steal from a store, sell illegal drugs, or get arrested by police.<sup>40</sup> Participants were more likely than comparison students to report selling illegal drugs (Table III.6), with 3 percent of participants and 2 percent of comparison students reporting that they did this “some” or “a lot” (an effect size of 6 percent). Participants also had a higher value of the negative behavior composite variable, which reflects the frequency with which students reported engaging in these behaviors.

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<sup>40</sup>Giving teachers a “hard time” was the expression used in the questionnaire completed by students and they were free to interpret the expression in their own way.

Table III.6

## Impact on Student Safety, Negative Behavior, and Victimization: Middle School Centers

Outcome	Center Participants	Comparison Group	Estimated Impact of Participation	p-Value <sup>a</sup>
Percentage of Students Who Report Feeling the Following Levels of Safety After School up Until 6:00 P.M.:				
Very Safe	60.5	62.1	-1.6	.35
Somewhat safe	36.2	34.7	1.6	.37
Not at all safe	3.2	3.2	0.1	.92
Percentage of Students Who Report That They Do the Following "Some" or "A Lot":				
Break something on purpose	8.8	7.8	1.0	.31
Punch or hit someone	20.9	18.9	2.1	.15
Steal from a store	4.8	3.7	1.2	.11
Sell illegal drugs	3.3	1.8	1.5***	.01
Get arrested or detained by police	3.8	3.3	0.5	.48
Negative Behavior Composite <sup>b</sup> (Mean)	1.53	1.49	0.04***	.01
Percentage of Students Who Report the Following Happened to Them "Some" or "A Lot":				
Been offered, sold, or given an illegal drug	15.1	13.2	1.9	.13
Been "picked on" after school	32.4	30.7	1.7	.31
Been threatened or hurt with a weapon	7.7	6.3	1.4	.15
Been threatened by a gang or gang member	8.2	8.1	0.1	.88
Had property damaged on purpose	16.9	14.1	2.8**	.03
Percentage of Students Who Report That They Do the Following "Some" or "A Lot":				
Smoke cigarettes	2.6	2.3	0.3	.90
Have at least one alcoholic drink	6.6	6.7	-0.1	.90
Smoke marijuana	3.7	2.7	1.0*	.10
Student-Reported Tobacco, Alcohol, and Drug Use Composite <sup>c</sup> (Mean)	1.1	1.1	0.0	.68
<b>Sample Size<sup>d</sup></b>	<b>1,752</b>	<b>2,437</b>		

SOURCE: Student survey; parent survey.

NOTE: The percentages and mean values of outcomes for program participants and comparison group members have been regression-adjusted for baseline differences between the groups. The control variables in the regression included 26 different student and household characteristics, such as indicators of students' demographic characteristics, household socioeconomic status, and students' baseline test scores, attendance, disciplinary problems, and self-reported grades. Due to rounding, estimated impacts shown in the table do not always equal the difference between center participants and the comparison group.

<sup>a</sup>The p-value is the smallest level of significance at which the null hypothesis that the difference in means between program participants and control group members equals zero can be rejected. If the p-value is less than .01, the difference is significant at the 1 percent level. If the p-value is less than .05, the difference is significant at the 5 percent level, and so on.

<sup>b</sup>The negative behavior composite is based on student responses to eight questions regarding how frequently they do the following: (1) break something on purpose, (2) punch or hit someone, (3) argue with their parents, (4) lie to their parents, (5) steal from a store, (6) give a teacher a hard time, (7) sell illegal drugs, and (8) get arrested or detained by police. Values on these items range from 1 to 4; a value of 1 on the composite indicates a low level of negative behavior, while a value of 4 indicates a high level of negative behavior.

<sup>c</sup>The tobacco, alcohol, and drug use composite is based on seven items: the extent to which students (1) smoke cigarettes, (2) use smokeless tobacco, (3) have at least one drink of alcohol, (4) have five or more drinks of alcohol in a row, (5) smoke marijuana, (6) use inhalants, and (7) use any other illegal drug. Values on these items range from 1 to 4; a value of 1 on the composite indicates no substance abuse, while a value of 4 indicates frequent substance abuse.

<sup>d</sup>Sample sizes may differ for some outcomes due to nonresponse.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

### C. Center Participation Affected Some Students More than Others

Center participation may affect some students more than others. Effects were estimated and compared for six subgroups defined by (1) grade level, (2) race or ethnicity, (3) gender, (4) high versus low baseline grades, (5) high versus low baseline disciplinary problems, and (6) single-parent versus two-parent households.<sup>41</sup>

Findings from the subgroup analysis indicate that participation improved a range of student outcomes for black students and for students who had had fewer disciplinary problems in the prior year. Among black students, for example, centers increased effort in the classroom, reduced lateness for school, and increased math grades (Table III.7A).<sup>42</sup> Impacts on math grades and being on time to class were evident for Hispanic students. None of these impacts were evident for white students. For students with fewer behavioral problems (in the baseline year), centers increased effort in the classroom and math and social studies grades (Table III.7B). None of these impacts were evident among students that had had more disciplinary problems. Participation also increased the extent to which female students were victimized either by being “picked on” after school or by having their property damaged (Tables III.8A and III.8B).<sup>43</sup> Among males, participation did not significantly affect either of these outcomes. And, although centers increased parental involvement in school-related activities for nearly all groups of students, increases in involvement for parents in two-parent families were larger than for parents in single-parent families. For example, participation led to a 14 percentage point increase in parents from two- parent households attending open houses but only a 6 percentage point increase for single parents.

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<sup>41</sup>In addition, we estimated subgroup impacts based on the mother’s education, whether a student’s teacher worked in an after-school program, and whether a student had attended an after-school program in the previous year. There were almost no statistically significant impacts for these subgroups.

<sup>42</sup>As with score results for the full sample, subgroup score impacts were estimated but found to be sensitive to alternative estimation methods and not reported.

<sup>43</sup>Being “picked on” was the expression used in the questionnaire completed by students and they were free to interpret the expression in their own way.

Table III.7A

Impacts on Homework Completion, Level of Effort, and Classroom Behavior, by Subgroup:  
Middle School Centers

Outcome	Estimated Impact						
	Grade Level		Race/Ethnicity			Gender	
	5-6	7-8	White	Black	Hispanic	Male	Female
Percentage of Students Whose Teachers “Agree” or “Strongly Agree” That:							
Student completes assignments to my satisfaction	2.5	5.3**	4.6*	7.3**	2.5	3.9	5.0**
Student comes prepared and ready to learn	1.6	5.2**	3.5	6.2*	5.4	5.6**	2.9
Percentage of Students Whose Teachers “Agree” or “Strongly Agree” That:							
The student is attentive in class	0.9	3.8*	<b>1.3</b>	<b>11.0***</b>	<b>1.6</b>	4.2	1.8
The student participates in class	4.8	4.5**	2.4	7.4**	5.0	4.5*	4.4*
Teacher-Reported Level of Effort Composite (Mean)	0.0	0.1***	<b>0.0</b>	<b>0.2***</b>	<b>0.1</b>	0.2***	0.1
Teacher-Reported Disciplinary Problems Composite (Mean)	<b>0.1*</b>	<b>-0.1*</b>	0.0	-0.1	-0.0	-0.0	0.0
Number of Days of School Student Was:							
Absent from class	<b>-2.0***</b>	<b>-0.8**</b>	-0.7	-1.6**	-1.3**	-0.9**	-1.3***
Late for class	-0.7	-1.3***	<b>0.1</b>	<b>-1.8***</b>	<b>-1.6**</b>	<b>-1.8***</b>	<b>-0.6</b>
Percentage of Students Whose Teachers Report That They Achieve at an “Above-Average” or “Very High” Level	-3.4	1.7	-2.4	2.1	2.6	<b>4.4*</b>	<b>-3.1</b>
Mean Grades							
Math	1.2*	1.6	<b>-0.3</b>	<b>1.7**</b>	<b>1.5*</b>	0.6	0.9*
English	0.7	0.3	-0.2	0.8	1.0	0.0	0.4
Science	1.0	0.0	0.2	0.4	0.4	-0.5	0.8
Social studies	<b>2.2***</b>	<b>0.1</b>	-0.3	0.7	1.0	0.2	0.6
Sample Size							
Student-reported outcomes	1,138	2,893	1,391	940	1,091	1,868	2,156
Parent-reported outcomes	987	2,588	1,304	819	937	1,657	1,916
Teacher-reported outcomes	939	2,238	1,152	721	884	1,494	1,679
School records outcomes (attendance)	1,095	2,818	1,345	939	1,067	1,834	2,078
School records outcomes (grades)	889	2,685	1,214	890	935	1,702	1,871

SOURCE: Parent survey; student survey; teacher survey; school records.

NOTE: Subgroup impacts in bold indicate that the estimated impact for one subgroup differed significantly from the estimated subgroup impact for the other subgroup(s) at the .10 level or higher.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

Table III.7B  
Impacts on Homework Completion, Level of Effort, and Classroom Behavior, by Subgroup:  
Middle School Centers

Outcome	Estimated Impact					
	Baseline Grades		Baseline Disciplinary Problems Composite		Number of Parents in Household	
	Low	High	Low	High	Two	One
Percentage of Students Whose Teachers “Agree” or “Strongly Agree” That:						
Student completes assignments to my satisfaction	6.1**	4.5**	<b>7.1***</b>	<b>-0.2</b>	6.1**	5.1**
Student comes prepared and ready to learn	4.1	4.6**	<b>7.6***</b>	<b>-2.7</b>	3.8	4.0*
Percentage of Students Whose Teachers “Agree” or “Strongly Agree” That:						
The student is attentive in class	6.0*	2.3	4.9**	-0.2	4.5	3.3
The student participates in class	8.3**	3.5*	5.9***	1.4	3.9	6.9***
Teacher-Reported Level of Effort Composite (Mean)	0.2***	0.1*	0.1***	0.0	0.1*	0.1**
Teacher-Reported Disciplinary Problems Composite (Mean)	0.0	0.0	0.0	0.0	0.0	0.0
Mean Number of Days Student Was:						
Absent from class	-1.1*	-1.1***	-0.9***	-1.3**	-0.9*	-0.4
Late for class	-1.6**	-0.9	-0.9***	-1.5**	-0.3	-1.1
Percentage of Students Whose Teachers Report That They Achieve at an “Above-Average” or “Very High” Level	<b>6.1***</b>	<b>-1.4</b>	0.7	0.8	0.9	0.37
Mean Grades						
Math	0.1	1.0**	<b>1.4***</b>	<b>-0.3</b>	1.0	0.4
English	0.5	0.3	0.5	-0.4	<b>1.6**</b>	<b>-0.3</b>
Science	<b>-1.5*</b>	<b>1.0</b>	<b>1.0</b>	<b>-1.1</b>	1.1	-0.5
Social studies	0.4	0.6	0.9*	-0.4	1.0	-0.1
Sample Size						
Student-reported outcomes	1,219	2,729	2,613	1,307	1,248	2,045
Parent-reported outcomes	1,066	2,427	2,343	1,137	1,470	2,297
Teacher-reported outcomes	943	2,154	2,090	1,010	1,044	1,664
School records outcomes (attendance)	1,184	2,641	2,508	1,301	1,266	2,040
School records outcomes (grades)	1,110	2,382	2,276	1,205	1,162	1,858

SOURCE: Parent survey; student followup survey; teacher survey; school records.

NOTE: Subgroup impacts reported in bold indicate that the estimated impact for one subgroup differed significantly from the estimated subgroup impact for the other related subgroup(s) at the .10 level or higher.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

Table III.8A  
Impacts on Other Student and Parent Outcomes, by Subgroup:  
Middle School Centers

Outcome	Estimated Impact						
	Grade Level		Race/Ethnicity			Gender	
	5-6	7-8	White	Black	Hispanic	Male	Female
Student-Reported Delinquent Behavior Composite (Mean)	0.04	0.04**	0.06***	0.07**	0.00	0.05**	0.03*
Percentage of Students Whose Parents Did the Following at Least Three Times Last Year:							
Attended an open house at school	7.9***	8.8***	8.2***	11.1***	7.7**	8.6***	8.6***
Attended a parent-teacher organization meeting	4.6	6.5***	4.6	3.4	9.1**	6.8***	5.5**
Attended an after-school event	8.0**	6.8***	5.9*	7.3*	6.7**	7.8***	6.4**
Volunteered to help out at school	-0.7	4.4***	3.2	2.0	3.0	2.1	4.3**
Percentage of Students Who Report the Following Happened to Them "Some" or "A Lot"							
Been offered, sold, or given an illegal drug	0.9	1.9	<b>1.4</b>	<b>5.8**</b>	<b>-0.7</b>	1.4	1.9
Been "picked on" after school	-0.2	2.5	3.3	5.1	0.1	<b>-1.2</b>	<b>4.7**</b>
Been threatened or hurt with a weapon	1.0	1.3	1.6	0.6	-0.2	1.1	1.4
Been threatened by a gang member	-2.3	0.7	1.9	-1.0	0.2	0.7	-0.6
Had property damaged on purpose	0.4	3.1**	3.8*	3.9	0.5	<b>-0.2</b>	<b>4.9***</b>
Student-Reported Tobacco, Alcohol, Drug Use Composite (Mean)	-0.01	0.01	<b>0.02</b>	<b>0.01</b>	<b>0.0</b>	0.00	0.01
Sample Size							
Student-reported outcomes	1,138	2,893	1,391	940	1,091	1,868	2,156
Parent-reported outcomes	987	2,588	1,304	819	937	1,657	1,916

SOURCE: Parent survey; student followup survey.

NOTE: Subgroup impacts reported in bold indicate that the estimated impact for one subgroup differed significantly from the estimated subgroup impact for the other related subgroup(s) at the .10 level or higher.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

Table III.8B  
Impacts on Other Student and Parent Outcomes, by Subgroup:  
Middle School Centers

Outcome	Estimated Impact					
	Baseline Grades		Baseline Disciplinary Problems Composite		Number of Parents in Household	
	Low	High	Low	High	Two	One
Student-Reported Delinquent Behavior Composite (Mean)	0.04	0.04**	0.03**	0.06*	0.05*	0.03
Percentage of Students Whose Parents Did the Following at Least Three Times Last Year:						
Attended an open house at school	8.9***	8.5***	8.9***	8.5***	<b>13.5***</b>	<b>5.5***</b>
Attended a parent-teacher organization meeting	7.6**	5.6***	<b>7.4***</b>	<b>0.8</b>	7.5***	5.0**
Attended an after-school event	9.6***	5.1**	5.6**	9.2***	10.2***	4.5**
Volunteered to help out at school	6.7***	1.9	3.2*	3.4	1.7	4.4**
Percentage of Students Who Report the Following Happened to Them "Some" or "A Lot":						
Been offered, sold, or given an illegal drug	1.9	1.0	<b>-0.6</b>	<b>5.6**</b>	1.2	0.7
Been "picked on" after school	1.7	1.7	1.7	0.8	4.0	-0.4
Been threatened or hurt with a weapon	<b>-3.1*</b>	<b>3.2***</b>	0.8	0.6	1.1	0.9
Been threatened by a gang member	-1.1	-0.1	-1.4	0.8	-1.7	-0.4
Had property damaged on purpose	1.6	2.6*	1.6	2.4	2.0	0.7
Student-Reported Tobacco, Alcohol, Drug Use Composite (Mean)	<b>-0.02</b>	<b>0.01</b>	0.00	0.01	0.00	0.00
Sample Size						
Student-reported outcomes	1,219	2,729	2,613	1,307	1,248	2,045
Parent-reported outcomes	1,066	2,427	2,343	1,137	1,470	2,297

SOURCE: Parent survey; student followup survey.

NOTE: Subgroup impacts reported in bold indicate that the estimated impact for one subgroup differed significantly from the estimated subgroup impact for the other related subgroup(s) at the .10 level or higher.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

#### **D. Programs with More Academic Focus Did Not Have Larger Effects**

We estimated impacts separately for grantees based on a variety of characteristics, including proxies for their academic focus, the extent to which project directors felt that getting support from school day teachers was a challenge, the extent to which project directors felt retaining staff was a challenge, the extent to which they felt that getting support from the community was a challenge, whether grantees were from the first, second, or third cohort, and whether comparison group students were drawn from the school where the centers operated or from other schools. Few patterns emerged from the analysis.

In particular, we estimated impacts separately by grantee to assess whether more academic programs had larger effects. A center's academic focus was assessed in two ways. First, program directors reported whether academic enrichment was a major objective of the program. Second, centers were considered to have an academic focus according to the extent to which they offered math classes to students.<sup>44</sup> These are rough proxies for academic focus, but more detailed data about program academic activities are not available. No patterns emerged between the two measures of academic emphasis and impacts (Table III.9). Only two impacts were statistically significant at the 10 percent level, and the differences indicate that English and science grades increased more when grantees did not have academic improvement as a major objective. However, that finding is not supported when grantees' academic focus is assessed by whether they provide math classes. The small number of significant differences and the

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<sup>44</sup>Whether centers offered other types of academic classes was highly correlated with math offerings—centers that frequently offered math classes also tended to frequently offer other academic classes.

Table III.9  
Impacts by Grantee Characteristics:  
Middle School Grantees

Outcome	Grantee Characteristic			
	Grantee's Assessment of Whether Academic Enrichment Is Major Objective		Whether Math Classes Were Offered Frequently	
	Major Objective	Not Major Objective	Frequent Math Classes	Infrequent Math Classes
Teacher-Reported Level of Effort Composite (Mean)	0.1	0.1	0.1	0.1
Mean Class Grade				
Math	-0.2	0.9	0.9	-0.3
English	-0.4	1.1**	0.4	-0.1
Science	-0.5	1.1*	0.8	-0.5
Social studies	-0.0	1.2	1.1	-0.1
Percentage of Students Whose Parents Attended a Parent-Teacher Organization Meeting at Least Three Times Last Year	5.0	6.0	9.0	3.0
Student-Reported Negative Behavior Composite (Mean)	0.02	0.05	0.01	0.05
<b>Number of Grantees<sup>a</sup></b>	<b>19</b>	<b>13</b>	<b>13</b>	<b>19</b>

SOURCE: Parent survey; student followup survey; teacher survey; school records; site visitor assessments.

<sup>a</sup>Not all outcomes were available for all grantees, so sample sizes vary.

\* The difference is statistically significant at the .10 level, two-tailed test.

\*\* The difference is statistically significant at the .05 level, two-tailed test.

inconsistency of the differences suggests that any relationship between the academic proxies and impacts is weak or nonexistent.

### **E. Attendance Was Not Related to Most Outcomes**

Many students attended centers sporadically but some attended more regularly. If impacts of centers are related to attendance, it may be possible to use attendance data to estimate a relationship between impacts and attendance. This relationship would provide insights into the kinds of students most likely to benefit from center participation and the potential gains from efforts to improve attendance. We looked at the relationship in two ways, first at the level of the program and then at the level of the individual student.

At the program level, we divided grantees into three attendance categories to assess whether higher-attendance programs showed larger effects. The average participant attended fewer than 20 days during the school year for grantees that were considered “low-attendance,” 20 to 40 days for medium-attendance grantees, and more than 40 days for high-attendance grantees. No relationship is evident between average attendance and impacts (Table III.10). The only impact that attendance appeared to influence was parental involvement. High-attendance grantees had a larger impact (14.6 percentage points) than low- and medium-attendance grantees (0 to 4 points) on attendance at parent-teacher organization meetings.

Measurement issues are more complex at the individual student level. The relationship between impacts and student attendance (the “dosage” effect) is difficult to measure correctly because students and parents can choose their dosage and the factors affecting their choice of dosage (such as whether a student likes to be at school) may also affect outcomes. An ideal scheme for measuring the “dosage” effect would be to assign participants randomly to various dosages (for example, short, medium, and long), which would ensure that the groups experiencing the different dosages were statistically equivalent at the outset. However, for

Table III.10  
 Impacts by Average Attendance:  
 Grantee-Level School

Outcome	Estimated Impact		
	Average Grantee Attendance		
	Low (Less than 20 days)	Medium (20 to 40 days)	High (More than 40 days)
Teacher-Reported Level of Effort Composite (Mean)	0.13	0.06	0.18
Mean Class Grade			
Math	-0.1	0.2	0.1
English	1.5	0.3	-0.9
Science	0.1	0.0	-0.2
Social Studies	0.8	0.3	0.1
Percentage of Students Whose Parents Attended a Parent-Teacher Organization Meeting At Least Three Times Last Year	4.3**	-0.4**	14.6**
Student-Reported Delinquent Behavior Composite (Mean)	0.01	0.05	0.03
<b>Number of Grantees</b>	<b>12</b>	<b>11</b>	<b>9</b>

SOURCE: Parent survey, student followup survey, teacher survey, school records, program attendance records.

\*\*The differences are jointly statistically significant at the .05 level, two-tailed test.

practical reasons it is not possible to assign participants to center dosages. Instead, participants (implicitly) choose their own dosage, and those choosing large dosages could differ systematically from those choosing small ones. Statistical methods can adjust for observed characteristics that differ between the groups, but unobserved characteristics (such as motivation) also may affect outcomes. Outcome differences between low- and high-dose participants therefore do not have a strict causal interpretation as the effect of the dosage difference.<sup>45</sup>

Comparisons of the characteristics of participants who attended centers frequently (in the top third of days attended) and participants who attended them infrequently (in the bottom third of days attended) confirm that the groups differed (Table III.11).<sup>46</sup> Participants who attended frequently were more often black (37 percent, compared to 20 percent) and living in single-parent households (33 percent, compared to 27 percent). They also had lower average household incomes and higher rates of public assistance receipt. However, mothers of frequent participants were less likely to have dropped out of high school.

Under the assumption that students who are more motivated attend centers more often, outcome differences can provide some information about dosage effects. For example, under the assumption that those who frequently attend are more motivated, negligible outcome differences suggest that centers are having no dosage effect on outcomes (or affecting them negatively), and negative outcome differences suggest that dosage may be reducing outcomes. Positive outcome

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<sup>45</sup>Instrumental variables techniques can be used to adjust for unobserved differences if a reasonable instrumental variable or set of such variables can be identified. In this context, an instrument is a variable that would be correlated with attendance but not with the outcomes. Several variables were tried as instruments but failed statistical tests as a result of their correlation with outcomes.

<sup>46</sup>To ensure that only unobserved characteristics affect outcome differences between frequent and infrequent attenders, the comparisons reported here have all been adjusted for observed characteristics using regression models. The adjustment variables are the same as those in the impact regression models used earlier in the chapter.

Table III.11

Baseline Differences between Frequent and Infrequent Participants:  
Middle School Centers

Baseline Characteristic	Infrequent Participants (Bottom Third)	Frequent Participants (Top Third)	Difference <sup>a</sup>	p-Value <sup>b</sup>
Percent of Hispanic Students	30.8	24.0	6.7**	0.01
Percent of Black Students	20.0	37.3	-17.3***	0.00
Percent of Students Whose Parents Received Public Assistance	30.1	36.0	-5.9**	0.02
Percent Whose Mother Dropped Out of High School	23.2	16.3	6.9***	0.00
Household Income (in Thousands of Dollars)	35.8	33.5	2.3*	0.07
Percent of Students in a Single-Parent Household	27.1	33.4	-6.3**	0.01
Number of Absences Last Year	8.4	7.1	1.3***	0.00
<b>Sample Size</b>	<b>548</b>	<b>602</b>		

SOURCE: Student baseline survey; parent survey; school records; program attendance records.

<sup>a</sup>Due to rounding, estimated impacts shown in the table do not always equal the difference between center infrequent participants and the frequent participants.

<sup>b</sup>The p-value is the smallest level of significance at which the null hypothesis that the impact equals zero can be rejected. If the p-value is less than .01, an impact is significant at the 1 percent level; if the p-value is less than .05, the impact is significant at the 5 percent level, and so on.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

differences may arise because of the assumed motivation difference and are not interpreted here as evidence that more frequent attendance would improve the outcome.

Turning to the outcome differences, frequent participants spend more time at school after the regular school day ends (Table III.12).<sup>47</sup> They also spend less time with parents and more time in the care of other adults. There are some indications that frequent participants behave better in school than less frequent participants. Frequent participants were less likely to say that they give their teacher a “hard time” “some” or “a lot” of the time (Table III.12). Teachers also report that frequent participants were less likely to be disruptive, and frequent participants were absent 1.5 fewer days than infrequent participants. However, academic achievement of frequent participants is about the same as for less frequent participants. Grades were not statistically different, and teachers reported no differences in overall academic achievement. Frequent participants appear to be somewhat less able to interact socially—they were more likely to feel lonely, more likely to feel “picked on,” and less likely to find it easy to make new friends (Table III.12). Furthermore, teachers were less likely to say that frequent participants were good at getting along with others.

The picture that emerges from this analysis suggests that frequent participants are more likely to be from disadvantaged households and to want to improve in school, as their better behavior in school and more frequent attendance indicate. However, the analysis does not suggest that higher levels of center attendance lead to improved outcomes.

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<sup>47</sup>Appendix B provides details about the calculations of outcome differences for frequent and infrequent participants.

Table III.12  
Outcome Differences by Attendance:  
Middle School Centers

Outcome	Median Participation (44 Days)	Frequent Participation (104 Days)	p-Value <sup>a</sup>
Percentage of Students in the Following Locations after School at Least Three Days in a Typical Week:			
Own home	71.7	53.2	0.00***
Someone else's home	9.7	4.3	0.00***
School or other place for activities	27.3	48.2	0.00***
Percentage of Students in Following Types of Supervision at Least Three Days After School in a Typical Week:			
Self-care	18.3	13.2	0.01***
Parent care	55.5	43.5	0.00***
Nonparent adult care	17.2	36.3	0.00***
Percentage of Students Who Report That They Give a Teacher a "Hard Time" "Some" or "A Lot"	18.9	15.1	0.04**
Percentage of Students Whose Teachers Report That They Are "Often" Disruptive	8.4	5.3	0.05**
Teacher-Reported Level of Effort Composite	3.6	3.6	0.51
Teacher-Reported Academic Achievement Composite	3.4	3.3	0.36
Delinquent Behavior Composite	1.5	1.5	0.40
Tobacco, Alcohol, Drug Use Composite	1.1	1.1	0.64
Percentage of Students Who Report That They Do the Following "Some" or "A Lot":			
Sell illegal drugs	3.0	1.9	0.16
Get arrested or detained by police	3.6	1.4	0.02**
Percentage of Students Who Report the Following Happened to Them "Some" or "A Lot":			
Been offered, sold, or given an illegal drug	15.4	13.4	0.27
Been picked on after school	31.5	37.3	0.02**
Mean Number of Days Student Was:			
Absent from class	9.6	8.1	0.00***
Late for class	5.4	5.3	0.91
Mean Grade in English	80.7	79.5	0.05**
Percentage of Students Who Report the Following Are "Somewhat True" or "Very True":			
They are lonely	12.2	15.5	0.09*
They find it easy to make new friends	89.2	86.0	0.07*
Percentage of Students Whose Teachers "Agree" or "Strongly Agree" That They Get Along Well with Others	78.6	74.3	0.08*

SOURCE: Student survey; parent survey; school records; program attendance records.

NOTE: The percentages and mean values of outcomes have been regression-adjusted to account for baseline differences between the groups. The control variables in the regression included 26 different student and household characteristics such as indicators of students' demographic characteristics, household socioeconomic status, and students' baseline test scores, attendance, disciplinary problems, and self-reported grades. Estimated impacts shown in the table do not always equal the difference between center participants and the comparison group due to rounding.

Table III.12 (Continued)

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<sup>a</sup>The p-value is for the significance of the coefficient on attendance in the regression model. The p-value is the smallest level of significance at which the null hypothesis that the impact equals zero can be rejected. If the p-value is less than .01, an impact is significant at the 1 percent level; if the p-value is less than .05, the impact is significant at the 5 percent level, and so on.

\*Significantly different from zero at the .10 level, two-tailed test.

\*\*Significantly different from zero at the .05 level, two-tailed test.

\*\*\*Significantly different from zero at the .01 level, two-tailed test.

