

**THE IMPACT OF SUPPLEMENTAL EDUCATIONAL SERVICES  
PARTICIPATION ON STUDENT ACHIEVEMENT: 2005-06**

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## **Overview**

In December 2006, the Beyond the Bell Branch asked the Program Evaluation and Research Branch (PERB) to replicate a January 2006 study of the impact of 2004-05 Supplemental Educational Services (SES)<sup>1</sup> participation on student achievement for the 2005-06 school year. The January 2006 analysis found low overall SES participation and attendance among eligible students and no significant overall impact on California Standards Test (CST) results in English language arts (ELA) and math.<sup>2</sup>

This report, based on 2005-06 SES participation, documents findings similar to last year's report. Overall SES participation remained low (about 7 percent of the eligible students), although the proportion of participants with high attendance increased in 2005-06. Unlike last year, we found a positive, yet very small impact on CST results for the 2005-06 SES program overall. The body of this report describes the findings around the two research questions:

1. How many eligible students utilized Supplemental Educational Services in 2005-06?
2. Did the use of Supplemental Educational Services effect student CST gains?

## **Analytic Method**

The Beyond the Bell Branch provided PERB with data on all students in LAUSD eligible for SES during the 2005-06 school year. For each eligible student, the data indicate which SES provider the student applied for and attended, as well as the number of hours of service received. We combined the eligible student file with matched 2005 and 2006 STAR data, which includes student demographics and CST results for students in grades 2-11. Of the 317,330 eligible students, 216,192 had valid CST data in 2005 and 2006. The main reasons that students did not have valid CST data were the following: (1) the student was not in tested grade levels in both 2005 and 2006 (i.e., students in pre-kindergarten through second grade, or twelfth grade); (2) the student was enrolled in tested grade levels but had no CST data for 2005 or 2006; and (3) the student was not enrolled in an LAUSD school in the fall of 2005.

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<sup>1</sup> Under No Child Left Behind (NCLB), school districts are required to reserve 20% of their Title I funds to provide public school choice and supplemental academic services to eligible students in specific schools. Students are eligible for supplemental academic services if they attend a school in the second year or more of Program Improvement and participate in the free/reduced meal program. Supplemental Educational Services are free to eligible students who sign-up. The services involve academic assistance or tutoring before or after school, on weekends or during off-track time by state approved providers, including District and private organizations. During the 2004-05 school year LAUSD was a state approved provider, but was not a provider in 2005-06.

<sup>2</sup> Rickles, Jordan H. and Jeffrey A. White. "The Impact of Supplemental Educational Services Participation on Student Achievement," LAUSD, Planning, Assessment and Research Division Publication No. 295. January 2006.

To answer the first research question, we grouped the eligible students with complete STAR data by three criteria:

1. Whether the student *applied* to an SES provider
2. For students that applied to a provider, whether they actually *attended* an SES program
3. For students that attended an SES program, whether they had low, medium, or high attendance

To address the second research question, we compared changes in CST ELA and math scale scores across the three groupings described above. Changes in CST scores were also compared for elementary, middle, and high school students. For students who attended an ELA-based program we only report ELA CST results, and for students who attended a math-based program we only report math CST results.

Direct year-to-year comparisons of CST scale scores are difficult to make because the tests are not designed and scaled to make comparisons across grade levels. To facilitate comparisons across time, linear regression was used to predict the 2005-06 CST score for each student, based on the student's previous score in 2004-05 and other relevant student characteristics. An analysis of this type of program—in which students self-select themselves for participation—must take into account the potential for selection bias. Here, selection bias might occur if differences in CST scores were found between students who did and did not attend the program, and those differences were not attributable to the program, but rather to some other factor. Therefore, we controlled for student characteristics in the regression analysis. In addition to 2005 CST performance, we adjusted the prediction of 2006 CST performance for gender, English language status, special education status, participation in the Gifted and Talented Education (GATE) program, participation in free/reduced meals program, grade retention, and parental educational attainment.

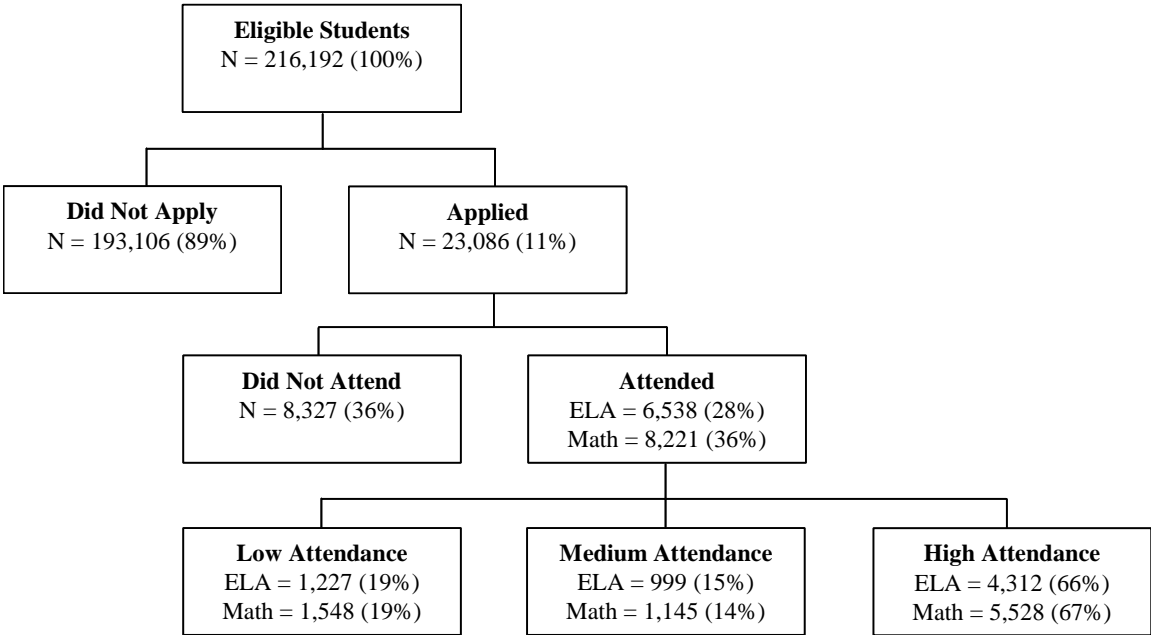
Separate regressions were conducted at each grade level and for each test (ELA and math). A residual score, or the difference between a student's actual and expected score, was calculated from each regression. If the actual score is greater than the predicted score, the residual (or adjusted change) is positive. If the actual score is lower than the predicted score, the residual is negative. To further improve comparability across grades/tests we standardized the scale scores based on the overall mean score and standard deviation within each grade/test. The standard deviation across CST tests was approximately 50 scale score points. Therefore, one can roughly interpret a standardized adjusted gain of 0.10, for example, as a five-point scale score gain.

**Utilization of Supplemental Educational Services**

Since students were not required to attend SES, it is important to understand who utilized the services before examining the impact such services may have on test score performance. Figure 1 shows how many of the eligible students, with valid STAR data, applied to and attended a SES program. Of the 216,192 eligible students, 23,086 (11%) applied to a SES program. The percent of eligible students applying to an SES program was slightly lower than the 2004-05 rate (13%).

Of those who applied, one-third did not actually attend the program. As a result, 14,759 of the eligible students attended a SES program: 6,538 attended an ELA-based program and 8,221 attended a math-based program. The percent of applicants not attending was identical to the percent in 2004-05, but the attendees in 2005-06 were more likely to select a math program than an ELA program compared to attendees in 2004-05.<sup>3</sup>

**Figure 1: Utilization of Supplemental Educational Services, 2005-06**



Source: Supplemental Educational Services 2005-06 data (extracted from the Student Information System), and 2005 and 2006 STAR student files.

Notes: restricted to SES eligible students with valid STAR data in 2005 and 2006. Percentages are calculated of the number of students in previous (above) category.

Low Attendance = 1% to 49% of program hours

Medium Attendance = 50% to 89% of program hours

High Attendance = 90% to 100% of program hours

<sup>3</sup> While the SES participation rate did not increase from 2004-05 to 2005-06, the percent of available slots that were filled did increase from about 61% to 64%. In 2004-05, LAUSD allocated Title 1 funds to SES for 44,948 available slots. In 2005-06, LAUSD allocated Title 1 funds to SES for 50,116 available slots.

Among the students who attended a SES program, 19% attended less than half of the program's hours (low attendance), 14% of the students attended at least half but less than nine-tenths of the program's hours (medium attendance), and 67% of the students attended at least nine-tenths of the program's hours (high attendance). The percentage of students with low, medium, and high attendance was nearly identical for math and ELA programs. Compared to attendance in the 2004-05 year, the percent of participants with high attendance increased from less than half in 2004-05 to approximately two-thirds in 2005-06.

Given the fact that only about one in ten eligible students applied for SES and approximately one-half of those who did apply attended most of the program's hours, one might expect the high attendance students to possess dramatically different characteristics than the students who did not attend or apply. However, only modest differences existed between these groups of students based on the characteristics we could measure. Table 1 presents the student characteristics for each group of students outlined above.

Elementary school students were over-represented among those who applied for SES, while senior high school students were under-represented. SES applicants also differed in terms of their language status; English-only students were more likely to apply, while RFEP students were less likely to apply. Students with disabilities (SWD) were more likely than students without disabilities to apply for SES, and students retained in grade were less likely to apply. Other differences in student characteristics between those who applied and those who did not were modest. Most of these differences were minimized when the population was restricted to students who applied. One notable exception is that students who scored proficient or advanced on the 2005 ELA and Math CSTs were slightly over-represented among the high attendance students compared to the low attendance students.

The 2005-06 students had very similar characteristics as those in 2004-05. The one significant difference between the two years was in the schooling level composition of eligible students; in 2004-05, about 8% of the eligible students were in elementary school compared to 18% in 2005-06. However, this difference was not as pronounced among students who actually participated in a SES program.

**Table 1: Student Characteristics across SES Utilization Groups, 2005-06**

Student Characteristics	All Eligible Students	Application Status		Attendance Status		Attendance Frequency		
		Did Not Apply	Applied	Did Not Attend	Attended	Low	Medium	High
Number of Students	216,192	193,106	23,086	8,327	14,759	2,775	2,144	9,840
School Level (%):								
Elementary School	18.2%	16.5%	32.3%	32.2%	32.3%	27.0%	37.4%	32.8%
Middle School	48.2%	48.4%	47.1%	45.5%	48.0%	46.8%	44.8%	48.9%
Senior High School	33.6%	35.1%	20.6%	22.3%	19.7%	25.7%	17.8%	18.3%
Pct. Retained in Grade	4.5%	4.6%	3.4%	4.0%	3.1%	4.2%	2.7%	2.8%
Pct. Female	49.3%	49.6%	47.2%	47.4%	47.1%	48.7%	48.5%	46.4%
Ethnicity (%):								
African American	9.2%	8.7%	13.6%	16.0%	12.3%	13.5%	10.0%	12.5%
Asian/Pacific Islander	3.2%	3.3%	3.0%	3.0%	3.0%	3.1%	2.7%	3.0%
Hispanic	85.0%	85.4%	80.9%	78.8%	82.0%	80.8%	84.5%	81.8%
White	2.3%	2.3%	2.2%	1.9%	2.4%	2.4%	2.6%	2.4%
Other	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.2%	0.4%
Language Status (%):								
EO	18.1%	17.4%	24.1%	25.7%	23.3%	26.5%	21.7%	22.7%
IFEP	6.7%	6.7%	7.1%	6.8%	7.2%	7.4%	8.0%	7.0%
RFEP	33.4%	34.5%	24.6%	22.5%	25.8%	25.4%	23.4%	26.4%
EL	41.7%	41.4%	44.2%	45.0%	43.7%	40.7%	46.9%	43.9%
Pct. Stds. w/ Disabilities	10.7%	10.2%	14.6%	14.4%	14.7%	14.2%	15.1%	14.7%
Pct. GATE	7.3%	7.5%	6.0%	5.3%	6.5%	6.6%	6.6%	6.4%
Pct. Meals Program	88.0%	87.7%	90.9%	90.6%	91.1%	90.1%	91.3%	91.3%
Parental Education (%):								
College Degree	15.1%	14.7%	18.2%	17.0%	18.9%	19.8%	19.7%	18.4%
High School Degree	18.1%	17.9%	19.5%	18.9%	19.7%	18.4%	21.1%	19.8%
No HS Degree/Unk.	66.8%	67.4%	62.3%	64.1%	61.4%	61.8%	59.2%	61.8%
2005 CST Proficiency (%):								
ELA	19.1%	19.2%	17.8%	16.6%	18.5%	17.5%	17.9%	19.0%
Math	20.3%	20.1%	22.5%	20.6%	23.5%	20.3%	22.9%	24.6%

Source: Supplemental Educational Services 2004-05 SIS data, and 2004 and 2005 STAR student files.

Notes: restricted to SES eligible students with valid STAR data in 2004 and 2005.

Low Attendance = 1% to 49% of program hours

Medium Attendance = 50% to 89% of program hours

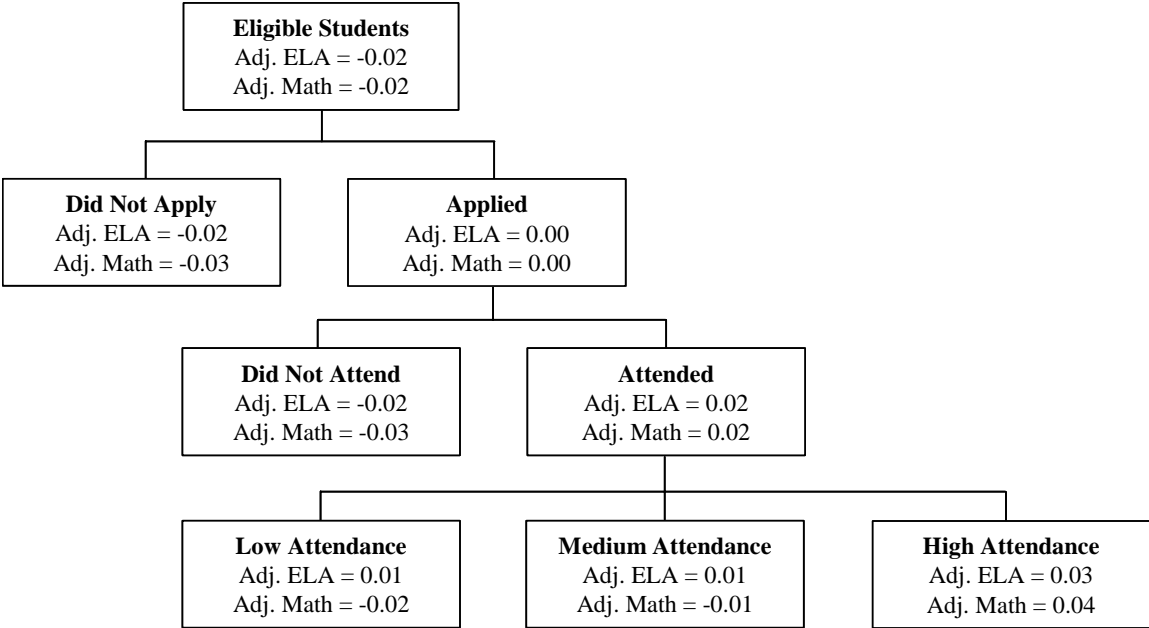
High Attendance = 90% to 100% of program hours

**Supplemental Educational Services Effect on CST Results**

The previous section indicates that a small subset of eligible students attended a SES program. Such selection allows for a comparison of test score outcomes for those who received the services and those who did not, but makes it difficult to isolate the impact of SES from other factors that influence attendance and test performance, such as motivation. While not perfect, adjusting differences in test performance for previous performance and other measurable student characteristics allows for a more valid comparison. The standardized adjusted results can be interpreted as how much an average student in a given group deviates from the average student in the total population.

Figure 2 shows the adjusted ELA and math CST results for each group of students. By design, the average adjusted scores for all CST test takers is zero and students *eligible* for SES scored, on average, 0.02 of a standard deviation lower on the CST than expected given their previous CST performance and demographics. Students who *applied* for SES had adjusted ELA and Math scores equivalent to what one would expect given their previous CST performance and demographics.

**Figure 2: Adjusted CST Results across SES Utilization Groups, 2005-06**

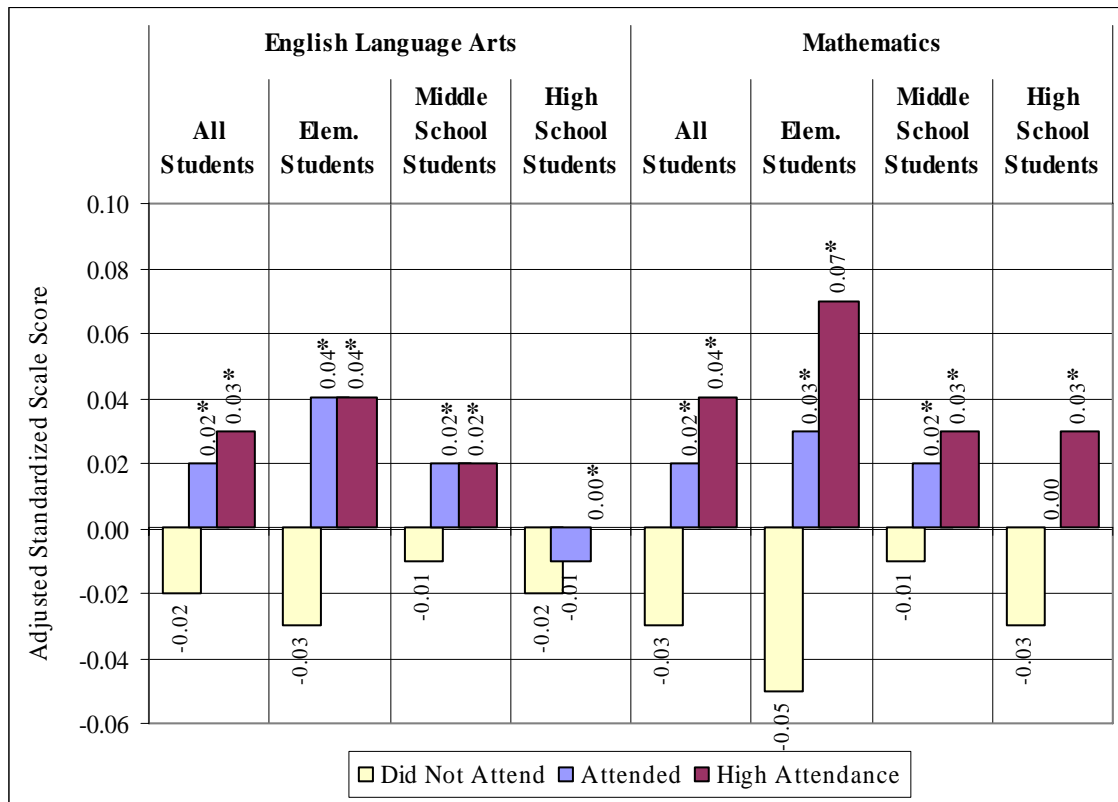


Source: Supplemental Educational Services 2005-06 SIS data, and 2005 and 2006 STAR student files.  
 Notes: restricted to SES eligible students with valid STAR data in 2005 and 2006. Adjusted CST results based the residual from a linear regression model where the 2006 standardized scale score is a function of the standardized 2005 scale score and student characteristics.  
 Low Attendance = 1% to 49% of program hours  
 Medium Attendance = 50% to 89% of program hours  
 High Attendance = 90% to 100% of program hours

A small average difference in adjusted test scores existed between students who *attended* a SES program (ELA=0.02, Math=0.02) and those who applied but *did not attend* (ELA= -0.02, Math= -0.03). This suggests that attending a SES program has a small positive impact on student CST performance (of about 0.05 of a standard deviation or roughly 2 to 3 scale score points).

Even among students with the most exposure to an SES program, however, the impact was fairly small and those with low to medium attendance did not have scores that were statistically different from students who did not attend a program. Students who attended less than half of the program’s hours (low attendance) had adjusted ELA and math scores of 0.01 and -0.02 standard deviations, respectively. Students who attended at least 90% of the program’s hours (high attendance) had adjusted ELA and math scores 0.03 and 0.04, respectively, of a standard deviation above what was expected.

**Figure 3: Adjusted CST Results across SES Provider and Utilization Groups, 2005-06**



Source: Supplemental Educational Services 2005-06 data, and 2005 and 2006 STAR student files.

Notes: restricted to SES eligible students with valid STAR data in 2005 and 2006. Adjusted CST results based the residual from a linear regression model where the 2006 standardized scale score is a function of the standardized 2005 scale score and student characteristics.

High Attendance = 90% to 100% of program hours

\* Statistically different from “Did Not Attend” group at  $p < 0.05$ .

The program effect is primarily due to improved performance among elementary school students (see Figure 3). Elementary school students who attended a SES program had an adjusted ELA score 0.07 points higher, and an adjusted Math score 0.08 points higher, than elementary students who did not attend (roughly 4 scale score points). In contrast, the difference in the adjusted scores between middle school attendees and non-attendees was 0.03 for both ELA and Math, and between high school attendees and non-attendees it was 0.01 and 0.03 for ELA and Math, respectively.

The positive, yet small, effect found for the 2005-06 SES program differs slightly from the insignificant overall effect—and small positive effect for high attendance—found for the 2004-05 SES program. There are a couple of possible reasons for this difference. First, a greater proportion of the 2005-06 participants were elementary school students. Second, a greater proportion of the 2005-06 participants exhibited high attendance compared to 2004-05. Both of these factors are associated with higher average adjusted scale scores for the overall attendance group.

Conversely, the impact among high attendance students was not as great in 2005-06 as in 2004-05. One explanation for this difference is that, unlike 2004-05, LAUSD was not a SES provider in 2005-06. The 2004-05 analysis found that students with high attendance in the LAUSD program exhibited higher adjusted gains compared to students with high attendance in a program offered by an outside organization. Therefore, the absence of LAUSD in 2005-06 may have dampened the impact of high attendance in a SES program.

As in 2004-05, the impact of specific providers varied in 2005-06. Figures A1 and A2 in the Appendix display the 2005-06 adjusted ELA and math CST results, respectively, for each of the providers with at least 30 attendees in 2005-06. While a few providers had a small positive impact on student performance, most of the providers had no statistically significant, or a slightly negative impact, on student performance.

## **Conclusions**

In 2005-06, 11 percent of eligible students with valid STAR data applied for a Supplemental Educational Services (SES) program. Given the LAUSD's allocation of Title 1 funds in 2005-06, there were enough available slots for about 16 percent of the district's eligible students. Therefore, even if the district were to fill all of its available slots, its level of participation would still be below the national average of 19 percent estimated by the U.S. General Accounting Office (GAO).<sup>4</sup>

While two-thirds of the available slots were filled, only seven percent of the eligible students with valid STAR data actually attended a program, and five percent exhibited high attendance. While the percentage of students with high attendance increased from 2004-05, the overall percent of students that applied to and attended a SES program was down from the previous year.

With few exceptions, the demographic differences were minor among students grouped by application status, attendance status, and level of attendance. In comparison with high school students, a higher proportion of elementary school students applied to and participated in a SES program. English-only students also had higher participation, and a higher proportion of initially high performing students exhibited high attendance. The relationships between student characteristics and SES participation were similar to those found for students participating during 2004-05.

After controlling for differences in student characteristics, students who attended a SES program had a statistically higher, yet substantively negligible (about 2 to 3 scale score points), performance gain than those who applied but did not attend. Greater SES exposure was modestly associated with higher student performance. As in 2004-05, the SES program had a greater impact for elementary school students than secondary school students, and some providers had a positive impact on student performance while others did not.

The low overall participation rates and small average increase in CST performance among participants suggests that the SES program did not have a substantively meaningful impact for Program Improvement schools. It is recommended that the Beyond the Bell Branch investigate ways to increase participation among eligible students and encourage participation from providers with evidence of effectiveness. Eligible students might also benefit if the Beyond the

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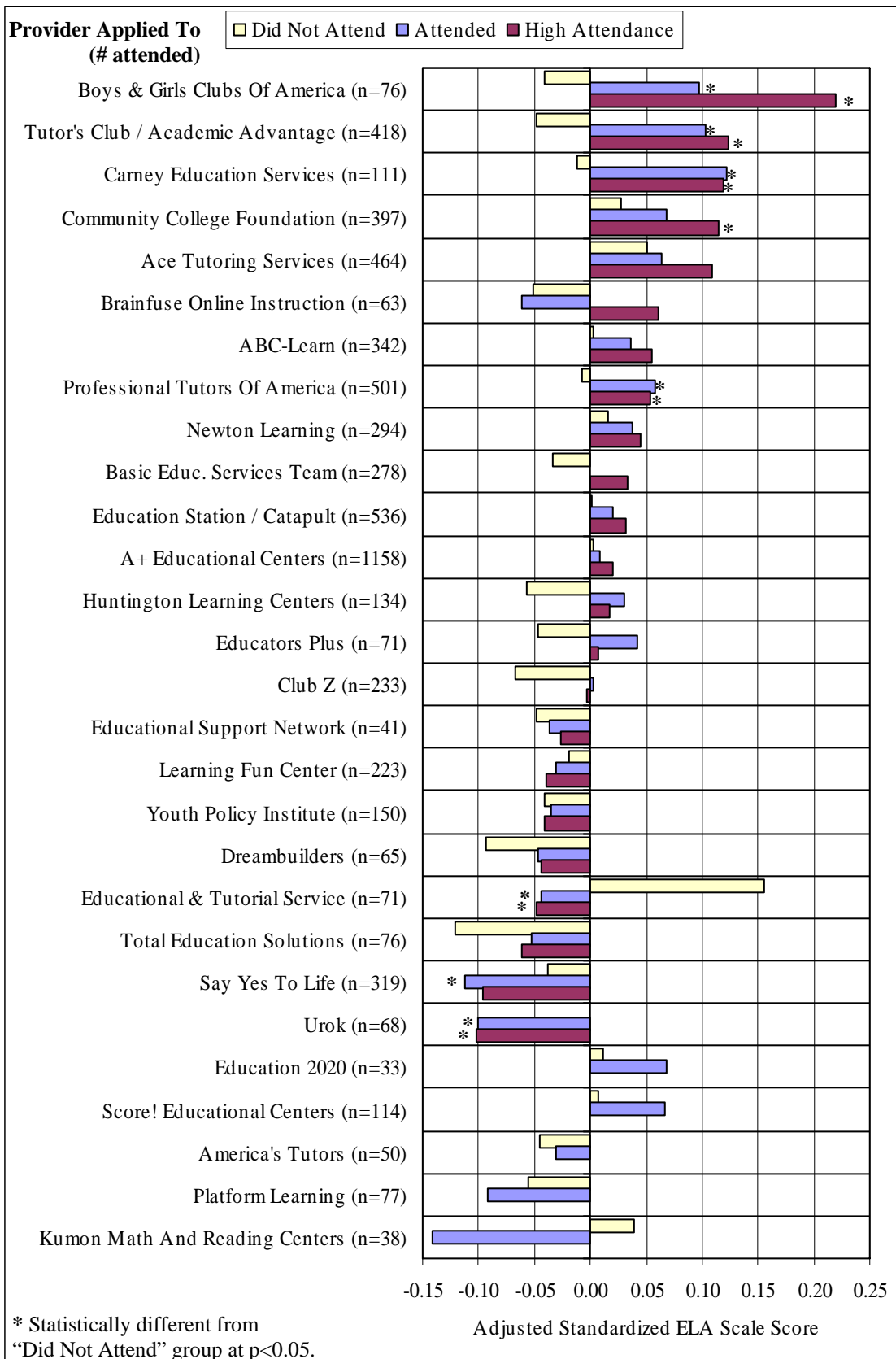
<sup>4</sup> *Education Actions Needed to Improve Local Implementation and State Evaluation of Supplemental Educational Services*. GAO-06-758. Washington, D.C.: August 2006.  
Available Online: [www.gao.gov/cgi-bin/getrpt?GAO-06-758](http://www.gao.gov/cgi-bin/getrpt?GAO-06-758)

Bell Branch collaborates with SES providers to improve the SES program. The August 2006 GAO report identified actions some states and districts take to increase participation and effectiveness, such as aligning the SES provider curriculum with district instruction.<sup>4</sup>

This study is limited by the high degree of student discretion over program enrollment and participation. It is difficult to isolate the impact of SES program participation from other possible explanations for differential CST gains. For example, the positive outcomes of students who selected and attended most or all of a SES program's content may be more motivated and persistent, or have parents who are more involved than those who do not. While we statistically controlled for many differences between student groups, our conclusions would be strengthened by additional data that capture student preparation and SES program quality.

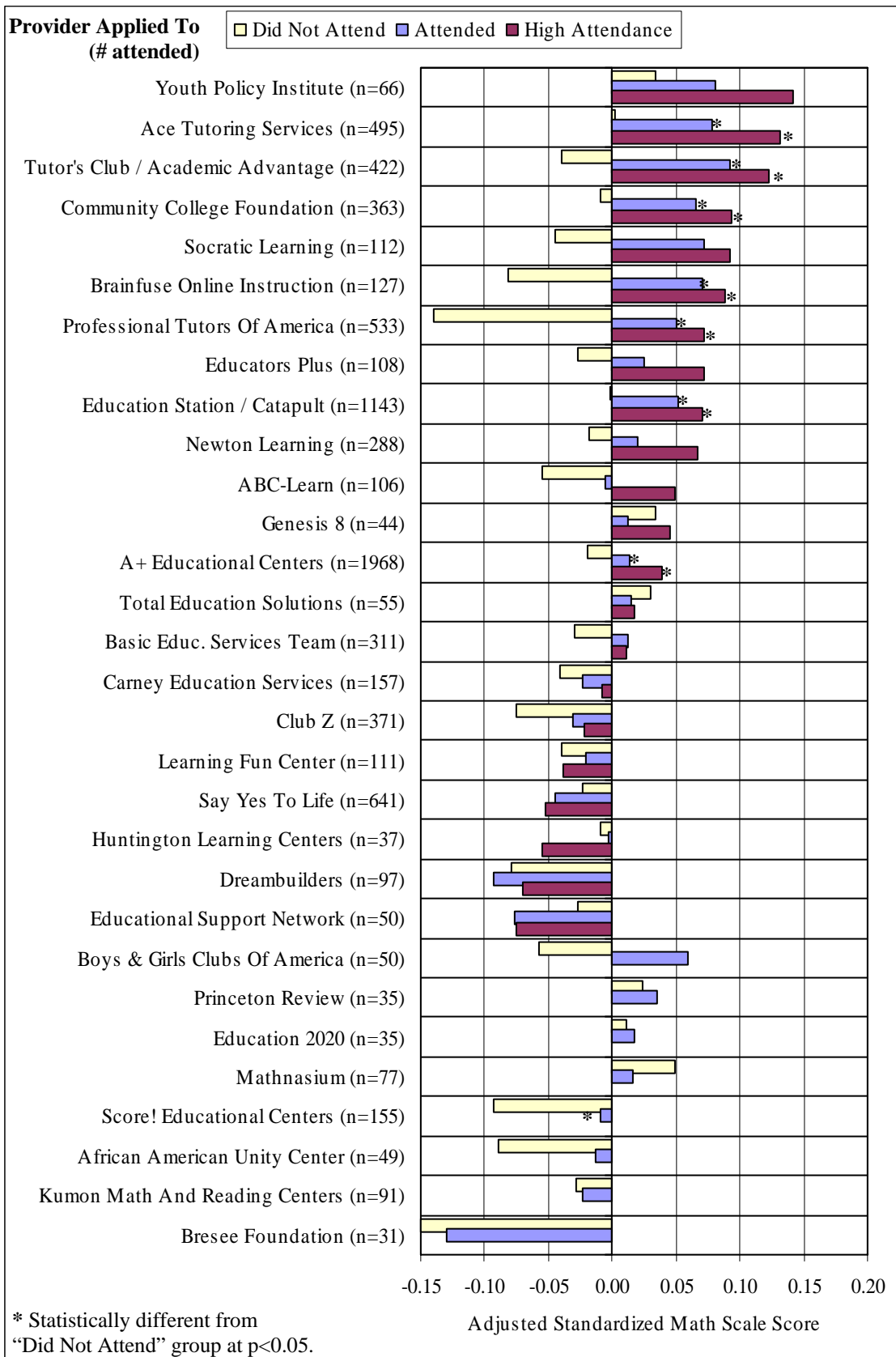
## ***Appendix***

**Figure A1: Adjusted ELA CST Results across SES Provider and Utilization Groups**



Source: Supplemental Educational Services 2005-06 data, and 2005 and 2006 STAR student files.  
 Notes: see notes for Figure 3 (page 7). Providers with less than 30 students are not shown.

**Figure A2: Adjusted Math CST Results across SES Provider and Utilization Groups**



Source: Supplemental Educational Services 2005-06 data, and 2005 and 2006 STAR student files.  
 Notes: see notes for Figure 3 (page 7). Providers with less than 30 students are not shown.