
# EVALUATION OF NCLB TITLE I, PART A: SUPPLEMENTAL EDUCATIONAL SERVICES 2007-2008 ACADEMIC YEAR DATA

# FINAL REPORT

PREPARED BY OMNI INSTITUTE
FOR THE COLORADO DEPARTMENT OF EDUCATION
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## EXECUTIVE SUMMARY

OMNI Institute (OMNI) was contracted to assist the Colorado Department of Education (CDE) in its evaluation of the Supplemental Educational Services (SES) program. Through its contract with CDE, OMNI maintained a database to track information about students participating in SES in the state of Colorado. All service providers were required to enter information into the database for the 2007 – 2008 academic year. Students' service data was linked to their Colorado Student Assessment Program (CSAP) data to examine whether participation in the SES program was associated with improvements in student achievement in the domains of math and reading as measured by the CSAP. The goal of this report is to provide CDE with information about 1) students who participated in SES in Colorado during the 2007-2008 academic year, 2) the effectiveness of the SES program on students' reading and math achievement statewide, 3) the effectiveness of the SES program by vendor, and 4) recommendations and next steps regarding the evaluation of SES.

### *Supplemental Educational Services in Colorado (2007 – 2008 Academic Year)*

A total of 3,869 students participated in Colorado's SES program (they received at least one hour of tutoring funded through Title I, Part A). Twenty-five vendors served students in 13 districts. Approximately half (n = 2,070; 54%) of the students received between 20 and 40 hours of tutoring. About 24% (n = 936) received less than 20 hours of tutoring and 22% (n = 863) received more than 40 hours of tutoring. The majority of vendors provided between 13 and 40 sessions per student on average. Denver County served the vast majority of students (n = 2,891; 74.7%) with Adams-Arapahoe serving the next largest amount (n = 461, 11.9%). The majority of students (n = 3,253; 84%) received tutoring at school in groups of 10 or fewer students. Vendor costs ranged from $17 to $80 per hour. Approximately 40% (n = 1,499) of participating students were in K-2 grades (2nd graders represented the highest percentage at 19.2%). In addition, students in younger grades received more sessions and hours of tutoring than students in higher grades.

Demographic information was available for 2,225 (57.5%)of SES students, by linking to CSAP data. The students demonstrated the following characteristics:

- 51.3% were male; 48.7% were female.
- 80.4% were Hispanic; 11.1% were Black.
- 50.9% were not fully proficient in English (LEP or NEP).
- Approximately 30% received an accommodation when taking the reading and the math CSAP.

***Statewide Effectiveness of SES on Student Achievement in Reading and Math***

In order to assess the statewide effectiveness of SES on student achievement in reading and math, the following were examined: 1) Change in students' achievement proficiency categories in reading and math from 2007 to 2008 and student growth percentiles in 2008 for SES and Control students; 2) Whether there were different patterns of change in achievement for grades four through eight; and 3) Whether the number of hours of tutoring had an impact on change in achievement.

- ***Improvement in Reading:***
  - Almost three-fourths of students who received SES were in need of reading tutoring (they scored below proficient in the prior year).
  - SES students who scored unsatisfactory in 2007 were significantly more likely to improve their proficiency than Control students.
  - SES students in each proficiency category in 2007 had higher median growth percentiles in 2008 than Control students. Differences in the mean growth percentile ranks approached statistical significance for each prior proficiency group.
  - There was a trend in the data that the effect of SES on reading achievement was strongest in 4$^{th}$ grade.
- ***Improvement in Math:***
  - Approximately three-fourths of students who received SES were in need of math tutoring (they scored below proficient in the prior year).
  - There were no significant differences between SES and Control students in changes in proficiency categories in math achievement from 2007 to 2008.
  - SES students showed higher growth percentiles than Control students. However, differences in mean growth percentile ranks were not statistically significant.
- ***Effects of Amount of Tutoring:***
  - For the lowest performing students (students scoring unsatisfactory in 2007), there was some evidence supporting a threshold of 20+ hours of tutoring needed to show an impact on reading achievement.
  - However, contrary to expectations, for students who scored partially proficient in reading in 2007, receiving less than 20 hours of tutoring was associated with higher growth in reading.
  - There was little evidence that amount of tutoring was associated with match achievement.
- ***Interpretation:***
  - Control students were similar to SES students with regard to prior proficiency, grade, school, and eligibility for free/reduced lunch. Despite the rigor of this non-experimental comparison design, we *cannot* determine that any differences between SES and Control students were *caused by* participation in SES. There may be other factors that differed between the groups that were not considered in this report.

- When significant differences in achievement between SES and Control students were *not* detected in the data, one cannot conclude that participation in SES was not beneficial. SES may still have positive impacts on students. For example, SES may affect other measures of student achievement that are more sensitive to change over time than CSAPs, or SES may affect other outcomes (e.g., attitudes towards learning, motivation) that will lead to changes in achievement. It is possible that one year's worth of tutoring (from late fall to before CSAPs were administered) did not provide enough time for students to show significant gains on state achievement measures.
- Less than 40% of SES students had valid CSAP data in both 2007 and 2008 (by and large because most SES students were younger than 4th grade, and as such, did not have two year's worth of CSAP data to examine). Thus, the majority of students who participated in SES were not examined with regard to change in achievement.
- Two methods using CSAP data were explored with regard to changes in achievement (change in proficiency categories and student growth percentiles). One can have more confidence in findings when similar results were found with both methods.

***Vendor Effectiveness on Students' Change in Achievement***

- The majority of students served by vendors were not included in the analysis of change in achievement because they did not have two years of CSAP data (most were in 1st - 3rd grades).
- 11 vendors showed higher percentages of students who improved in reading compared to Control students; 4 vendors showed lower percentages of students who improved in reading compared to Control students.
- 7 vendors showed higher percentages of students who improved in math compared to Control students;
  3 vendors showed lower percentages of students who improved in math compared to Control students.
- Median student growth percentiles in reading for vendors ranged from 34.5 to 64;
  The median student growth percentile in reading for the control group was 44.
- Median student growth percentiles in math for vendors ranged from 33 to 67.5;
  The median student growth percentile in reading for the control group was 47.

***Recommendations and Next Steps***

- Beginning with the 2008-2009 academic year data, we recommend that the evaluation of SES explore analysis options multiple years of service and CSAP data. This avenue of inquiry will help to understand the number of students receiving multiple years' of SES tutoring and will allow for the incorporation of more tutoring data into the effectiveness analyses. In addition, it will be

possible to examine CSAP achievement for younger students who received tutoring in years prior to being assessed by CSAP.

- We recommend that the evaluation of SES include additional analyses to examine the effectiveness of SES for students who are not proficient in English. Approximately one-half of all SES students had limited or no English proficiency and this group may especially benefit from the SES program.
- We recommend discussion around other outcome measures, in addition to CSAP, in the evaluation of SES.

Evaluation of Supplemental Educational Services
2007-2008 ACADEMIC YEAR DATA
Prepared by OMNI Institute
June 2009

## Background

OMNI Institute (OMNI) was contracted to assist the Colorado Department of Education (CDE) in its evaluation of the Supplemental Educational Services (SES) program. As part of No Child Left Behind (NCLB), low income students in schools that have not met adequate yearly progress (AYP) for two consecutive years are eligible to participate in the SES program and receive free tutoring. Through its contract with CDE, OMNI developed a database to track information about students participating in SES in the state of Colorado. Beginning in the 2006-2007 academic year all service providers were required to enter information into the database. State identification numbers were used to link students' service data to their Colorado Student Assessment Program (CSAP) data to examine whether participation in the SES program was associated with improvements in student achievement in the domains of math and reading as measured by the CSAP. The goal of this report is to provide CDE with information about 1) students who received SES in Colorado during the 2007-2008 academic year, 2) the effectiveness of the SES program on students' reading and math achievement statewide, 3) the effectiveness of the SES program by vendor, and 4) recommendations and considerations regarding the evaluation of SES.

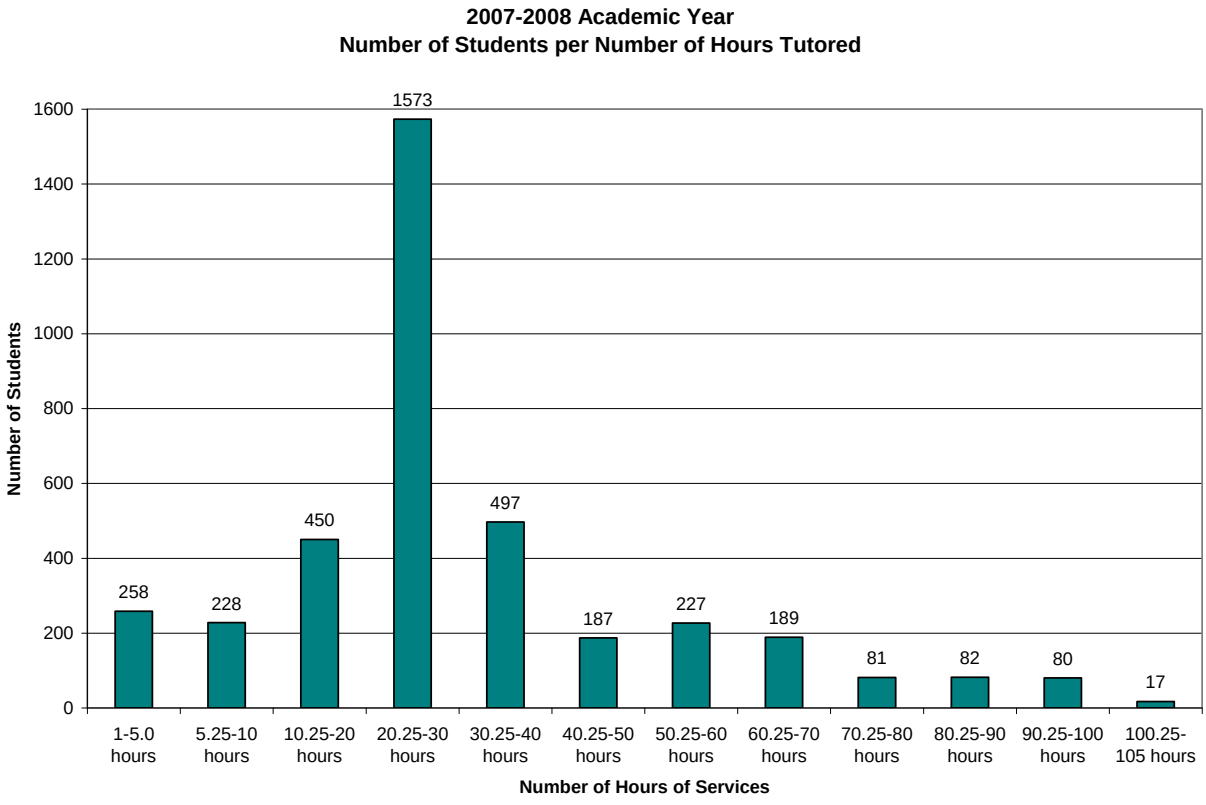
After the 2007-2008 SES service data were downloaded from the database, a series of steps were taken to clean the data. This process is described in detail in Appendix A. In all, 3,869 students were recorded as participating in the SES program (they receivedat least one hour of tutoring).

## Section 1: Supplemental Educational Services in Colorado

The goal of this first section is to describe SES services and students who participated in the SES program during the 2007-2008 academic year. Information about how much tutoring students received, which vendors provided the tutoring, and the districts in which tutoring was received is presented. Students who received tutoring between October 1, 2007 and June 30, 2008 were included. Data were available on 3,869 students who received at least one hour of SES in the 2007-2008 academic year. A total of 25 vendors provided services, and services were provided in 13 school districts in Colorado.

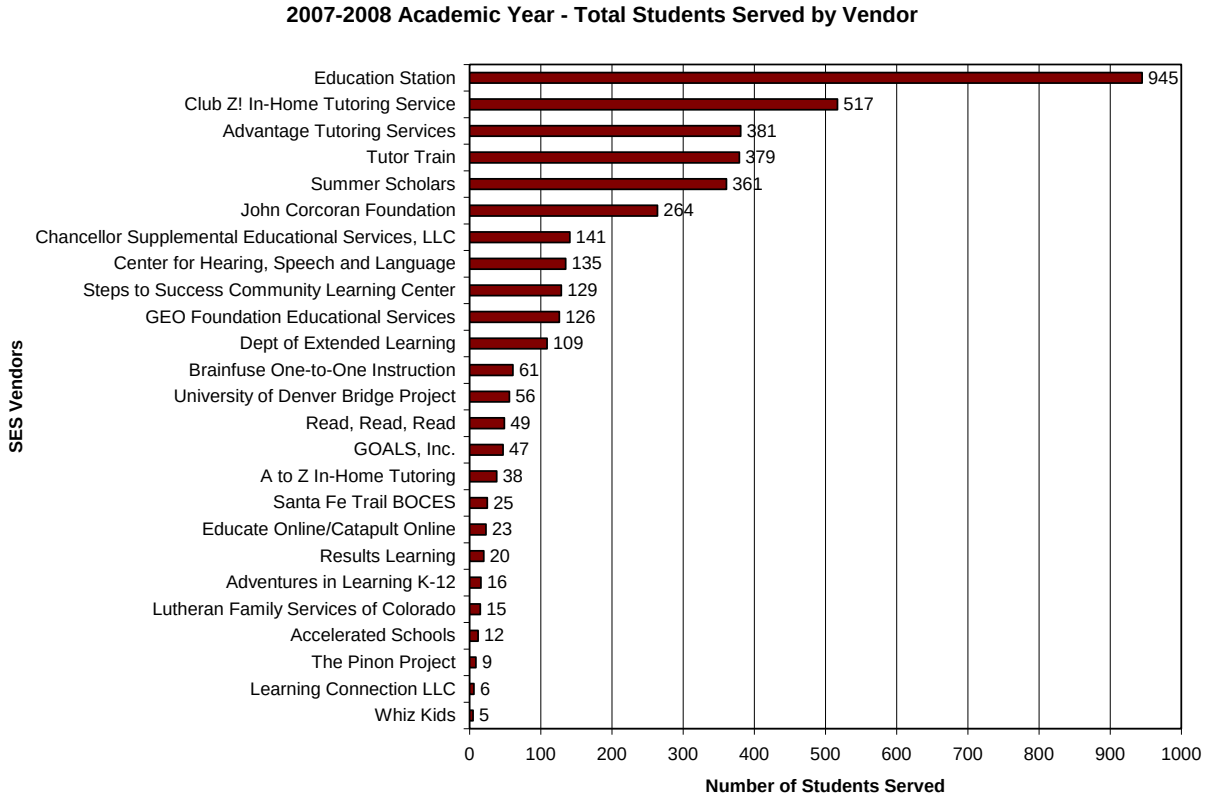
**How Much Tutoring Did Students Receive?**

The following bar graph represents the number of hours of tutoring received by students. Each bar represents the number of students who received a specified number of hours of tutoring. For example, 258 students (6.7%) received between one and five hours of tutoring; 228 students (5.9%) received between five and 10 hours of tutoring; and 450 students (11.6%) received between 10 and 20 hours of tutoring. Thus, 936 students (24.2%) enrolled in SES during 2007-2008, received 20 or fewer hours of tutoring. The most frequent amount of tutoring was between 20 and 30 hours (1,573 students, 40.7%) and the next most frequent amount was between 30 and 40 hours (497 students, 12.8%). In addition, 863 students (22.3%) received more than 40 hours of tutoring. Less than one percent of students received more than 100 hours of tutoring. The 17 students receiving more than 100 hours of tutoring were served by Summer Scholars.



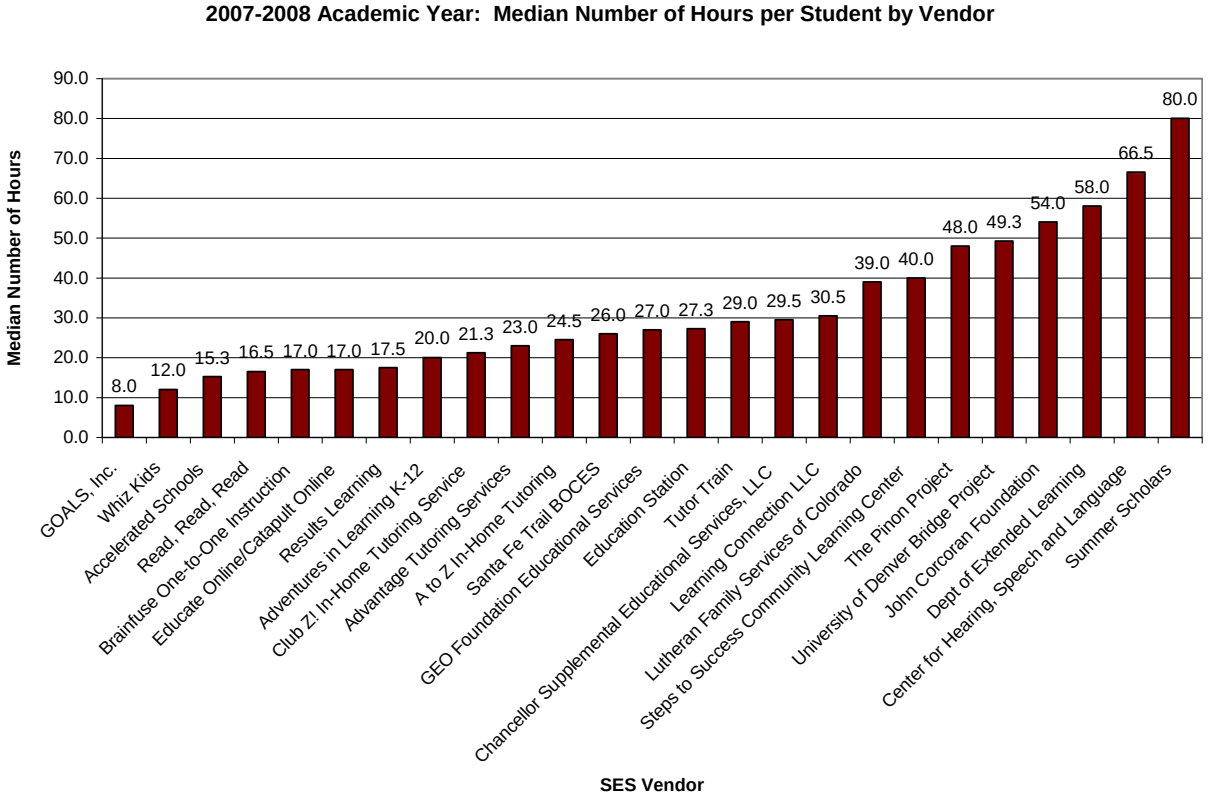
**Which Vendors Provided Tutoring Services?**

The following bar graph shows the number of students served by each vendor in the 2007-2008 academic year. Eleven vendors served 100 or more students with Education Station serving the most students with 945 (24.4%), Club Z! the second most with 517 (13.4%), and Advantage Tutoring Services and Tutor Train the third and fourth most with 381 (9.9%) and 379 (9.8%) respectively. Two vendors served between 50 and 100 students while 12 vendors served fewer than 50 students. The Pinon Project, Learning Connection, LLC and Whiz Kids all served fewer than 10 students each.



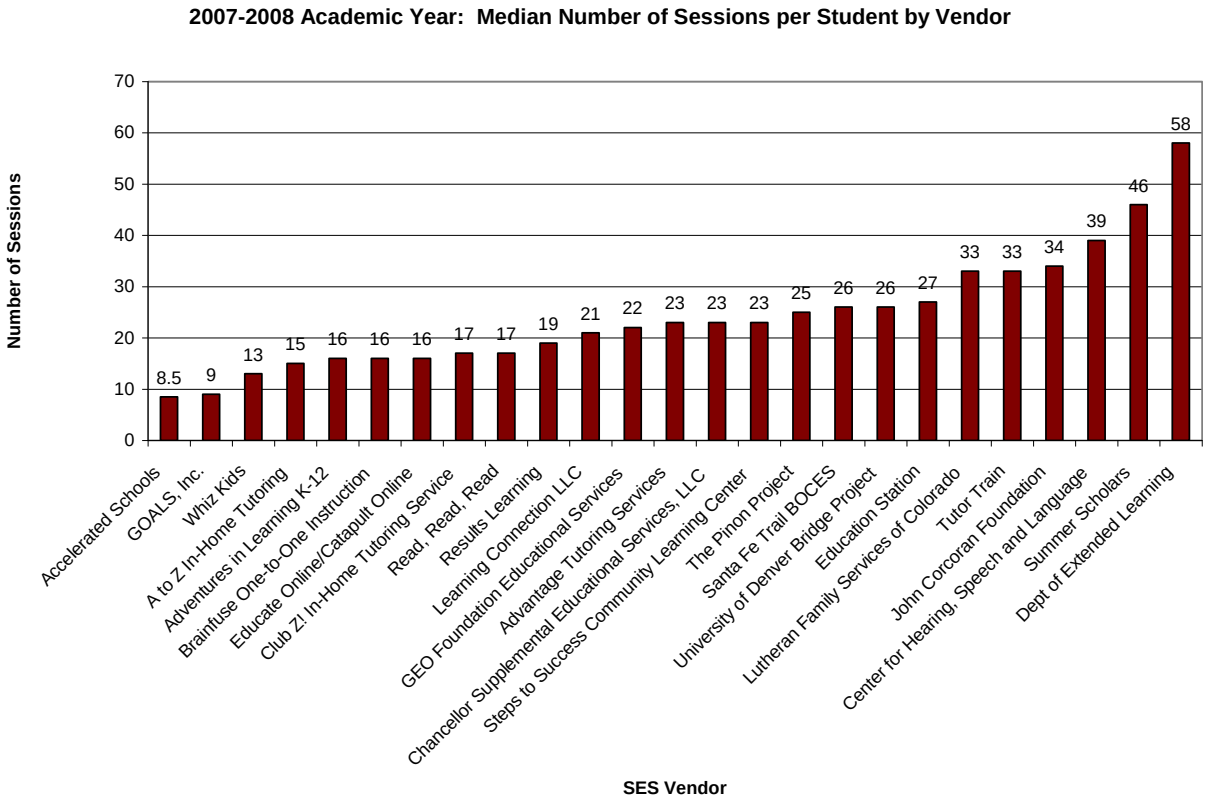
**How Much Tutoring Did Vendors Provide to Students on Average?**

The following bar graph shows the median number of hours of tutoring provided per student, by vendor. The median is a measure of central tendency that represents the middle of a distribution. This measure was used because it is less influenced by outliers than the mean. For example, if one student received 100 hours of tutoring and the other students received between 20 and 30 hours, the median would better characterize the central tendency of the data than the mean. As can be seen in the graph, Summer Scholars had the highest median number of hours per student (80 hours) whereas GOALS, Inc had the lowest median number of hours per student (8 hours). Approximately half of vendors provided between 20 and 40 hours of services per student on average.



**How Many Sessions did Vendors Provide Students on Average?**

The following bar graph shows the median number of tutoring sessions provided per student by vendor. As can be seen in the graph, the Department of Extended Learning had the highest median number of sessions per student (58 sessions) whereas Accelerated Schools had the lowest (8.5 sessions). The vast majority of vendors had between 15 and 40 sessions per student.




**In Which Districts did Vendors Provide Services?**

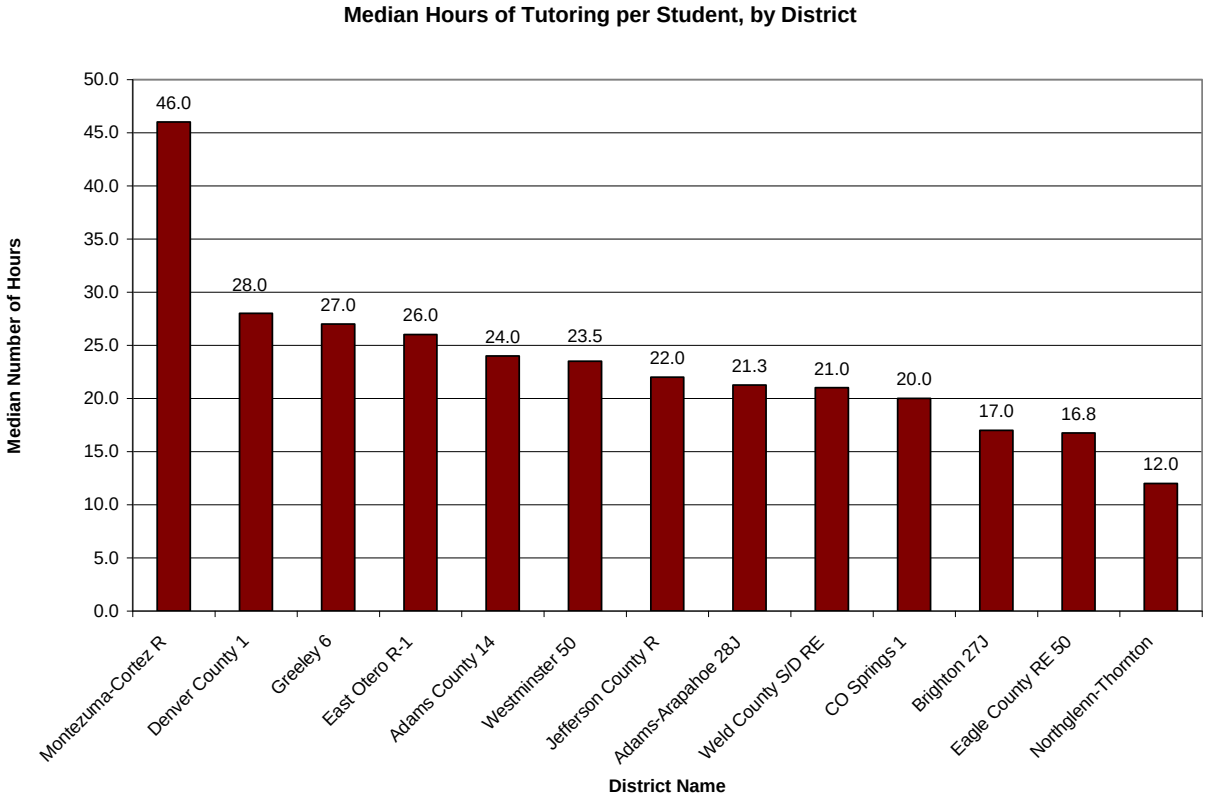
The following table presents data on the number of students served by vendor, by district. For example, as seen in the table, Club Z! served 130 students in Adams-Arapahoe, five students in Adams County, 358 students in Denver County, 16 in Eagle County, and eight students in Northglenn-Thornton, for a total of 517 students. In addition, this table provides information about the vendors providing services in each district. For example, Accelerated Schools, Advantage Tutoring, Adventures in Learning, Club Z!, Education Station, Read Read Read, Results Learning, Steps to Success, and Tutor Train all served students in Adams-Arapahoe. The final row of the table provides information about the percentage of students served by district. Approximately 75% (n = 2891)of all students served were in schools in Denver County.

Table 1.1: Number of Students by Vendor and by District

| | Adams-Arapahoe 28J | Adams County 14 | Brighton 27J | CO Springs 1 | Denver County 1 | Eagle County RE 50 | East Otero R-1 | Greeley 6 | Jefferson County R | Montezuma-Cortez R | Northglenn Thornton | Weld County SD RE | Westminster 50 | **Total** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A to Z In-Home Tutoring | 0 | 9 | 0 | 3 | 20 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | **38** |
| Accelerated Schools | 1 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | **12** |
| Advantage Tutoring | 4 | 0 | | 0 | 266 | 0 | 0 | 0 | 111 | 0 | 0 | 0 | 0 | **381** |
| Adventures in Learning | 5 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **16** |
| Brainfuse | 0 | 0 | 19 | 0 | 27 | 0 | 0 | 14 | 0 | 1 | 0 | 0 | 0 | **61** |
| Center for Hearing, Speech & Language | 0 | 0 | 0 | 0 | 135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **135** |
| Chancellor Supplemental | 0 | 0 | 0 | 0 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **141** |
| Club Z! | 130 | 5 | 0 | 0 | 358 | 16 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | **517** |
| Dept. of Extended Learning | 0 | 0 | 0 | 0 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **109** |
| Educate Online/Catapult | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **23** |
| Education Station | 101 | 0 | 0 | 0 | 774 | 0 | 0 | 16 | 54 | 0 | 0 | 0 | 0 | **945** |
| GEO Foundation | 0 | 0 | 0 | 0 | 126 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **126** |
| GOALS, Inc. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 0 | 0 | **47** |
| John Corcoran Foundation | 0 | 0 | 0 | 0 | 264 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **264** |
| Learning Connection | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **6** |
| Lutheran Family Services | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **15** |
| Read, Read, Read | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **49** |
| Results Learning | 9 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **20** |
| Santa Fe Trail BOCES | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | **25** |
| Steps to Success | 129 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **129** |
| Summer Scholars | 0 | 0 | 0 | 0 | 361 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **361** |
| The Piñón Project | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | **9** |
| Tutor Train | 33 | 0 | 0 | 0 | 179 | 0 | 0 | 139 | 0 | 0 | 8 | 13 | 7 | **379** |
| University of Denver | 0 | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **56** |
| Whiz Kids | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **5** |
| **TOTAL** | **461** | **20** | **19** | **3** | **2891** | **16** | **25** | **169** | **165** | **13** | **67** | **13** | **7** | **3869** |
| % of Total Students Served | 11.9 | 0.5 | 0.5 | 0.1 | 74.7 | 0.4 | 0.6 | 4.4 | 4.3 | 0.3 | 1.7 | 0.3 | 0.2 | **100.0** |

**How Many Hours of Tutoring Did Students Receive in Each District on Average?**

The following bar graph provides data on the median number of hours of tutoring per student, by district. Students in Montezuma-Cortez received the most hours of tutoring on average (a median of 46 hours); students in Northglenn-Thornton received the fewest hours of tutoring on average (a median of 12 hours).



**Where Did Students Receive Tutoring (home, school, etc.)?**

The following table presents the number of SES students served the different types of locations offered by vendors. The majority of students (n = 3,454; 89.3%) were provided tutoring at school.

Table 1.2: Location of Tutoring Services Provided to SES Students

| Service Location | N | % |
|---|---|---|
| School | 3454 | 89.3% |
| Home | 241 | 6.2% |
| Community Center | 56 | 1.4% |
| Other | 37 | 1.0% |
| Multiple Sites | 81 | 2.1% |
| **Total** | **3,869** | **100%** |

**What Were the Tutoring Session Delivery Formats (group, individual, etc.)?**

The following table presents the number of SES students provided with tutoring services in different session formats. Most students (n = 2,282; 59%) received tutoring in groups of 5-10 students. An additional 28.7% (n = 1,109) of students received tutoring in groups comprising fewer than 5 students. Only 4 SES students (0.1%) received tutoring in groups comprising more than 10 students.

Table 1.3: Session Delivery Format for Tutoring Services Provided to SES Students

| Session Format | N | % |
|---|---|---|
| Group (5-10) | 2282 | 59.0% |
| Group (less than 5) | 1109 | 28.7% |
| Individual | 279 | 7.2% |
| Online | 195 | 5.0% |
| Group (greater than 10) | 4 | 0.1% |
| **Total** | **3,869** | **100%** |

**Did Students Receive Tutoring in Different Session Formats at Different Service Locations?**

The following table presents information on whether the session format for provision of tutoring varied depending on the service location. Students who received services in schools were most likely to get them in groups of 5-10 students (n = 2282) followed by groups of less than 5 students (n = 1109). A small number of students served at school also received services online (n = 190). Students who received services at home primarily received individual tutoring (n = 236).

Table 1.4: Range of Session Formats by Service Location of Tutoring for SES Students

| | Session Format | | | | | |
|---|---|---|---|---|---|---|
| **Service Location** | **Online** | **Individual** | **Group (Less than 5)** | **Group (5-10)** | **Group (Greater than 10)** | **Total** |
| School | 190 | 7 | 1036 | 2217 | 4 | **3454** |
| Home | 5 | 236 | 0 | 0 | 0 | **241** |
| Community Center | 0 | 0 | 0 | 56 | 0 | **56** |
| Other | 0 | 25 | 3 | 9 | 0 | **37** |
| Multiple Sites | 0 | 11 | 70 | 0 | 0 | **81** |
| **TOTAL** | **195** | **279** | **1109** | **2282** | **4** | **3869** |

**What was the Cost of SES Services per Student and by Vendor?**

The following table provides information for each vendor, regarding the number of students receiving SES, the mean number of hours per student, the cost per hour, the mean cost per student, the total hours provided, and the total cost. When vendors provided more than one cost per hour estimate, the average was calculated for that vendor.

Table 1.5: Cost of SES Services per Student and Total Cost by Vendor

| Vendor | # of Students Served | Mean Hours/ Student | Cost/ Hour | Mean Cost/ Student | | Total Hours of Tutoring | Total Cost |
|---|---|---|---|---|---|---|---|
| Education Station | 945 | 24.1 | $69.25 | $1,666 | | 22734.0 | $1,574,213 |
| Club Z! | 517 | 19.4 | $47.50 | $924 | | 10055.2 | $477,624 |
| Advantage Tutoring Services | 381 | 21.6 | $55.00 | $1,190 | | 8244.8 | $453,462 |
| Summer Scholars | 361 | 70.2 | $17.00 | $1,194 | | 25358.0 | $431,086 |
| Tutor Train | 379 | 24.8 | $42.73 | $1,058 | | 9388.2 | $401,128 |
| John Corcoran Foundation | 264 | 48.2 | $27.50 | $1,326 | | 12728.3 | $350,027 |
| Center for Hearing, Speech, and Language | 135 | 64.0 | $22.50 | $1,440 | | 8642.8 | $194,462 |
| Chancellor Supplemental Educ. Srv. | 141 | 26.5 | $42.25 | $1,120 | | 3737.2 | $157,899 |
| GEO Foundation Educational Services | 126 | 21.9 | $50.00 | $1,096 | | 2763.0 | $138,150 |
| Steps to Success | 129 | 34.3 | $30.00 | $1,029 | | 4424.0 | $132,720 |
| Univ. of Denver Bridge Project | 56 | 38.4 | $30.00 | $1,152 | | 2150.5 | $64,515 |
| Read, Read, Read | 49 | 15.6 | $80.00 | $1,244 | | 762.0 | $60,960 |
| A to Z In-Home Tutoring | 38 | 21.6 | $55.00 | $1,189 | | 821.5 | $45,182 |
| Brainfuse One-to-One Instruction | 61 | 15.7 | $45.00 | $705 | | 955.2 | $42,986 |
| Educate Online/Catapult Online | 23 | 14.5 | $77.84 | $1,127 | | 333.0 | $25,921 |
| Results Learning | 20 | 17.0 | $60.78 | $1,032 | | 339.5 | $20,635 |
| GOALS, Inc. | 47 | 11.4 | $35.00 | $397 | | 533.8 | $18,681 |
| Santa Fe Trail BOCES | 25 | 22.9 | $30.00 | $688 | | 573.5 | $17,205 |
| Lutheran Family Services of Colorado | 15 | 35.7 | $24.00 | $858 | | 536.0 | $12,864 |
| Accelerated Schools | 12 | 20.0 | $50.00 | $998 | | 239.5 | $11,975 |
| The Pinon Project | 9 | 46.2 | $25.00 | $1,156 | | 416.0 | $10,400 |
| Learning Connection LLC | 6 | 26.4 | $56.44 | $1,491 | | 158.5 | $8,946 |
| Adventures in Learning K-12 | 16 | 18.5 | $20.00 | $371 | | 296.8 | $5,935 |
| Whiz Kids | 5 | 10.4 | $26.50 | $276 | | 52.0 | $1,378 |
| Dept. of Extended Learning* | 109 | 52.0 | * | * | | 5664.8 | * |
| **Total** | **3869** | **28.9** | **$42.47** | **$1,030** | | **121908.0** | **$4,658,355** |

*accurate cost/hour data were not available for this vendor.

**What was the Grade Distribution of Students Receiving Tutoring Services?**

The following table provides the number of students who received tutoring services by grade. Elementary school age children were more likely to receive SES than middle and high school aged students with first, second, third, and fourth graders comprising the majority of the sample.

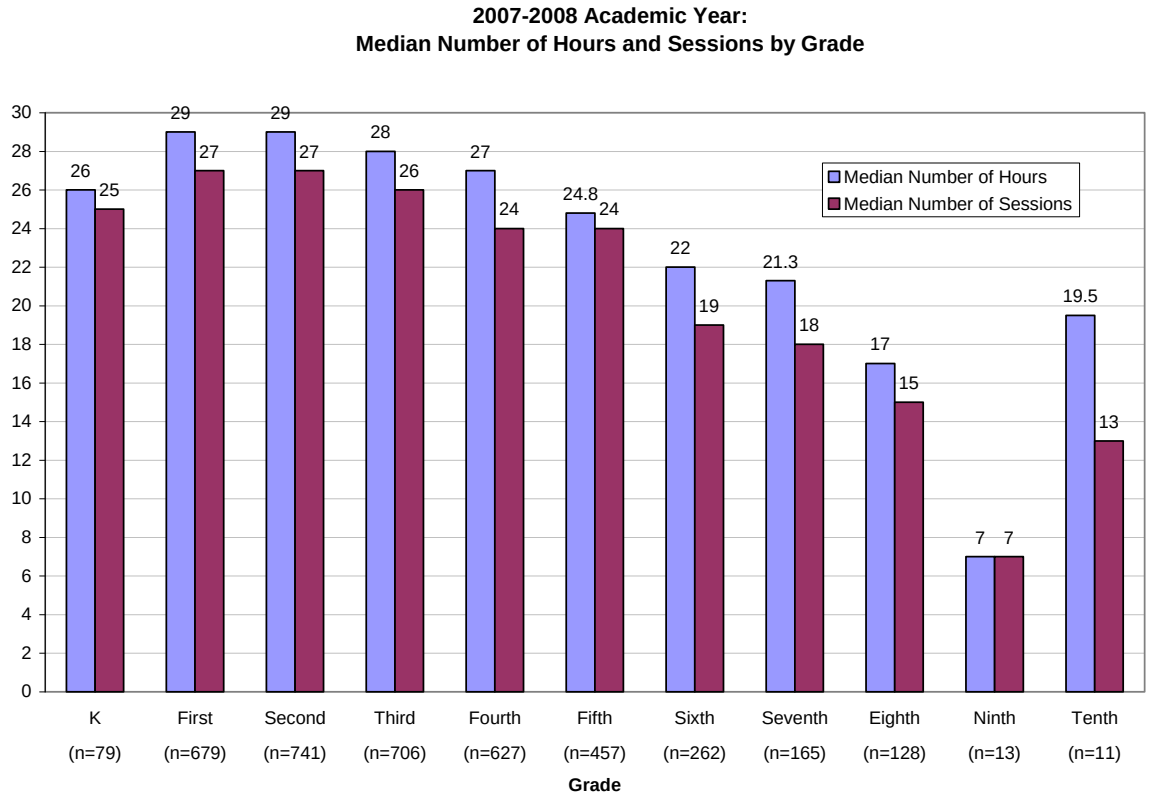
Table 1.6: Number of Students Served in each Grade

| Grade | # of Students Served | % of Students Served |
|---|---|---|
| Kindergarten | 79 | 2.0 |
| 1st Grade | 679 | 17.5 |
| 2nd Grade | 741 | 19.2 |
| 3rd Grade | 706 | 18.2 |
| 4th Grade | 627 | 16.2 |
| 5th Grade | 457 | 11.8 |
| 6th Grade | 262 | 6.8 |
| 7th Grade | 165 | 4.3 |
| 8th Grade | 128 | 3.3 |
| 9th Grade | 13 | 0.3 |
| 10th Grade | 11 | 0.3 |
| **Total** | **3,868*** | **100.0** |

*One SES student was missing grade information.

**How Many Hours of Tutoring (and Sessions) did Students Receive by Grade on Average?**

Data presented in the previous table indicated that younger students were more likely to receive SES than older students. It would be important to know if younger students also receive more tutoring (number of sessions, number of hours) than older students. To examine this issue, the following bar graph presents the median number of hours and the median number of sessions per student by grade. These figures demonstrate that, in general, younger students tended to receive more hours of tutoring and attended more tutoring sessions than did older students.



**What were the Demographic Characteristics of SES Students?**

Table 1.7 provides information about the demographic characteristics of students who received SES. Demographic information is not collected in the OMNI SES database but is obtained for SES students by linking their tutoring data to their CSAP data, which is provided to OMNI from CDE. Thus, the numbers are based on students who could be matched to the CSAP data file via students' state identification numbers. Data were only available for third through tenth graders as the CSAP is administered in third through tenth grades. In total, demographic information for 2,225 students (57.5% of SES students) was available.

Table 1.7 shows that SES students were slightly more likely to be male (n = 1,142; 51.3%) than female (n = 1,083; 48.7%). Most SES students were Hispanic (n = 1,788; 80.4%) with the next highest percentage identifying as Black (n = 248; 11.1%). Approximately half (n = 1,133; 50.9%) of the SES students were not fully proficient in English. Less than one-fifth (n = 406; 18.2%) of students had a disability and an Individualized Education Plan (IEP). A little under one-third received an accommodation when taking the reading CSAP (n = 692; 31.2%) and when taking the math CSAP (n = 667; 31.3%).

Table 1.7: Demographic Information about SES Students

| **Demographic Characteristic** | **SES STUDENTS** | |
|---|---|---|
| Gender | **N** | **%** |
| Female | 1,083 | 48.7% |
| Male | 1,142 | 51.3% |
| Total | 2,225 | 100% |
| Ethnicity | **N** | **%** |
| American Indian or Alaskan Native | 12 | 0.5% |
| Asian or Pacific Islander | 46 | 2.1% |
| Black (not Hispanic) | 248 | 11.1% |
| Hispanic | 1,788 | 80.4% |
| White (not Hispanic) | 131 | 5.9% |
| Total | 2,225 | 100% |
| Language Proficiency | **N** | **%** |
| N/A – English only speakers | 698 | 31.4% |
| NEP | 446 | 20.0% |
| LEP | 687 | 30.9% |
| FEP | 394 | 17.7% |
| Total | 2,225 | 100% |
| Disability | **N** | **%** |
| No disability | 1,819 | 81.8 |
| Has a disability | 406 | 18.2 |
| Total | 2,225 | 100.0 |
| IEP | **N** | **%** |
| No IEP | 1,819 | 81.8 |
| Has an IEP | 406 | 18.2 |
| Total | 2,225 | 100.0 |
| Accommodations (Reading) | **N** | **%** |
| No accommodation | 1,525 | 68.5% |
| Received accommodation | 692 | 31.1% |
| Total | 2,217* | 99.6% |
| Accommodations (Math) | **N** | **%** |
| No accommodation | 1,463 | 65.8% |
| Received accommodation | 667 | 29.9% |
| Total | 2,130** | 95.7% |

*8 students were missing data; **95 students were missing data

**What Types of Tests Do Vendors use to Measure Change in Student Performance?**

Vendors entered information into the SES database pertaining to in-house pre- and post-tutoring tests they conducted with students. A preliminary exploration of this information was conducted to assess the usability of such tests in evaluating effectiveness of the SES program in future years.

In all, 1,478 students were recorded as having received at least one pre test and 1,381 received at least one post test. Note that students were generally recorded as having received multiple (up to 13) pre or post tests. A total of 2,135 pre tests and 2,008 post tests were recorded as having been administered by vendors. Examination of the data available revealed several challenges to usability with regards to evaluating effectiveness.

First, a maximum of 36% of SES students would have pre-post vendor data for analysis. This number would likely be less because some students with post tests did not have a matched pre-test. Matching student pre and post data would require that vendors correctly entered the test type, subscale, and scoring used for each assessment; a preliminary look at the data revealed several inconsistencies. Results may be biased by the ability of the vendor to accurately input data. Second, a variety of different test types were recorded, including locally created tests. The two most frequently used tests were GMADE (260 students) and Woodcock-Johnson (215 students). Analyzing data across multiple test types may require significant resources to ensure appropriate data cleaning and accurate interpretation. Finally, vendors are not monitored on their pre-post test input.

***Section 1 Summary***

Section 1 presented information on students who participated in SES in the 2007-2008 academic year. Several findings are of note to CDE.

- Hours of Tutoring
  - 24.2% of students received 20 or fewer hours of tutoring.
  - 53.5% of students received between 20 and 40 hours of tutoring.
  - 22.3% received more than 40 hours of tutoring.
- Vendors
  - 25 vendors provided tutoring services.
  - 11 vendors served 100 or more students.
  - 2 vendors served between 50 and 100 students.
  - 12 vendors served fewer than 50 students.
  - Approximately half of vendors provided between 20 and 40 hours of services per student on average.
  - The majority of vendors provided between 15 and 40 sessions per student on average.

- Districts
  - Students in 13 districts were served.
  - Denver Public Schools served the most students (74.7%).
  - Adams-Arapahoe served the second most students (11.9%).
  - Greeley and Jefferson County served the third and fourth most students (4.4% and 4.3% respectively).
  - Adams County, Brighton, Colorado Springs, Eagle County, Montezuma-Cortez, Weld, and Westminster each served 20 or fewer students.
- Service Information
  - 89.3% of students received tutoring at school.
  - 87.7% of students received tutoring in groups of 10 or fewer students.
  - 84.1% of students received tutoring at school and in groups of 10 or fewer students.
  - Vendor total costs ranged from $1,378 to $1,574,213. The cost/hour of tutoring ranged from $17 to $80.
- Student Demographics
  - Grade:
    - More students in lower grades received tutoring than students in higher grades. The grade with the highest number of SES students was 2nd grade (741 students, 19.2%). Nearly 40% of SES students were in K-2nd grade.
    - Students in lower grades received greater numbers of sessions and more hours of tutoring than students in higher grades.
  - 51.3% were male.
  - 80.4% were Hispanic; 11.1% were Black.
  - 50.9% were not fully proficient in English (LEP or NEP).
  - 18.2% had a disability/IEP.
  - 31.2% received an accommodation when taking the reading CSAP.
- Vendor Pre-Post Test Information
  - A maximum of 36% of students may have vendor pre-post data.
  - A variety of tests were used by vendors to measure achievement.
  - Challenges may exist in using vendor pre-post data for evaluation needs.

## Section 2: Statewide Effectiveness of SES on Student Achievement

The goal of this section was to examine the impact of SES on student achievement. CSAP data were available for students who participated in SES and students who were eligible to participate but did not do so. Thus, it was possible to compare changes in achievement between those two groups to examine whether students who received tutoring were more likely to improve than students who were eligible but did not receive tutoring. It is important to note that even if significant differences in achievement between these groups of students are found, caution must be taken before attributing those differences to SES. Many factors may influence students' scores on the CSAP and differences between SES and Control students may support the effectiveness of SES, but not confirm it. On the other hand, it is also important to consider that even if significant differences in achievement are *not* detected in the data, participation in SES may still have positive effects on students. For example, SES may affect other measures of student achievement or other outcomes (e.g., motivation). In addition, it is possible that one year's worth of tutoring does not provide enough time for students to show significant gains on state achievement measures.

### Data Cleaning

***SES Students.*** When examining the effectiveness of SES on math and reading achievement, it was necessary to exclude tutoring sessions that occurred after CSAP tests were administered. After discussion with key CDE staff, March 26, 2008 was used as the cutoff for tutoring sessions included in the following analyses. Tutoring sessions that occurred on or before March 26th were included in the analyses; sessions that occurred after March 26th were not included in the analyses. March 26th was chosen as the cutoff as it was the middle of the approximate one month testing window. Therefore, it is important to note that for some students a small number of tutoring sessions included in the following analyses may have occurred after CSAP tests were administered and for other students a small number of tutoring sessions that occurred before CSAP tests were administered may not have been included. Of the 3,869 students who received tutoring, 3,857 received at least one hour of tutoring before March 26th. Thus, 12 students received all of their tutoring after March 26th and are not included in analyses examining the effectiveness of tutoring on change in student achievement. All 3,857 students who received tutoring before March 26th could be linked to the state assessment database; however, 70 students had discrepant grade information (the grade entered by the vendor did not match the grade associated with the student ID in the state assessment database). These 70 students were dropped from further analyses.

Of the 3,787 students who could be accurately linked to the state assessment database, 2,228 received tutoring in reading only, 155 received tutoring in math only, and 1,404 received tutoring in both math and reading. Thus, 3,632 students were eligible for inclusion in analysis of reading achievement and 1,559 SES students were eligible for inclusion in analysis of math achievement.

However, only 1,364 of students who received reading services and 710 students who received math services had valid CSAP scores for both 2007 and 2008. The vast majority of students who did not have valid scores in both years were in first through third grades and therefore were not old enough to have two years of data (CSAP is administered in third through tenth grade). Only a small portion of students were excluded due to invalid test data. Because of the small number of ninth and tenth graders who received tutoring (13 and 11 respectively), these students were excluded from subsequent analyses.

***Control Students.*** To determine the effectiveness of SES on achievement, it is important to compare SES students' changes in achievement to students who were eligible to participate in the program but did not do so. To create an appropriate Control group, several steps were taken. First, students who were in schools in which SES tutoring was offered in 2007-2008 were selected (i.e., at least one student from that school had been recorded as receiving SES). Second, students who qualified for free or reduced lunch in 2007-2008 were selected to match eligibility requirements for SES services. Finally, students were selected so that their grade and prior proficiency levels matched SES students. For example, 178 fourth graders who received SES scored unsatisfactory in reading in 2007; thus, 178 fourth graders were randomly selected from the pool of students who did not receive SES, had valid CSAP scores in reading in 2007 and 2008, attended an eligible school, were eligible for free/reduced lunch, and scored unsatisfactory in 2007. This process was completed for each prior (i.e., 2007) proficiency category at each grade level to ensure that control students were closely matched to SES students on grade, prior achievement, school, eligibility, and sample size.

**Reading Achievement**

Table 2.1 provides information about the number and percentage of SES and Control students in the sample by prior achievement in reading. Proficient and advanced classifications were combined into one category representing students who scored proficient or above. Table 2.2 provides information about the number of SES and control students by prior achievement, by grade. *Please note that the number of Control students matches the number of SES students with regard to grade and prior proficiency levels due to the aforementioned selection criteria for control students*.

As can be seen in Table 2.1, almost three-fourths of students (n = 1,019; 74.7%) who received SES in reading scored unsatisfactory or partially proficient in 2007.

Table 2.1: Number of SES and Control Students Who Scored in Each Proficiency Category in Reading in 2007.

| **2007 Proficiency Category** | **SES Students** | | **Control Students** | |
|---|---|---|---|---|
| **Reading** | **N** | **%** | **N** | **%** |
| Unsatisfactory | 585 | 42.9 | 585 | 42.9 |
| Partially Proficient | 434 | 31.8 | 434 | 31.8 |
| Proficient/Advanced | 345 | 25.3 | 345 | 25.3 |
| **Total** | **1364** | **100%** | **1364** | **100%** |

Table 2.2: Reading Achievement: Number and Percentage of SES and Control Students in Each 2007 Proficiency Category by Grade in 2008.

| Grade in 2008 | 2007 Proficiency Category | SES Students | | Control Students | |
|---|---|---|---|---|---|
| **Reading** | | **N** | **%** | **N** | **%** |
| Fourth | Unsatisfactory | 178 | 32.0 | 178 | 32.0 |
| | Partially Proficient | 186 | 33.5 | 186 | 33.5 |
| | Proficient/Advanced | 192 | 34.5 | 192 | 34.5 |
| | **Total** | **556** | **100%** | **556** | **100%** |
| | | **N** | **%** | **N** | **%** |
| Fifth | Unsatisfactory | 234 | 56.8 | 234 | 56.8 |
| | Partially Proficient | 120 | 29.1 | 120 | 29.1 |
| | Proficient/Advanced | 58 | 14.1 | 58 | 14.1 |
| | **Total** | **412** | **100%** | **412** | **100%** |
| | | **N** | **%** | **N** | **%** |
| Sixth | Unsatisfactory | 100 | 46.9 | 100 | 46.9 |
| | Partially Proficient | 63 | 29.6 | 63 | 29.6 |
| | Proficient/Advanced | 50 | 23.5 | 50 | 23.5 |
| | **Total** | **213** | **100%** | **213** | **100%** |
| | | **N** | **%** | **N** | **%** |
| Seventh | Unsatisfactory | 40 | 35.4 | 40 | 35.4 |
| | Partially Proficient | 47 | 41.6 | 47 | 41.6 |
| | Proficient/Advanced | 26 | 23.0 | 26 | 23.0 |
| | **Total** | **113** | **100%** | **113** | **100%** |
| | | **N** | **%** | **N** | **%** |
| Eighth | Unsatisfactory | 33 | 47.1 | 33 | 47.1 |
| | Partially Proficient | 18 | 25.7 | 18 | 25.7 |
| | Proficient/Advanced | 19 | 27.1 | 19 | 27.1 |
| | **Total** | **70** | **100%** | **70** | **100%** |

**Were SES Students More Likely to Improve in Reading Achievement from 2007 to 2008 than Control Students?**

***Proficiency Categories:*** Table 2.3.a provides data on stability and change in proficiency categories for reading from 2007 to 2008 for students who did and did not participate in SES. The first column of Table 2.3.a describes the type of students being examined. Control students are the matched controls and SES refers to students who received at least one hour of tutoring (see the discussion above in the section on data cleaning for a description of how SES and Control students were selected). The second column displays the number of students who scored in each proficiency category in 2007. For example, 585 Control students scored unsatisfactory (due to the matching criteria) and 585 SES students scored unsatisfactory in 2007. The 2008 proficiency columns describe where the students scored in 2008. For example, of the 585 Control students who scored unsatisfactory in 2007, 450 (76.9%) scored unsatisfactory in 2008, 131 (22.4%) improved to partially proficient, and 4 (0.7%) improved to proficient/advanced. Similarly, of the 585 SES students who started unsatisfactory, 414 (70.8%) scored unsatisfactory, 160 (27.4%) improved to partially proficient, and 11 (1.9%) improved to proficient/advanced.

Chi square analyses were conducted to determine whether change in proficiency from 2007 to 2008 differed significantly for SES students versus Control students for each prior proficiency category (separate analyses were conducted for students who started unsatisfactory, partially proficient, and proficient/advanced in 2007).

Results indicated that significantly more SES students starting unsatisfactory in 2007 improved to a higher category in 2008 (n = 171; 29.3%) compared to the number of Control students starting unsatisfactory that improved (n = 135; 23.1%). There were no significant differences detected for students who started in the partially proficient and proficient/advanced groups between SES and Control students on change in achievement categories.

Table 2.3.a: Reading Achievement: Number and Percentage of SES and Control Students who scored in Each Proficiency Category in 2007 and 2008.

| | | 2008 Proficiency | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007 Proficiency | Unsatisfactory | | Partially Proficient | | Proficient/Adv | |
| **Group** | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 585 | 450 | 76.9 | 131 | 22.4 | 4 | 0.7 |
| SES | 585* | 414 | 70.8 | 160 | 27.4 | 11 | 1.9 |
| | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 434 | 78 | 18.0 | 255 | 58.8 | 101 | 23.3 |
| SES | 434 | 81 | 18.7 | 251 | 57.8 | 102 | 23.5 |
| | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 345 | 14 | 4.1 | 101 | 29.3 | 230 | 66.7 |
| SES | 345 | 22 | 6.4 | 105 | 30.4 | 218 | 63.2 |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

***Growth Percentiles:*** Table 2.3.b provides data on median growth percentiles in reading in 2008 for students by 2007 proficiency levels who did and did not participate in SES. The first column of Table 2.3.b describes the type of student being examined. The second column displays the number of students who scored in each proficiency category in 2007. The number of students included in these analyses sometimes is slightly less than reported above due to missing growth percentile data.

The 2008 performance columns describe how the two groups of students scored in 2008. For example, the 2008 median growth percentile for the 558 Control students who scored unsatisfactory in 2007 was 44. Similarly, the median growth percentile in 2008 for the 547 SES students who started unsatisfactory was 47. These figures indicate that SES students had higher median growth percentiles than Control students for students that began in each prior proficiency category.

The Wilcoxon-Mann-Whitney test, a non-parametric test, was used to examine whether the distribution of growth percentiles differed significantly for SES students versus Control students for each prior proficiency category (separate analyses were conducted for students who started unsatisfactory, partially proficient, and proficient/advanced in 2007). This test rank orders the growth percentiles of students in both groups and tests the difference between the mean ranks for each group. For example, Control students who started unsatisfactory had a mean growth percentile rank of 536.95; SES students who started unsatisfactory had a mean growth percentile rank of

569.38. The difference between these ranks is then examined to determine whether the difference in ranks is likely to be due to chance. Results indicated that SES students had marginally higher mean ranks than Control students in every prior proficiency category.

Table 2.3.b: Reading Achievement: 2008 Median Growth Percentiles and Mean Ranks of SES and Control Students who Scored in Each Proficiency Category in 2007.

| | | 2008 Performance | |
|---|---|---|---|
| | **2007 Proficiency** | **Median Growth Percentile** | **Mean Rank** |
| **Group** | **Unsatisfactory** | | |
| Controls | 558 | 44.0 | 536.95 |
| SES | 547 | 47.0 | 569.38† |
| | **Partially Proficient** | | |
| Controls | 416 | 46.5 | 393.96 |
| SES | 400 | 53.0 | 423.62† |
| | **Proficient/Adv** | | |
| Controls | 306 | 42.0 | 275.47 |
| SES | 266 | 49.0 | 299.19† |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

***Achievement by Grade:*** Differences between SES and Control students in change in proficiency categories and growth percentile differences were also examined within each grade level as it is possible that SES may have a larger impact on student achievement in certain grades than in other grades. Appendix B presents information about a) change in reading achievement proficiency categories for SES and Control students by grade, and, b) differences in median growth percentiles and mean ranks for SES and Control students by grade. Chi-square and Wilcoxon-Mann-Whitney tests were conducted as before to test for significant differences. *Statistical analyses were only conducted if at least 50 students started in the category.*

Results indicated that the number of 4th grade SES students starting unsatisfactory that improved (50, 28.1%) was marginally greater than the number of 4th grade Control students starting unsatisfactory that improved (35, 19.7%). Similarly, 4th grade SES students starting unsatisfactory had marginally higher mean growth percentile ranks (mean rank = 163.14) than 4th grade Control students starting unsatisfactory (mean rank = 144.82). There was no evidence of statistical differences between SES and Control student for other grades.

**Were SES Students More Likely to Improve in Reading Achievement from 2007 to 2008 as a Function of the Amount of Tutoring Received?**

The goal of this section was to examine whether the amount of tutoring received was associated with gains in achievement. It may be that for every additional hour of tutoring, students receive more benefits. Or, it may be that there is a threshold in the amount of tutoring necessary to improve achievement. For example, a minimum number of hours of tutoring (e.g., 20) may be required for tutoring to influence student achievement. The following section presents data on associations between the amount of tutoring and change in reading achievement.

Two different methods were used to explore whether the amount of tutoring a student received was associated with changes in achievement from 2007 to 2008.

First, Spearman rank-order correlation tests were conducted to examine whether students received more benefits from every additional hour of tutoring. Separate tests were conducted for students in each prior proficiency category.

Second, chi-square and Wilcoxon-Mann-Whitney tests were conducted to determine whether students receiving less than 20 hours of tutoring or students meeting a threshold of 20 or more hours differed from Control students in reading achievement. Separate tests were conducted for students that started in each prior proficiency category.

***Do SES Students Receive More Benefits from Every Additional Hour of Tutoring?:*** Results of the Spearman correlation analyses described above indicated no significant associations between the number of hours of tutoring received and SES students' growth percentiles for any prior proficiency category.

***Do SES Students who Received Fewer than 20, or 20 or More Hours of Tutoring Perform Better than Control Students?*** A series of chi-square analyses compared the improvement percentages of SES students who received less than 20 hours of tutoring and SES students who received 20 or more hours of tutoring to Controls students for each prior proficiency group (see Table 2.4.a for the data on which analyses were conducted). Results indicated that compared to Controls, among SES students that started unsatisfactory, those who received 20+ hours of tutoring were significantly more likely to improve than Control students. Contrary to expectations, there was a trend in the data that, of students scoring partially proficient in 2007, SES students receiving less than 20 hours of tutoring were more likely to improve than Controls.

Table 2.4.b presents analyses of growth percentiles comparing SES students who received less than 20 hours of tutoring and SES students who received 20 or more hours of tutoring to Control students. Corroborating the findings presented in Table 2.4a, SES students starting unsatisfactory who received 20+ hours of tutoring had a higher median growth percentile (51) than the Control students (44). The difference between the mean ranking of growth percentiles between Control students and SES students was only significant for SES students receiving more than 20

hours of tutoring. Surprisingly, SES students who received fewer than 20 hours of tutoring who started partially proficient had a significantly higher mean ranking of growth percentiles than Control students. Finally, SES students that started proficient/advanced and received 20+ hours of tutoring had a significantly higher mean rank of student growth percentiles than the Control students.

Thus, for students most in need of reading tutoring in 2008 (i.e., scoring unsatisfactory in reading in 2007), there was evidence that students receiving at least 20 hours of tutoring were more likely to benefit than students receiving less than 20 hours. However, the opposite pattern emerged for students starting partially proficient (i.e., students receiving less than 20 hours were more likely to improve compared to Control students than students receiving 20 or more hours).

Table 2.4.a: Reading Achievement: Number and Percentage of SES (who received <20 or 20+hours of tutoring) and Control Students who Scored in Each Proficiency Category in 2007 and 2008.

| | | **2008 Proficiency** | | | | | |
|---|---|---|---|---|---|---|---|
| | **2007 Proficiency** | **Unsatisfactory** | | **Partially Proficient** | | **Proficient/Adv** | |
| **Group** | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 585 | 450 | 76.9 | 131 | 22.4 | 4 | 0.7 |
| SES (<20) | 198 | 145 | 73.2 | 49 | 24.7 | 4 | 2.0 |
| SES (20+)* | 387 | 269 | 69.5 | 111 | 28.7 | 7 | 1.8 |
| | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 434 | 78 | 18.0 | 255 | 58.8 | 101 | 23.3 |
| SES (<20) † | 140 | 18 | 12.9 | 78 | 55.7 | 44 | 31.4 |
| SES (20+) | 294 | 63 | 21.4 | 173 | 58.8 | 58 | 19.7 |
| | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 345 | 14 | 4.1 | 101 | 29.3 | 230 | 66.7 |
| SES (<20) | 130 | 6 | 4.6 | 35 | 26.9 | 89 | 68.5 |
| SES (20+) | 215 | 16 | 7.4 | 70 | 32.6 | 129 | 60.0 |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

Table 2.4.b: Reading Achievement: 2008 Median Growth Percentiles of SES (who received <20 or 20+ hours of tutoring) and Control Students who Scored in Each Proficiency Category in 2007.

| | | 2008 Proficiency | |
|---|---|---|---|
| | **2007 Proficiency** | **Median Growth Percentile** | **Mean Rank** |
| **Group** | **Unsatisfactory** | | |
| Controls | 558 | 44.0 | 375.84 |
| SES (<20) | 192 | 45.5 | 374.52 |
| | | | |
| Controls | 558 | 44.0 | 440.61 |
| SES (20+)* | 355 | 51.0 | 482.77* |
| | **Partially Proficient** | | |
| Controls | 416 | 46.5 | 268.68 |
| SES (<20)* | 136 | 56.5 | 300.42* |
| | | | |
| Controls | 416 | 46.5 | 333.78 |
| SES (20+) | 264 | 52.5 | 351.08 |
| | **Proficient/Adv** | | |
| Controls | 306 | 42.0 | 211.64 |
| SES (<20) | 120 | 43.5 | 218.24 |
| | | | |
| Controls | 306 | 42.0 | 217.33 |
| SES (20+)* | 146 | 52.0 | 245.72* |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

**Math Achievement**

Table 2.5 provides information about the number and percentage of SES and Control students in the sample by prior achievement in Math. Proficient and advanced classifications were combined into one category representing students who scored proficient or above. Table 2.6 provides information about the number of SES and Control students by prior achievement by grade. *Please note that the number of Control students matches the number of SES students with regard to grade and prior proficiency levels due to the aforementioned selection criteria for Control students.*

As can be seen in Table 2.5, almost three-fourths of students (n = 517; 72.8%) who received SES in Math scored Unsatisfactory or Partially Proficient in 2007.

Table 2.5: Number of SES and Control Students Who Scored in Each Proficiency Category in Math in 2007.

| **2007 Proficiency Category** | **SES Students** | | **Control Students** | |
|---|---|---|---|---|
| **Math** | **N** | **%** | **N** | **%** |
| Unsatisfactory | 246 | 34.6 | 246 | 34.6 |
| Partially Proficient | 271 | 38.2 | 271 | 38.2 |
| Proficient/Advanced | 193 | 27.2 | 193 | 27.2 |
| **Total** | **710** | **100%** | **710** | **100%** |

Table 2.6: Math Achievement: Number and Percentage of SES and Control Students in Each 2007 Proficiency Category by Grade in 2008.

| **Grade in 2008** | **2007 Proficiency Category** | **SES Students** | | **Control Students** | |
|---|---|---|---|---|---|
| **Math** | | **N** | **%** | **N** | **%** |
| Fourth | Unsatisfactory | 63 | 26.6 | 63 | 26.6 |
| | Partially Proficient | 103 | 43.5 | 103 | 43.5 |
| | Proficient/Advanced | 71 | 30.0 | 71 | 30.0 |
| | **Total** | **237** | **100%** | **237** | **100%** |
| | | **N** | **%** | **N** | **%** |
| Fifth | Unsatisfactory | 76 | 37.1 | 76 | 37.1 |
| | Partially Proficient | 62 | 30.2 | 62 | 30.2 |
| | Proficient/Advanced | 67 | 32.7 | 67 | 32.7 |
| | **Total** | **205** | **100%** | **205** | **100%** |
| | | **N** | **%** | **N** | **%** |
| Sixth | Unsatisfactory | 51 | 36.4 | 51 | 36.4 |
| | Partially Proficient | 56 | 40.0 | 56 | 40.0 |
| | Proficient/Advanced | 33 | 23.6 | 33 | 23.6 |
| | **Total** | **140** | **100%** | **140** | **100%** |
| | | **N** | **%** | **N** | **%** |
| Seventh | Unsatisfactory | 33 | 51.6 | 33 | 51.6 |
| | Partially Proficient | 18 | 28.1 | 18 | 28.1 |
| | Proficient/Advanced | 13 | 20.3 | 13 | 20.3 |
| | **Total** | **64** | **100%** | **64** | **100%** |
| | | **N** | **%** | **N** | **%** |
| Eighth | Unsatisfactory | 23 | 35.9 | 23 | 35.9 |
| | Partially Proficient | 32 | 50.0 | 32 | 50.0 |
| | Proficient/Advanced | 9 | 14.1 | 9 | 14.1 |
| | **Total** | **64** | **100%** | **64** | **100%** |

**Were SES Students More Likely to Improve in Math Achievement from 2007 to 2008 than Control Students?**

***Proficiency Categories:*** Table 2.7.a provides data on stability and change in proficiency categories for math from 2007 to 2008 for students who did and did not participate in SES.

The 2008 proficiency columns describe where the students scored in 2008. Thus, of the 246 Control students who scored unsatisfactory in 2007, 199 (80.9%) scored unsatisfactory in 2008, 47 (19.1%) improved to partially proficient, and 0 (0%) improved to proficient/advanced. Similarly, of the 246 SES students who started unsatisfactory, 194 (78.9%) scored unsatisfactory, 50 (20.3%) improved to partially proficient, and 2 (0.8%) improved to proficient/advanced.

Chi square analyses were conducted to determine whether change in proficiency from 2007 to 2008 differed significantly for SES students versus Control students for each prior proficiency category (separate analyses were conducted for students who started unsatisfactory, partially proficient, and proficient/advanced in 2007).

Results indicated that there were no differences in the number of SES students that improved or declined in performance compared to the number of Control students that improved or declined in performance in any of the three prior proficiency categories.

Table 2.7.a: Number and Percentage of SES and Control Students who Scored in Each Proficiency Category in Math in 2007 and 2008.

| | | 2008 Proficiency | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007 Proficiency | Unsatisfactory | | Partially Proficient | | Proficient/Adv | |
| **Group** | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 246 | 199 | 80.9 | 47 | 19.1 | 0 | 0.0 |
| SES | 246 | 194 | 78.9 | 50 | 20.3 | 2 | 0.8 |
| | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 271 | 69 | 25.5 | 167 | 61.6 | 35 | 12.9 |
| SES | 271 | 45 | 16.6 | 187 | 69.0 | 39 | 14.4 |
| | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 193 | 1 | 0.5 | 54 | 28.0 | 138 | 71.5 |
| SES | 193 | 4 | 2.1 | 55 | 28.5 | 134 | 69.4 |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

***Growth Percentiles:*** Table 2.7.b provides data on median growth percentiles in math in 2008 for students by 2007 proficiency levels who did and did not participate in SES. The 2008 performance columns describe how the two groups of students scored in 2008. Thus, the 2008 median growth percentile for the 243 Control students who scored unsatisfactory in 2007 was 47. Similarly, the median growth percentile in 2008 for the 242 SES students who started unsatisfactory was 50. These figures indicate that SES students had higher median growth percentiles than Control students in every prior proficiency category.

The Wilcoxon-Mann-Whitney test, a non-parametric test, was used to examine whether the distribution of growth percentiles differed significantly for SES students versus Control students for each prior proficiency category (separate analyses were conducted for students who started unsatisfactory, partially proficient, and proficient/advanced in 2007). This test rank orders the growth percentiles of students in both groups and tests the difference between the mean ranks for each group. For example, Control students who started unsatisfactory had a mean growth percentile rank of 241.08. Similarly SES students who started unsatisfactory had a mean growth percentile rank of 244.93.

Results indicated that although SES students had higher mean ranks than Control students in every prior proficiency category, the difference was significant only for the group that started partially proficient.

Table 2.7.b: Math Achievement: 2008 Median Growth Percentiles and Mean Ranks of SES and Control Students who Scored in Each Proficiency Category in 2007.

| | | 2008 Performance | |
|---|---|---|---|
| | **2007 Proficiency** | **Median Growth Percentile** | **Mean Rank** |
| **Group** | **Unsatisfactory** | | |
| Controls | 243 | 47.0 | 241.08 |
| SES | 242 | 50.0 | 244.93 |
| | **Partially Proficient** | | |
| Controls | 271 | 47.0 | 255.05 |
| SES | 271 | 54.0 | 287.95* |
| | **Proficient/Adv** | | |
| Controls | 193 | 41.0 | 189.07 |
| SES | 193 | 44.0 | 197.93 |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

***Achievement by Grade:*** Differences between SES and Control students in change in proficiency categories and growth percentile differences were also examined within each grade level as it is possible that SES may have a larger impact on student achievement in certain grades than in other grades. Appendix C presents information about a) change in math achievement proficiency categories for SES and Control students by grade, and b) differences in median growth percentiles and mean ranks for SES and Control students by grade. Chi-square and Wilcoxon-Mann-Whitney tests were conducted as before to test for significant differences. *Statistical analyses were only conducted if at least 50 students started in the category.*

Results revealed no significant differences, for any grade, in the number of SES students that improved or declined in proficiency level compared to the number of Control students that improved or declined in proficiency level. However, 6th grade SES students starting partially proficient had a significantly higher mean growth percentile rank (65.28) than 6th grade Control students starting partially proficient (47.72).

**Were SES Students More Likely to Improve in Math Achievement from 2007 to 2008 as a Function of the Amount of Tutoring Received?**

The goal of this section was to examine whether the amount of tutoring received was associated with gains in achievement. It may be that for every additional hour of tutoring, students receive more benefits. Or, it may be that there is a threshold in the amount of tutoring necessary to improve achievement. For example, a minimum number of hours of tutoring (e.g., 20) may be required for tutoring to influence student achievement. The following section presents data on associations between the amount of tutoring and change in math achievement.

Two different methods were used to explore whether the amount of tutoring a student received was associated with changes in achievement from 2007 to 2008.

First, Spearman rank-order correlation tests were conducted to examine whether students receive more benefits from every additional hour of tutoring. Separate tests were conducted for students in each prior proficiency category.

Second, chi-square and Wilcoxon-Mann-Whitney tests were conducted to determine whether students receiving less than 20 hours of tutoring or students meeting a threshold of 20 or more hours differed from Control students in math achievement. Separate tests were conducted for students in each prior proficiency category. In general, sample sizes were low to examine a threshold of 30 hours.

***Do SES Students Receive More Benefits from Every Additional Hour of Tutoring?***

Results of the Spearman correlation analyses described above indicated no significant associations between the number of hours of tutoring received and SES students' growth percentiles for any prior proficiency category.

***Do SES Students who Received Fewer than 20, or 20 or More Hours of Tutoring Perform Better than Control Students?*** A series of chi-square analyses compared the improvement percentages of SES students who received less than 20 hours of tutoring and SES students who received 20 or more hours of tutoring to Controls students for each prior proficiency group (see Table 2.8.a for the data on which analyses were conducted). Results of the chi-square analyses, revealed no differences in the number of SES students that improved or declined in proficiency levels compared to the number of Control students that improved or declined in proficiency levels.

Table 2.8.b presents analyses of growth percentiles for students who received less than 20, or 20+ hours of tutoring. The only significant finding was for students that started partially proficient: SES students with 20+ hours of tutoring had higher growth than Control students.

Table 2.8.a: Math Achievement: Number and Percentage of SES (who received <20 or 20+ hours of tutoring) and Control Students who Scored in Each Proficiency Category in 2007 and 2008.

| | | 2008 Proficiency | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007 Proficiency | Unsatisfactory | | Partially Proficient | | Proficient/Adv | |
| **Group** | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 246 | 199 | 80.9 | 47 | 19.1 | 0 | 0.0 |
| SES (<20) | 100 | 83 | 83.0 | 17 | 17.0 | 0 | 0.0 |
| SES (20+) | 146 | 111 | 76.0 | 33 | 22.6 | 2 | 1.4 |
| | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 271 | 69 | 25.5 | 167 | 61.6 | 35 | 12.9 |
| SES (<20) | 107 | 21 | 19.6 | 75 | 70.1 | 11 | 10.3 |
| SES (20+) | 164 | 24 | 14.6 | 112 | 68.3 | 28 | 17.1 |
| | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| Controls | 193 | 1 | 0.5 | 54 | 28.0 | 138 | 71.5 |
| SES (<20) | 88 | 2 | 2.3 | 28 | 31.8 | 58 | 65.9 |
| SES (20+) | 105 | 2 | 1.9 | 27 | 25.7 | 76 | 72.4 |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

Table 2.8.b: Math Achievement: 2008 Median Growth Percentiles and Mean Ranks of SES (who received <20 or 20+ hours of tutoring) and Control Students who Scored in Each Proficiency Category in 2007.

| | | 2008 Proficiency | |
|---|---|---|---|
| | **2007 Proficiency** | **Median Growth Percentile** | **Mean Rank** |
| **Group** | **Unsatisfactory** | | |
| Controls | 243 | 47.0 | 173.34 |
| SES (<20) | 99 | 45.0 | 166.98 |
| | | | |
| Controls | 243 | 47.0 | 189.74 |
| SES (20+) | 143 | 51.0 | 199.89 |
| | **Partially Proficient** | | |
| Controls | 271 | 47.0 | 185.55 |
| SES (<20) | 107 | 52.0 | 199.50 |
| | | | |
| Controls | 271 | 47.0 | 205.50 |
| SES (20+)* | 164 | 56.5 | 238.66* |
| | **Proficient/Adv** | | |
| Controls | 193 | 41.0 | 141.30 |
| SES (<20) | 88 | 39.5 | 140.34 |
| | | | |
| Controls | 193 | 41.0 | 144.77 |
| SES (20+) | 105 | 47.0 | 158.19 |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

**Cautions when Interpreting Effectiveness Results**

There are several factors to keep in mind when interpreting the results presented in Section 2 regarding the statewide effectiveness of SES on student achievement. Three very important considerations are presented below.

First, in addition to receiving after school tutoring, ***many factors affect students' achievement***. Because of ethical and practical reasons, it was not possible to use a randomized control design (i.e., randomly assigning, in advance, certain students to participate or not in SES). Thus, we cannot determine that any differences between SES students and Control students were *caused by* participation in SES. We selected the Control students to be as similar as possible to SES students with regard to grade, prior proficiency categories, participating schools, and eligibility. Nonetheless, there are other factors that may have differed between the groups that were not considered in this report. For example, language proficiency, quality of in-classroom instruction, and presence or absence of a disability are all factors that may affect both participation in SES and changes in achievement. Future analyses should examine additional factors that may affect students' achievement and participation in SES.

Second, it is also important to consider that even though significant differences in achievement were *not* detected for some analyses, participation in SES may still have a positive effect on students. For example, SES may affect other measures of student achievement or other outcomes (e.g., academic motivation). In addition, it is possible that one year's worth of tutoring does not provide enough time for students to show significant gains on state achievement measures.

Finally, of the 3,869 students who were recorded in the OMNI database as receiving SES tutoring, 1,441, ***less than 40%,*** had valid CSAP data in both 2007 and 2008. Thus, the majority of students who received SES were not examined with regard to change in achievement. This was mostly due to the fact that younger students were more likely to receive tutoring than older students, and younger students were too young to have two year's worth of CSAP data. The generalizability of the findings is greatly reduced due to the small portion of the sample examined.

***Section 2 Summary***

The goal of Section 2 was to examine whether participation in SES had an impact on student achievement in reading and in math using data from the Colorado Student Assessment Program (CSAP). In brief, we examined: 1) change in students' achievement for SES and Control students using proficiency categories and growth percentiles, 2) whether there were different patterns of change in achievement for grades four through eight, and 3) whether the number of hours of tutoring had an impact on change in achievement. In sum, despite the limitations discussed above, the data suggested the following:

- Improvement in Reading:
  - Approximately three-fourths of students who received SES were in need of reading tutoring defined by scoring unsatisfactory or partially proficient in the prior year – 2007. Similarly large percentages of students within each grade appeared in need of reading tutoring.
  - Change in Proficiency Categories
    - Students who scored unsatisfactory in reading in 2007:
      - 29.3% of SES students improved.
      - 23.1% of Control students improved.
      - This difference ***was*** statistically significant.
    - Students who scored partially proficient in reading in 2007:
      - 23.5% of SES students improved.
      - 23.3% of Control student improved.
      - 18.7% of SES students declined (scored unsatisfactory in 2008).
      - 18% of Control students declined (scored unsatisfactory in 2008).
      - These differences ***were not*** statistically significant.
    - Students who scored proficient/advanced in reading in 2007:
      - 63.2% of SES students remained proficient/advanced.
      - 66.7% of Control students remained proficient/advanced.
      - This difference ***was not*** statistically significant.
  - Differences in Growth Percentiles
    - SES students had higher median growth percentiles than Controls in every prior proficiency category.
    - SES students had marginally higher mean ranks than Controls in every prior proficiency category.
  - Change in Achievement by Grade
    - The number of 4th grade SES students that improved, among those that started unsatisfactory, was marginally greater than the number of 4th grade

Control students that improved.

- Similarly, 4th grade SES students that started unsatisfactory had a marginally higher mean growth percentile rank than 4th grade Control students.

- Improvement in Math:
  - Approximately three-fourths of students who received SES were in need of math tutoring as defined by scoring unsatisfactory or partially proficient in the prior year - 2007.
  - There was an increase in the percentage of SES students who scored below proficient in 2007 from fifth to eighth grade (67.3%, 76.4%, 79.7%, and 85.9% for fifth, sixth, seventh, and eighth grade, respectively). Thus, older SES students were more likely to be in need of math tutoring on average than younger SES students based on their 2007 proficiency levels.
  - Change in Proficiency Categories
    - Students who scored unsatisfactory in math in 2007:
      - 21.1% of SES students improved.
      - 19.1% of Control students improved.
      - This difference ***was not*** statistically significant.
    - Students who scored partially proficient in math in 2007:
      - 14.4% of SES students improved.
      - 12.9% of Control student improved.
      - 16.6% of SES students declined (scored unsatisfactory in 2008).
      - 25.5% of Control students declined (scored unsatisfactory in 2008).
      - These differences ***were not*** statistically significant.
    - Students who scored proficient/advanced in math in 2007:
      - 69.4% of SES students remained proficient/advanced.
      - 71.5% of Control students remained proficient/advanced.
      - This difference ***was not*** statistically significant.
  - Differences in Growth Percentiles
    - SES students had higher median growth percentiles than Controls in every prior proficiency category.
    - SES students had higher mean ranks than Controls in every prior proficiency category. These differences were significant **only** for students who started partially proficient.
  - Change in Achievement by Grade
    - There were no significant differences between SES and Control students in change in math proficiency categories within each grade.

        - 6th grade SES students starting partially proficient had a significantly higher mean growth percentile rank than 6th grade Controls.
- Effects of Amount of Tutoring (using only students who needed improvement i.e., scored unsatisfactory or partially proficient in 2007).
    - Reading:
        - There was no association between the number of hours of tutoring received and SES students' growth percentiles.
        - Compared to Control students, SES students who started unsatisfactory and received 20 or more hours of tutoring showed greater improvement in proficiency level. Further, this group had a significantly higher mean growth percentile rank.
        - Among students who started Partially Proficient there was a trend level association indicating that SES students with *less* than 20 hours of tutoring showed greater improvement in proficiency level than Controls. Further, this group had a significantly higher mean growth percentile rank.
        - Among students who started proficient/advanced there was no difference in the number of SES students who remained proficient/advanced as compared to Control students. However, the SES group that received 20 or more hours of tutoring had a significantly higher mean growth percentile rank.
    - Math:
        - There was no association between the number of hours of tutoring received and SES students' growth percentiles.
        - Compared to Control students, SES students who received 20 or more hours of tutoring did not differ in improvement for any prior proficiency category. However, SES students with 20 or more hours of tutoring that started partially proficient had a significantly higher mean growth percentile rank than Controls.

## Section 3: Vendor Effectiveness on Students' Change in Achievement

The goal of this section was to examine the effectiveness of SES on student achievement by individual vendors providing services. Information about change in proficiency categories is presented as well as a comparison of median growth percentiles between vendors and the Control group. Because of the limited number of students served by each vendor who had two years of CSAP data, this section reports on changes in achievement by vendor but does not attempt to provide statistical evidence as to the relative effectiveness of the vendors. The goal is to examine the number of students served by each vendor that were old enough to have two years of valid CSAP data and provide preliminary data on how those students changed in math and reading achievement after receiving tutoring.

Tables 3.1.a and 3.2.a present the following improvement information about each vendor, for reading and math achievement, respectively:

- The number of students served;
- The number of student who have valid CSAP data for 2007 and 2008;
- The number of students with valid data who started unsatisfactory or partially proficient; and
- The number and percentage of those students who improved with regard to their CSAP proficiency category (i.e., they went from unsatisfactory to either partially proficient or proficient/advanced; or they went from partially proficient to proficient/advanced).

Tables 3.1.b and 3.2.b present the following growth percentile information about each vendor, for reading and math achievement, respectively:

- The number of students served;
- The number of student who have valid CSAP data for 2007 and 2008;
- The number of students with valid data who started unsatisfactory or partially proficient; and
- The median growth percentile.

Results for the Control group of students are included in the tables in bold to provide a comparison. Improvement information is not reported for vendors that had fewer than 10 students with valid CSAP data for confidentiality reasons and limited sample size. Growth percentile information is not reported for vendors that had 15 or fewer students per CDE guidelines.

### Reading Achievement

Table 3.1.a demonstrates that all vendors had reading improvement rates lower than 50%. 11 vendors had improvement rates higher than that of the Control group and four vendors had improvement rates lower than that of the Control group. Vendors with the highest improvement

rates were Brainfuse One-to-One Instruction and Advantage Tutoring Services with 39.3 and 33.3% improvement, respectively. Tutor Train and Chancellor Supplemental Educational Services each had improvement rates of less than 20%. It is important to consider the small sample sizes of some of the vendors when making comparisons.

Table 3.1.a: Reading Achievement: Number and Percentage of Students who Improved from 2007 to 2008 in Proficiency Categories by Vendor.

Reading Achievement

| Vendor | # served | # with valid CSAP data | # started unsatisfactory OR partially proficient | # improved | % improved |
|---|---|---|---|---|---|
| Brainfuse One-to-One Instruction | 61 | 45 | 28 | 11 | 39.3 |
| Advantage Tutoring Services | 381 | 162 | 117 | 39 | 33.3 |
| Dept of Extended Learning | 109 | 45 | 34 | 11 | 32.4 |
| A to Z In-Home Tutoring | 38 | 25 | 19 | 6 | 31.6 |
| Club Z! | 504 | 228 | 191 | 56 | 29.3 |
| Summer Scholars | 361 | 116 | 87 | 25 | 28.7 |
| Read, Read, Read | 49 | 23 | 18 | 5 | 27.8 |
| GEO Foundation | 126 | 73 | 49 | 13 | 26.5 |
| GOALS, Inc. | 47 | 31 | 23 | 6 | 26.1 |
| Steps to Success | 128 | 48 | 35 | 9 | 25.7 |
| Education Station | 819 | 220 | 159 | 38 | 23.9 |
| ***Controls*** | ***N/A*** | ***1364*** | ***1019*** | ***236*** | ***23.2*** |
| Center for Hearing, Speech, & Lang | 135 | 42 | 22 | 5 | 22.7 |
| John Corcoran Foundation | 264 | 65 | 46 | 10 | 21.7 |
| Tutor Train | 379 | 111 | 85 | 12 | 14.1 |
| Chancellor Supplemental Educ. Ser. | 141 | 52 | 44 | 6 | 13.6 |
| ~Accelerated Schools | 12 | 4 | -- | -- | -- |
| ~Adventures in Learning K-12 | 16 | 4 | -- | -- | -- |
| ~Educate Online/Catapult Online | 23 | 14 | -- | -- | -- |
| ~Learning Connection LLC | 6 | 6 | -- | -- | -- |
| ~Lutheran Family Services | 15 | 12 | -- | -- | -- |
| ~Results Learning | 20 | 12 | -- | -- | -- |
| ~Santa Fe Trail BOCES | 7 | 5 | -- | -- | -- |
| ~The Pinon Project | 9 | 2 | -- | -- | -- |
| ~University of Denver Bridge Project | 56 | 19 | -- | -- | -- |
| ~Whiz Kids | 5 | 0 | -- | -- | -- |

~Improvement is not reported for these vendors because fewer than 16 students had valid CSAP data and were in the Unsatisfactory or Partially Proficient categories

Table 3.1.b demonstrates that 11 vendors had reading median growth percentiles higher than that of the Control group and four vendors had median growth percentiles lower than that of the Control group. Vendors with median growth percentiles of 60 or higher were Steps to Success, Brainfuse One-to-One Instruction, and Department of Extended Learning at 64, 62.5, and 60, respectively. Vendors with median growth percentiles lower than 40 were GOALS, Inc., Tutor Train, and Chancellor Supplemental Educational Services. It is important to consider the small sample sizes of some of the vendors when making comparisons.

Table 3.1.b: Reading Achievement: 2008 Median Growth Percentiles by Vendor

| Reading Achievement | | | | |
|---|---|---|---|---|
| Vendor | # served | # with valid CSAP data | # started unsatisfactory OR partially proficient | Median Growth Percentile |
| Steps to Success | 128 | 47 | 35 | 64.0 |
| Brainfuse One-to-One Instruction | 61 | 45 | 28 | 62.5 |
| Dept of Extended Learning | 109 | 32 | 28 | 60.0 |
| A to Z In-Home Tutoring | 38 | 25 | 19 | 59.0 |
| Summer Scholars | 361 | 97 | 78 | 54.5 |
| Club Z! | 504 | 215 | 181 | 53.0 |
| Center for Hearing, Speech, & Lang | 135 | 25 | 20 | 53.0 |
| Advantage Tutoring Services | 381 | 154 | 110 | 52.0 |
| Read, Read, Read | 49 | 23 | 18 | 52.0 |
| GEO Foundation | 126 | 58 | 47 | 47.0 |
| Education Station | 819 | 198 | 148 | 45.0 |
| ***Controls*** | ***N/A*** | ***1280*** | ***974*** | ***44.0*** |
| John Corcoran Foundation | 264 | 44 | 35 | 43.0 |
| GOALS, Inc. | 47 | 31 | 23 | 38.0 |
| Tutor Train | 379 | 105 | 82 | 35.0 |
| Chancellor Supplemental Educ. Ser. | 141 | 41 | 38 | 34.5 |
| ~Accelerated Schools | 12 | 4 | -- | -- |
| ~Adventures in Learning K-12 | 16 | 4 | -- | -- |
| ~Educate Online/Catapult Online | 23 | 12 | -- | -- |
| ~Learning Connection LLC | 6 | 6 | -- | -- |
| ~Lutheran Family Services | 15 | 12 | -- | -- |
| ~Results Learning | 20 | 10 | -- | -- |
| ~Santa Fe Trail BOCES | 7 | 5 | -- | -- |
| ~The Pinon Project | 9 | 2 | -- | -- |
| ~University of Denver Bridge Project | 56 | 18 | -- | -- |

| | | | | |
|---|---|---|---|---|
| ~Whiz Kids | 5 | 0 | -- | -- |

~CDE recommends that Median Growth Percentiles be calculated only with groups of 16 or more students. Improvement is not reported for these vendors because fewer than 16 students had valid CSAP data and were in the Unsatisfactory or Partially Proficient categorie

**Math Achievement**

Table 3.2.a demonstrates that all vendors had math improvement rates lower than 35%. Seven vendors had improvement rates higher than that of the Control group and three vendors had improvement rates lower than that of the Control group. Vendors with the highest improvement rates were Brainfuse One-to-One Instruction and Chancellor Supplemental Education Services with 30% and 21.1% improvement, respectively. GOALS, Inc., and GEO Foundation, each had improvement rates lower than 10%. It is important to consider the small sample sizes of some of the vendors when making comparisons.

Table 3.2.a: Math Achievement: Number and Percentage of Students who Improved from 2007 to 2008 in Proficiency Categories by Vendor

| Math Achievement | | | | | |
|---|---|---|---|---|---|
| Vendor | # served | # with valid CSAP data | # started unsatisfactory OR partially proficient | # improved | % improved |
| Brainfuse One-to-One Instruction | 61 | 44 | 30 | 9 | 30.0 |
| Chancellor Supplemental Educ. Ser. | 141 | 52 | 38 | 8 | 21.1 |
| Advantage Tutoring Services | 381 | 162 | 103 | 21 | 20.4 |
| Education Station | 146 | 58 | 46 | 9 | 19.6 |
| A to Z In-Home Tutoring | 38 | 25 | 22 | 4 | 18.2 |
| Club Z! | 461 | 199 | 150 | 25 | 16.7 |
| Tutor Train | 200 | 55 | 37 | 6 | 16.2 |
| ***Controls*** | ***N/A*** | ***710*** | ***517*** | ***82*** | ***15.9*** |
| Santa Fe Trail BOCES | 25 | 20 | 20 | 3 | 15.0 |
| GOALS, Inc. | 47 | 31 | 23 | 2 | 8.7 |
| GEO Foundation | 43 | 30 | 23 | 1 | 4.3 |
| ~Accelerated Schools | 12 | 4 | -- | -- | -- |
| ~Adventures in Learning K-12 | 16 | 4 | -- | -- | -- |
| ~Dept of Extended Learning | 15 | 15 | -- | -- | -- |
| ~Lutheran Family Services | 15 | 11 | -- | -- | -- |
| ~Steps to Success | 1 | 0 | -- | -- | -- |
| ~Whiz Kids | 5 | 0 | -- | -- | -- |

~Improvement is not reported for these vendors because fewer than 16 students had valid CSAP data and were in the Unsatisfactory or Partially Proficient categories.

Table 3.2.b demonstrates that six vendors had math median growth percentiles higher than that of the Control group and four vendors had median growth percentiles lower than that of the Control group. Santa Fe Trail BOCES was the only vendor with a median growth percentile greater

than 60. Vendors with median growth percentiles lower than 40 were Chancellor Supplemental Educational Services, GEO Foundation, and GOALS, Inc. It is important to consider the small sample sizes of some of the vendors when making comparisons.

Table 3.2.b: Math Achievement: 2008 Median Growth Percentiles in Math by Vendor

| Math Achievement | | | | |
|---|---|---|---|---|
| Vendor | # served | # with valid CSAP data | # started unsatisfactory OR partially proficient | Median Growth Percentile |
| Santa Fe Trail BOCES | 25 | 20 | 20 | 67.5 |
| A to Z In-Home Tutoring | 38 | 25 | 22 | 59.5 |
| Advantage Tutoring Services | 381 | 160 | 101 | 59.0 |
| Education Station | 146 | 58 | 46 | 54.0 |
| Club Z! | 461 | 198 | 149 | 51.0 |
| Brainfuse One-to-One Instruction | 61 | 44 | 30 | 50.0 |
| ***Controls*** | ***N/A*** | ***707*** | ***514*** | ***47.0*** |
| Tutor Train | 200 | 55 | 37 | 44.0 |
| Chancellor Supplemental Educ. Ser. | 141 | 52 | 38 | 38.0 |
| GEO Foundation | 43 | 30 | 23 | 36.0 |
| GOALS, Inc. | 47 | 31 | 23 | 33.0 |
| ~Accelerated Schools | 12 | 4 | -- | -- |
| ~Adventures in Learning K-12 | 16 | 4 | -- | -- |
| ~Dept of Extended Learning | 15 | 14 | -- | -- |
| ~Lutheran Family Services | 15 | 11 | -- | -- |
| ~Steps to Success | 1 | 0 | -- | -- |
| ~Whiz Kids | 5 | 0 | -- | -- |

~CDE recommends that Median Growth Percentiles be calculated only with groups of 16 or more students. Improvement is not reported for these vendors because fewer than 16 students had valid CSAP data and were in the Unsatisfactory or Partially Proficient categories.

***Section 3 Summary***

- The majority of students served by vendors were NOT included in the analysis of change in achievement because they did not have two years of CSAP data (most were in first through third grades).
- Reading Achievement
  - Improvement in Proficiency Level
    - Vendor improvement rates ranged from 13.6% to 39.3%.
    - The Control group had an improvement rate of 23.2%.
    - 11 vendors showed higher percentages of students who improved in reading than Control students. They were, in descending order:
      - Brainfuse One-to-One Instruction
      - Advantage Tutoring Services
      - Dept of Extended Learning
      - A to Z In-Home Tutoring
      - Club Z!
      - Summer Scholars
      - Read, Read, Read
      - GEO Foundation
      - GOALS, Inc.
      - Steps to Success
      - Education Station
    - 4 vendors showed lower percentages of students who improved in reading than Control students. They were, in descending order:
      - Center for Hearing, Speech, & Lang
      - John Corcoran Foundation
      - Tutor Train
      - Chancellor Supplemental Educ. Ser.
  - Difference in Median Growth Percentiles
    - Median growth percentiles for vendors ranged from 34.5 to 64.
    - The control group had a median growth percentile of 44.
    - 11 vendors had higher median growth percentiles in reading than Control students. They were, in descending order:
      - Steps to Success;
      - Brainfuse One-to-One Instruction;
      - Department of Extended Learning;
      - A to Z In-Home Tutoring;

        - Summer Scholars;
        - Club Z!;
        - Center for Hearing, Speech, and Language;
        - Advantage Tutoring Services;
        - Read, Read, Read;
        - GEO Foundation; and
        - Education Station.
    - 4 vendors had lower median growth percentiles in reading than Control students. They were, in descending order:
        - John Corcoran Foundation;
        - GOALS, Inc.;
        - Tutor Train; and
        - Chancellor Supplemental Educational Services.

- Math Achievement
    - Improvement in Proficiency Level
        - Vendor improvement rates ranged from 4% to 30%.
        - The Control group had an improvement rate of 15.9%.
        - 7 vendors showed higher percentages of students who improved in math than Control students. They were, in descending order:
            - Brainfuse One-to-One Instruction
            - Chancellor Supplemental Educ. Ser.
            - Advantage Tutoring Services
            - Education Station
            - A to Z In-Home Tutoring
            - Club Z!
            - Tutor Train
        - 3 vendors showed lower percentages of students who improved in math than Control students. They were, in descending order:
            - Santa Fe Trail BOCES
            - GOALS, Inc.
            - GEO Foundation.
    - Difference in Median Growth Percentiles
        - Median growth percentiles for vendors ranged from 33 to 67.5.
        - The Control group had a median growth percentile of 47.
        - 6 vendors had higher median growth percentiles in math than Control students. They were, in descending order:

- Santa Fe Trail BOCES;
- A to Z In-Home Tutoring;
- Advantage Tutoring Services;
- Education Station;
- Club Z!; and
- Brainfuse One-to-One Instruction.

♦ 4 vendors had lower median growth percentiles in math than Control students. They were, in descending order:

- Tutor Train;
- Chancellor Supplemental Educational Services;
- GEO Foundation; and
- GOALS, Inc.

## Section 4: Next Steps and Recommendations

### Recommended Analyses of 2008/2009 Academic Year Data

It may be useful for CDE to explore other analytic opportunities for the evaluation of the SES program.

First, the data from the 2008-2009 academic year could be combined with data from the 2007-2008 year (presented in this report) as well as the 2006-2007 academic year to examine changes in students' achievement who received multiple years of tutoring. It is very possible that one year of tutoring is not enough to see substantial changes in achievement and that multiple years are needed. In addition, it would be useful for CDE to know how many students participate in the program across multiple years and whether students who received tutoring in younger grades show greater improvements in achievement than eligible students who did not participate in SES.

Second, analysis of the 2007-2008 academic year (presented in this report) was limited to examination of changes in proficiency level and differences in growth percentiles. If longitudinal data were examined, it may be appropriate to use CSAP scale scores in advanced analyses to model and predict change in achievement.

Third, it may be that participation in SES is particularly effective for certain groups of students. In this report, we examined grade level. There are other factors that may influence the effectiveness of SES. For example, approximately half of the students receiving SES in 2007-2008 were not English proficient. It would be useful to examine the benefits of SES for this particular group of students.

### Overall Evaluation Recommendations and Next Steps

Based on the findings of this report, we suggest that CDE encourage districts to provide data on other measures of achievement. Although the Colorado State Assessment Program data provide the core measure of effectiveness for NCLB legislation, the assessments are only administered to third through tenth graders. Thus, the vast majority of students participating in SES are not considered. It is very difficult to conclude whether SES is effective based on results of less than one-quarter of participants. Some of this may be answered by examining CSAP data of students who participated in SES in prior years. This report examined information provided by vendors who input their own pre and post test data into the OMNI SES database. However, it should be noted that there is no monitoring of the accuracy of those data and the amount of data input into the SES tracking system also suggests significant data loss. Thus, we encourage CDE to work with districts to provide data on additional measures of achievement with the hopes of evaluating participation in SES with a larger group of students.

## Appendix A: Data Cleaning Procedures

A database developed by OMNI Institute (OMNI) was used to track information about students receiving SES. At the end of the 2007-2008 academic year, the data were downloaded and cleaned. Before cleaning, 3,929 students were recorded as having received services between October 1st, 2007 and June 30th, 2008. This appendix describes in detail the processes that were conducted to clean the service data.

First, service data were checked to ensure that a session type entry had a valid session time entry. Specifically, all recorded session types equal to 'session' had to have a corresponding session time greater than zero hours; all recorded session types equal to 'absent' and to 'parent only contact' had to have corresponding session times equal to zero. Despite database constraints to limit these types of errors, an examination of the data found that there were 5 service entries with incongruent session type/session time information (e.g., a session coded as lasting 0 hours). The five discrepant entries were deleted from the data. Deleting these entries did not result in the loss of any students.

Second, service data were checked to ensure that for each service date, only one service entry was recorded. During the 2007-2008 academic year, some vendors input their data directly into the database and other vendors sent their data to OMNI for data uploads. Despite efforts to require vendors to enter data into the database in a timely manner, some vendors provided OMNI service data months after the services had been provided. As a result, a few students had multiple service records recorded as occurring on the same day. This was not a problem for the majority of students; 99.8% had valid entries. Twenty-five students had multiple records on a date and it was not possible to determine which entries were valid. These records were deleted from the file. However, deleting these service records did not result in the loss of any students.

Third, students' service data were checked against their contract data (in the database, each student had to have a contract with a vendor before service data could be entered). Due to data entry error, 16 students who received services had no contract data. These students were eliminated from the data. 3,913 students remained for whom service data was available. Additionally, 379 students had contracts with vendors but were never recorded as receiving any services. As an example, Advanced Brain Gym Plus recorded contract information with 14 students but did not record any service information.

Fourth, service data were checked to determine whether students received tutoring from multiple vendors. Twelve students were served by multiple vendors. For these twelve students, the vendor that provided the most amount of tutoring was assigned to the student. This method was undertaken to simplify the analyses so that each student was assigned to one vendor.

Finally, the data were checked to ensure that students received at least some tutoring. There were 43 students who were recorded as being absent for every session and 1 student who was

recorded as receiving less than 1 hour of tutoring. Thus, these students were eliminated from the data.

The data cleaning procedures described above resulted in a dataset with service information on 3,869 students. Descriptive information for these students is provided in Section 1 of this report.

Appendix B: Reading Achievement by Grade

a) Reading Achievement: Change in Proficiency Categories from 2007 to 2008 for SES and Control Students by Grade

| READING ACHIEVEMENT | | | 2008 Proficiency | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Grade (2008)** | **Group** | **2007 Proficiency** | **Unsatisfactory** | | **Partially Proficient** | | **Proficient/Adv** | |
| **4th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 178 | 143 | 80.3 | 34 | 19.1 | 1 | 0.6 |
| | SES | 178† | 128 | 71.9 | 48 | 27.0 | 2 | 1.1 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 186 | 41 | 22.0 | 118 | 63.4 | 27 | 14.5 |
| | SES | 186 | 53 | 28.5 | 110 | 59.1 | 23 | 12.4 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 192 | 13 | 6.8 | 68 | 35.4 | 111 | 57.8 |
| | SES | 192 | 22 | 11.5 | 80 | 41.7 | 90 | 46.9 |
| **5th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 234 | 178 | 76.1 | 54 | 23.1 | 2 | 0.9 |
| | SES | 234 | 166 | 70.9 | 62 | 26.5 | 6 | 2.6 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 120 | 18 | 15.0 | 57 | 47.5 | 45 | 37.5 |
| | SES | 120 | 12 | 10.0 | 65 | 54.2 | 43 | 35.8 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 58 | 0 | 0.0 | 10 | 17.2 | 48 | 82.8 |
| | SES | 58 | 0 | 0.0 | 5 | 8.6 | 53 | 91.4 |
| **6th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 100 | 76 | 76.0 | 24 | 24.0 | 0 | 0.0 |
| | SES | 100 | 69 | 69.0 | 29 | 29.0 | 2 | 2.0 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 63 | 7 | 11.1 | 40 | 63.5 | 16 | 25.4 |
| | SES | 63 | 7 | 11.1 | 36 | 57.1 | 20 | 31.7 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Controls | 50 | 0 | 0.0 | 9 | 18.0 | 41 | 82.0 |
| | SES | 50 | 0 | 0.0 | 8 | 16.0 | 42 | 84.0 |
| **7th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 40 | 32 | 80.0 | 8 | 20.0 | 0 | 0.0 |
| | SES | 40 | 30 | 75.0 | 10 | 25.0 | 0 | 0.0 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 47 | 9 | 19.1 | 28 | 59.6 | 10 | 21.3 |
| | SES | 47 | 8 | 17.0 | 28 | 59.6 | 11 | 23.4 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 26 | 0 | 0.0 | 7 | 26.9 | 19 | 73.1 |
| | SES | 26 | 0 | 0.0 | 8 | 30.8 | 18 | 69.2 |
| **8th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 33 | 21 | 63.6 | 11 | 33.3 | 1 | 3.0 |
| | SES | 33 | 21 | 63.6 | 11 | 33.3 | 1 | 3.0 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 18 | 3 | 16.7 | 12 | 66.7 | 3 | 16.7 |
| | SES | 18 | 1 | 5.6 | 12 | 66.7 | 5 | 27.8 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 19 | 1 | 5.3 | 7 | 36.8 | 11 | 57.9 |
| | SES | 19 | 0 | 0.0 | 4 | 21.1 | 15 | 78.9 |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

b) Reading Achievement: 2008 Median Growth Percentiles and Mean Ranks of SES and Control Students who Scored in Each Proficiency Category in 2007 by Grade

| | | | 2008 Performance | |
|---|---|---|---|---|
| **Grade (2008)** | **Group** | **2007 Proficiency** | **Median Growth Percentile** | **Mean Rank** |
| **4th** | | **Unsatisfactory** | | |
| | Controls | 161 | 37.0 | 144.82 |
| | SES | 145 | 45.0 | 163.14† |
| | | **Part Proficient** | | |
| | Controls | 173 | 43.0 | 162.03 |
| | SES | 155 | 47.0 | 167.25 |
| | | **Proficient/Adv** | | |
| | Controls | 156 | 34.0 | 135.70 |
| | SES | 116 | 33.0 | 137.62 |
| **5th** | | **Unsatisfactory** | | |
| | Controls | 225 | 49.0 | 224.18 |
| | SES | 231 | 52.0 | 232.71 |
| | | **Part Proficient** | | |
| | Controls | 115 | 55.0 | 112.75 |
| | SES | 118 | 55.0 | 121.14 |
| | | **Proficient/Adv** | | |
| | Controls | 56 | 43.5 | 48.18 |
| | SES | 55 | 63.0 | 63.96* |
| **6th** | | **Unsatisfactory** | | |
| | Controls | 100 | 36.0 | 97.40 |
| | SES | 99 | 46.0 | 102.63 |
| | | **Part Proficient** | | |
| | Controls | 63 | 44.0 | 62.44 |
| | SES | 62 | 44.5 | 63.57 |
| | | **Proficient/Adv** | | |
| | Controls | 49 | 55.0 | 49.16 |
| | SES | 50 | 55.0 | 50.82 |
| **7th** | | **Unsatisfactory** | | |
| | Controls | 39 | 48.0 | 39.81 |
| | SES | 39 | 55.0 | 39.19 |

| | | | | |
|---|---|---|---|---|
| | | **Part Proficient** | | |
| | Controls | 47 | 43.0 | 42.64 |
| | SES | 47 | 67.0 | 52.36† |
| | | **Proficient/Adv** | | |
| | Controls | 26 | 66.5 | 26.37 |
| | SES | 26 | 57.0 | 26.63 |
| **8th** | | **Unsatisfactory** | | |
| | Controls | 33 | 60.0 | 34.36 |
| | SES | 33 | 46.0 | 32.64 |
| | | **Part Proficient** | | |
| | Controls | 18 | 35.0 | 16.64 |
| | SES | 18 | 59.5 | 20.36 |
| | | **Proficient/Adv** | | |
| | Controls | 19 | 49.0 | 19.42 |
| | SES | 19 | 50.0 | 19.58 |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

Appendix C: Math Achievement by Grade

a) Math Achievement: Change in Proficiency Categories from 2007 to 2008 for SES and Control Students by Grade

| MATH ACHIEVEMENT | | | 2008 Proficiency | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Grade (2008)** | **Group** | **2007 Proficiency** | **Unsatisfactory** | | **Partially Proficient** | | **Proficient/Adv** | |
| **4th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 63 | 51 | 81.0 | 12 | 19.0 | 0 | 0.0 |
| | SES | 63 | 49 | 77.8 | 13 | 20.6 | 1 | 1.6 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 103 | 23 | 22.3 | 63 | 61.2 | 17 | 16.5 |
| | SES | 103 | 16 | 15.5 | 68 | 66.0 | 19 | 18.4 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 71 | 0 | 0.0 | 16 | 22.5 | 55 | 77.5 |
| | SES | 71 | 2 | 2.8 | 20 | 28.2 | 49 | 69.0 |
| **5th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 76 | 59 | 77.6 | 17 | 22.4 | 0 | 0.0 |
| | SES | 76 | 56 | 73.7 | 19 | 25.0 | 1 | 1.3 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 62 | 9 | 14.5 | 46 | 74.2 | 7 | 11.3 |
| | SES | 62 | 7 | 11.3 | 48 | 77.4 | 7 | 11.3 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 67 | 0 | 0.0 | 19 | 28.4 | 48 | 71.6 |
| | SES | 67 | 0 | 0.0 | 19 | 28.4 | 48 | 71.6 |
| **6th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 51 | 37 | 72.5 | 14 | 27.5 | 0 | 0.0 |
| | SES | 51 | 39 | 76.5 | 12 | 23.5 | 0 | 0.0 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 56 | 16 | 28.6 | 33 | 58.9 | 7 | 12.5 |
| | SES | 56 | 7 | 12.5 | 38 | 67.9 | 11 | 19.6 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Controls | 33 | 0 | 0.0 | 10 | 30.3 | 23 | 69.7 |
| | SES | 33 | 0 | 0.0 | 5 | 15.2 | 28 | 84.8 |
| **7th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 33 | 29 | 87.9 | 4 | 12.1 | 0 | 0.0 |
| | SES | 33 | 28 | 84.8 | 5 | 15.2 | 0 | 0.0 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 18 | 9 | 50.0 | 8 | 44.4 | 1 | 5.6 |
| | SES | 18 | 5 | 27.8 | 13 | 72.2 | 0 | 0.0 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 13 | 0 | 0.0 | 8 | 61.5 | 5 | 38.5 |
| | SES | 13 | 1 | 7.7 | 6 | 46.2 | 6 | 46.2 |
| **8th** | | **Unsatisfactory** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 23 | 23 | 100.0 | 0 | 0.0 | 0 | 0.0 |
| | SES | 23 | 22 | 95.7 | 1 | 4.3 | 0 | 0.0 |
| | | **Partially Proficient** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 32 | 12 | 37.5 | 17 | 53.1 | 3 | 9.4 |
| | SES | 32 | 10 | 31.3 | 20 | 62.5 | 2 | 6.3 |
| | | **Proficient/Adv** | **N** | **%** | **N** | **%** | **N** | **%** |
| | Controls | 9 | Too few to report | | | | | |
| | SES | 9 | | | | | | |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).

b) Math Achievement: 2008 Median Growth Percentiles and Mean Ranks of SES and Control Students who Scored in Each Proficiency Category in 2007 by Grade

| | | | 2008 Proficiency | |
|---|---|---|---|---|
| **Grade (2008)** | **Group** | **2007 Proficiency** | **Median Growth Percentile** | **Mean Rank** |
| **4th** | | **Unsatisfactory** | | |
| | Controls | 63 | 39.0 | 63.30 |
| | SES | 63 | 42.0 | 63.70 |
| | | **Part Proficient** | | |
| | Controls | 103 | 39.0 | 98.5 |
| | SES | 103 | 48.0 | 108.5 |
| | | **Proficient/Adv** | | |
| | Controls | 71 | 39.0 | 73.08 |
| | SES | 71 | 34.0 | 69.92 |
| **5th** | | **Unsatisfactory** | | |
| | Controls | 74 | 45.0 | 75.66 |
| | SES | 74 | 44.5 | 73.34 |
| | | **Part Proficient** | | |
| | Controls | 62 | 54.0 | 63.11 |
| | SES | 62 | 53.5 | 61.89 |
| | | **Proficient/Adv** | | |
| | Controls | 67 | 47.0 | 65.36 |
| | SES | 67 | 47.0 | 69.64 |
| **6th** | | **Unsatisfactory** | | |
| | Controls | 50 | 65.5 | 50.91 |
| | SES | 50 | 57.5 | 50.09 |
| | | **Part Proficient** | | |
| | Controls | 56 | 51.5 | 47.72 |
| | SES | 56 | 68.5 | 65.28* |
| | | **Proficient/Adv** | | |
| | Controls | 33 | 38.0 | 29.35 |
| | SES | 33 | 58.0 | 37.65† |
| **7th** | | **Unsatisfactory** | | |
| | Controls | 33 | 52.0 | 32.53 |
| | SES | 32 | 51.0 | 33.48 |

| | | | | |
|---|---|---|---|---|
| | | **Part Proficient** | | |
| | Controls | 18 | 44.0 | 16.78 |
| | SES | 18 | 63.0 | 20.22 |
| | | **Proficient/Adv** | | |
| | Controls | 13 | Too few to report | |
| | SES | 13 | | |
| **8th** | | **Unsatisfactory** | | |
| | Controls | 23 | 45.0 | 20.22 |
| | SES | 23 | 61.0 | 26.78† |
| | | **Part Proficient** | | |
| | Controls | 32 | 46.0 | 31.16 |
| | SES | 32 | 53.5 | 33.84 |
| | | **Proficient/Adv** | | |
| | Controls | 9 | Too few to report | |
| | SES | 9 | | |

*significantly different from Controls ($p < .05$); †approaching a significant difference from Controls ($p < .10$).