



Evaluation of the Supplemental Educational Services in Minneapolis Public Schools

- Third Year Study

Prepared by

Chee-Soon Tan, University of Minnesota

Chi-Keung Chan (Alex), Ph.D., Minneapolis Public Schools

David Heistad, Ph.D., Minneapolis Public Schools

December 2007

Correspondence concerning this evaluation report should be addressed to

Dr. David Heistad (612-668-0571), Executive Director of Research, Evaluation, and

Assessment Department, Minneapolis Public Schools, 807 Northeast Broadway,

Minneapolis, MN 55413. E-mail: David.Heistad@mpls.k12.mn.us

Evaluation of the Supplemental Educational Services in Minneapolis Public Schools - Third Year Study

Introduction

In compliance to the No Child Left Behind Act, low-income students who attend schools that fail to make adequate yearly progress for three years or more are eligible to receive Supplemental Educational Services (SES). SES may include academic assistance in math and reading, such as tutoring, remediation and other educational interventions. The U.S. Department of Education requires that SES providers must demonstrate effectiveness in improving student achievement (U.S. Department of Education, 2005). In 2006-07, 28 schools in the Minneapolis Public Schools (MPS) were required to allow their students to receive SES. This evaluation study is conducted to examine the effectiveness of SES programs on improving student achievement in MPS.

Purpose

The purpose of this study is to examine the participation rates of SES in MPS and the effectiveness of SES in improving academic achievement. This study will address the following questions:

1. What are participation rates for SES in MPS for different demographic subgroups?
2. What is the distribution of students by individual SES providers?
3. Are there any differences in the gains of student achievement across SES providers?
4. Are there any differences on academic performance between students who received SES versus those who were eligible but did not participate?
5. To what extent are students at the lowest achievement level receiving SES?
6. Are there any differences on achievement gains among students with various prior achievement levels?
7. Are there any differential gains in achievement among students who participate in other after-school programs?

This report is divided into six sections. The first section reports the SES participation rates in MPS by student demographic characteristics. The second section summarizes the number and percent of students tutored by different individual providers. The third section summarizes the results regarding the effectiveness of SES programs on reading and math achievement. The fourth section reports the effectiveness of SES on reading and math for students with various prior achievement levels. The fifth section compares the effectiveness of SES programs with two other after-school programs -- Alternative Learning Centers (ALCs) and Community-Based Organizations (CBO). Finally, the evaluation results will be discussed.

SES Participation in Minneapolis Public Schools

During the 2006-2007 school year, 15,144 students from 28 schools in the MPS were eligible for SES. There were 2,675 students who received SES, representing 17.7% of all eligible students. The number of students who participated in eligible schools ranged from 23 to 1461. Column 3 in table 1 summarizes the percentages of eligible students who received SES by demographic subgroups. The participation rate for each subgroup is as follows: female (19%), male (17%), Native American (15%), Black (19%), Asian (22%), Hispanic (17%), White (5%), students with limited English proficiency (24%), students with disabilities (16%) and students who receive free/reduced priced lunch (22%).

Column 4 in table 1 shows the percentage distribution in each subgroup for students who participated in SES. Of all the students who participated in SES, 54% of the students were female and 46% were male. A majority of SES participants were students who received free/reduced priced lunch (97%). Most participants were African American (58%), followed by Hispanic (18%) and Asian (16%) students. There were relatively fewer Native American (5%) and Caucasian (3%) students. About 43% of the participants were students with limited English proficiency (LEP). About 13% of SES participants were students in special education programs.

Table 1. Number and Percent of Students who Participated in SES by Demographic Student Groups

Demographic Subgroups	Number of SES participants	Percent of SES participants (within its own subgroup who are eligible)	Percent of participants (within SES participants ONLY)
Female	1447	18.8%	54.1%
Male	1228	16.5%	45.9%
Native American	123	14.8%	4.6%
African American	1563	19.4%	58.4%
Asian	438	21.7%	16.4%
Hispanic	471	17.3%	17.6%
Caucasian	80	5.4%	3.0%
Limited English Proficiency	1137	23.9%	42.5%
Students in Special Education	358	16.1%	13.4%
Free/reduced priced lunch	2591	21.9%	96.9%
Total number of SES participants	2675	17.7%	

Table 2 (on page 3) shows the number and percent of students who participated in SES across all grade levels. Column 3 in table 2 shows that students at grades 2 to 6 have higher percentages of eligible students receiving SES (over 20% at each grade). The percentages of eligible students who received SES declined at the secondary grade levels.

Table 2. Number and Percent of Students who Participated in SES by Grade

Grade	Number of students	Percent of SES participants (within its own grade who are eligible)	Percent of participants (within SES participants ONLY)
Kindergarten	19	1.8%	0.7%
1	179	18.2%	6.7%
2	252	28.6%	9.4%
3	238	28.5%	8.9%
4	254	30.8%	9.5%
5	231	28.2%	8.6%
6	293	24.1%	11.0%
7	246	19.0%	9.2%
8	230	17.3%	8.6%
9	261	14.9%	9.8%
10	185	13.0%	6.9%
11	159	12.4%	5.9%
12	127	9.3%	4.7%

About the SES Providers

Fifteen SES providers provided tutoring services to students in the 2006-2007 school year. Table 3 shows the number and percent of students who received SES and the average hourly per-student cost for each provider. The number of students served by individual SES providers ranged from 3 to 1656. MPS is the largest SES provider and served 1656 (61%) students. Three other SES providers served more than 100 students: Catapult Online (327), Somali Education Center (249) and HAMAA Kev Kawm Ntawv Ntxiv (173). Six providers served between 10 to 100 students and five providers served fewer than 10 students. A budget of \$1,511.28 was allocated for SES for each student for the year but the amount that individual SES providers charged per hour for each student varied. Three providers charged less than \$30 per hour, nine charged between \$30 and \$60, and two charged more than \$60. For MPS, the total expenditure for providing SES was 1,154,890 and the average cost per student was \$689.08 (no hourly rate is provided).

Table 3. Number and Percent of Students by SES Provider

Name of SES Provider	Total number of students	Percent of students	Average cost per hour per student
A+ Tutoring Service, Ltd	6	0.2%	\$70.00
ATS Educational Consulting Services-ProjectSuccess	3	0.1%	\$30.00
Catapult Online	327	12.1%	\$68.69
Center for Excellence in Urban Teaching – Hamline University	88	3.3%	\$43.00

(to be continued)

Table 3. Number and Percent of Students by SES Provider (continued)

Name of SES Provider	Total number of students	Percent of students	Average cost per hour per student
Club Z! Tutoring Inc.	98	3.6%	\$60.00
College Nannies & Tutors – Edina	1	0.04%	\$40.00
HAMAA Kev Kawm Ntawv Ntxiv (Academic Improvement)	173	6.4%	\$24.80
Kids Reading for Success	12	0.4%	\$35.00
La Escuelita After School & Summer	21	0.8%	\$15.43
Minneapolis Public Schools	1656	61.2%	
Native Academy, MIGIZI Communications, Inc.	5	0.2%	\$25.00
Network-Development of Children of African Descent	6	0.2%	\$40.00
Salem, Inc., Educational Initiative	52	1.9%	\$30.00
Somali Education Center	249	9.2%	\$34.00
Urban Ventures Learning Lab	10	0.4%	\$45.00
Total	2707*		

* Includes 32 students who were served by two providers – these students were counted twice in Table 3.

Table 4 shows the number and percent of students by the SES subject tutored. Most students received services from one SES provider. There were 32 students who received services from two providers because they switched from one provider to another during the school-year. Three-quarters of the students received services in both reading and math, 17% students received tutoring in reading only, and 8% received services in math only.

Table 4. Number and Percent of Students by SES Subject Tutored

Subject	Total number of students	Percent of students
Both	2031	75.0%
Math	227	8.4%
Reading	449	16.6%
Total	2707*	

* Includes 32 students who were served by two providers – these students were counted twice in Table 4.

Effectiveness of SES on Academic Achievement

Data

The data of this study contained students (1) who were from Grades 3-7 in 2006-2007¹, (2) who were eligible for SES, and (3) with test scores on both the Northwest Achievement Level Test (NALT) or Computerized Achievement Level Test (CALT) in Fall 2006 and Spring Minnesota Comprehensive Assessments – Series II (MCA-II) or Mathematics Test for English Language Learners (MTELL) in Spring 2007. Thus, for reading, only grades 3-7 students who were eligible for SES and with test scores in both the Fall 2006 NALT/CALT reading and the Spring 2007 MCA-II reading were included in the analyses. For math, the analyses only included grades 3-7 students who were eligible for SES and with test scores in both the Fall 2006 NALT/CALT math and the Spring 2007. Based on these selection criteria, 3,688 students were included in the sample for the reading analyses and 3,647 students were included in the sample for the math analyses, respectively.

A student is considered to have participated in an SES reading program if that student received tutoring from one or more SES reading programs. Similarly, a student who participated in at least one SES math program is considered to have participated in an SES math program if that student received tutoring from one or more SES math programs. In total, the sample contained 999 students (unduplicated counts) who participated in the reading SES programs and 924 students who participated in the math SES program.

Table 5 on the next page summarizes the demographic characteristics of the students included in the data analyses for those who participated in SES reading and math programs for those who were eligible but did not participate in any SES programs. Note that the demographic characteristics of the students who received SES reading program were very similar to the students who were eligible for SES but did not receive any SES reading program. The exception was the Caucasian student group and the distribution across grade level. There was higher proportion of Caucasian students in the group that did not receive any SES service than in the group who received SES. Among the grade levels, there were higher proportions of students at the elementary grades for those who participated in SES. Also, almost all (99%) of the students in the sample who received SES tutoring were eligible for free or reduced priced lunch.

¹ Grades 3-7 were selected because those grades were the only grades mandated to take the NALT/CALT in the Fall. Hence, a majority of students at these grade levels had prior achievement test scores for the regression-based value-added analyses.

Table 5. Demographic Characteristics of Students Included in the Data Analyses

AYP student groups	Reading				Math			
	Eligible students who did not participate in any SES Reading program		Students who participated in at least one SES Reading program		Eligible students who did not participate in any SES Math program		Student who participated in at least one SES Math program	
	N	Percent	N	Percent	N	Percent	N	Percent
Female	1375	51.1%	523	52.4%	1380	50.7%	489	52.9%
Male	1314	48.9%	476	47.6%	1343	49.3%	435	47.1%
Native American	178	6.6%	44	4.4%	177	6.5%	56	6.1%
African American	1225	45.6%	493	49.3%	1226	45.0%	484	52.4%
Asian	403	15.0%	204	20.4%	424	15.6%	140	15.2%
Hispanic	586	21.8%	225	22.5%	603	22.1%	209	22.6%
Caucasian	297	11.0%	33	3.3%	293	10.8%	35	3.8%
LEP	756	28.1%	391	39.1%	798	29.3%	329	35.6%
Students in special education	370	13.8%	133	13.3%	375	13.8%	128	13.9%
Free/reduced price lunch	2272	84.5%	989	99.0%	2307	84.7%	915	99.0%
Grade 3	401	14.9%	185	18.5%	402	14.8%	174	18.8%
Grade 4	395	14.7%	213	21.3%	424	15.6%	195	21.1%
Grade 5	422	15.7%	191	19.1%	416	15.3%	177	19.2%
Grade 6	665	24.7%	231	23.1%	657	24.1%	215	23.3%
Grade 7	806	30.0%	179	17.9%	824	30.3%	163	17.6%
Total	2689		999		2723		924	

Table 6 on page 7 shows the number and percent of students included in the reading and math analyses by SES provider. While 13 SES providers provided reading programs to the students in the sample, only 9 providers provided math programs. Again, MPS was the largest provider that served almost 78% of students in the SES reading program and 81% of students in the SES math programs. All the other providers served fewer than 100 students in their reading programs. Other than MPS, only one provider, Catapult Online, provided math programs to more than 100 students. Twenty-two

students received services from two SES providers as they moved from one SES provider to another during the school year.

Table 6. Number and Percent of Students in SES Reading and Math Programs by SES Provider for the Sample

Name of SES Providers	Students in SES reading program		Students in SES Math program	
	N	Percent	N	Percent
A+ Tutoring Service, Ltd	2	.2%	-	-
ATS Educational Consulting Services-Project Success	2	.2%	2	.2%
Catapult Online	67	6.7%	104	11.3%
Center for Excellence in Urban Teaching- Hamline U	10	1.0 %	-	-
Club Z! Tutoring Inc.	40	4.0%	12	1.3%
HAMAA Kev Kawm Ntawv Ntxiv (Academic Improvement)	48	4.8%	7	.8%
Kids Reading for Success	4	.4%	-	-
Minneapolis Public Schools	777	77.8%	751	81.3%
Native Academy, MIGIZI Communications, Inc.	3	.3%	3	.3%
Network-Development of Children of African Descent	2	.2%	-	-
Salem, Inc., Educational Initiative	25	2.5%	25	2.7%
Somali Education Center	12	1.2%	14	1.5%
Urban Ventures Learning Lab	7	.7%	6	.6%
Total	999	100%	924	100.0%

Measures

The Northwest Achievement Level Test (NALT) is a standardized paper and pencil test that was given to all MPS students from grades 3 to 7 in the Fall 2006. NALT raw scores are converted to scale scores using Rasch model IRT scaling procedures. Its computerized version, CALT, was administered to majority of MPS students and the

NALT was available to LEP and special education students who needed to take the tests in paper and pencil format. The Minnesota Comprehension Assessment – Series II (MCA-II) is the statewide accountability assessment used to measure students’ progress towards the state academic standards in reading and mathematics. The Mathematics Test for English Language Learner (MTELL) is a simplified-language version for the MCA-II math.

The correlation between the Fall 2006 NALT/CALT and the Spring 2007 MCA-II reading and math tests for the sample are summarized in Tables 7 and 8. There are significant high correlations (.77 to .82) between the NALT/CALT reading test scores and the MCA II Reading test scores. Also, there are significant high correlations between the NALT/CALT math test scores and the MCA-II/MTELL math test scores (.72 to .85). These correlation results indicate that there is high predictive validity of using the NALT/CALT scores to predict the MCA-II performance.

Table 7. Correlation between Fall 2006 Northwest Achievement Levels Test (NALT) Reading Score and Spring 2007 Minnesota Comprehensive Assessment - Series II (MCA-II) Reading Score by Grade Level

	Sample sizes	NALT/CALT Reading 2006 with MCA II Reading 2007
3	586	.810**
4	608	.799**
5	613	.770**
6	896	.808**
7	985	.815**

** Correlation is significant at the .01 level

Table 8. Correlation between Fall 2006 Northwest Achievement Levels Test (NALT) Math Score and Spring 2007 Minnesota Comprehensive Assessment - Series II (MCA-II) Math Score by Grade Level

	Sample sizes	NALT/CALT Math 2006 with MCA II Math/MTELL 2007
3	576	.724**
4	619	.824**
5	593	.795**
6	872	.844**
7	987	.850**

** Correlation is significant at the .01 level

Analyses

Two regression-based value-added models were adopted to evaluate the effectiveness of the SES programs on improving reading and math achievement respectively. In the reading model, the outcome variable was the Spring 2007 MCA-II reading scores and the predictors included the Fall 2006 NALT/CALT reading scores, ethnicity, gender, English Language proficiency status, special education status, and the participation status for the SES reading programs (1 = Participated; 0 = Eligible but did

not Participate). The socio-economic status (i.e. whether students received free or reduced priced lunch) was excluded in the regression model because a majority of students (over 97%) who received SES were eligible for free or reduced priced lunch. This regression model allows us to examine whether there are any differences on reading achievement between students who participated in SES reading programs and those who were eligible but did not participate, after adjusting for prior achievement and students' demographic characteristics.

In the math model, the outcome variable was the Spring 2007 MCA-II math or MTELL test scores and the predictors included the Fall 2006 NATL/CALT math scores, ethnicity, gender, English Language proficiency status, and special education status, and the participation status for the SES math programs (1 = Participated; 0 = Eligible but did not Participate). Again, the socio-economic variable was excluded from the data analyses. This regression model allows us to examine whether there are any differences on math achievement between students who participated in SES reading programs and those who were eligible but did not participate, after adjusting for prior achievement and students' demographic characteristics. Since the metric for the outcome variable (MCA-II/MTELL scale scores) varied across grade levels, the regression analyses were conducted separately by each grade.

To examine whether individual SES providers had improved the reading performance for the students they had tutored, the difference between the predicted MCA-II reading test scores and the actual performance in the MCA-II reading assessment of each student was computed (value-added). Then, the weighted average (weighted value-added) of the difference was calculated for each SES provider to examine their effectiveness on the reading achievement. Similarly, the difference between the predicted MCA-II math or MTELL test scores and the actual performance in MCA-II math/MTELL was computed for each student. The weighted average of the difference (weighted value-added) was calculated for each SES provider to examine their effectiveness on math achievement.

Another question addressed by this study is to examine whether there are differential gains on reading and math achievement across students at various prior achievement levels. First, the sample was divided into four performance categories based on the percentile ranks in the NALT/CALT tests – (1) below the 25th percentile; (2) between the 25th and 50th percentiles, (3) between the 51st and 75th percentile, and (4) above the 75th percentile. Analysis of Variance (ANOVA) was used to compare the value-added differences of SES participants versus those who were eligible students but did not participated in SES in each performance level categories.

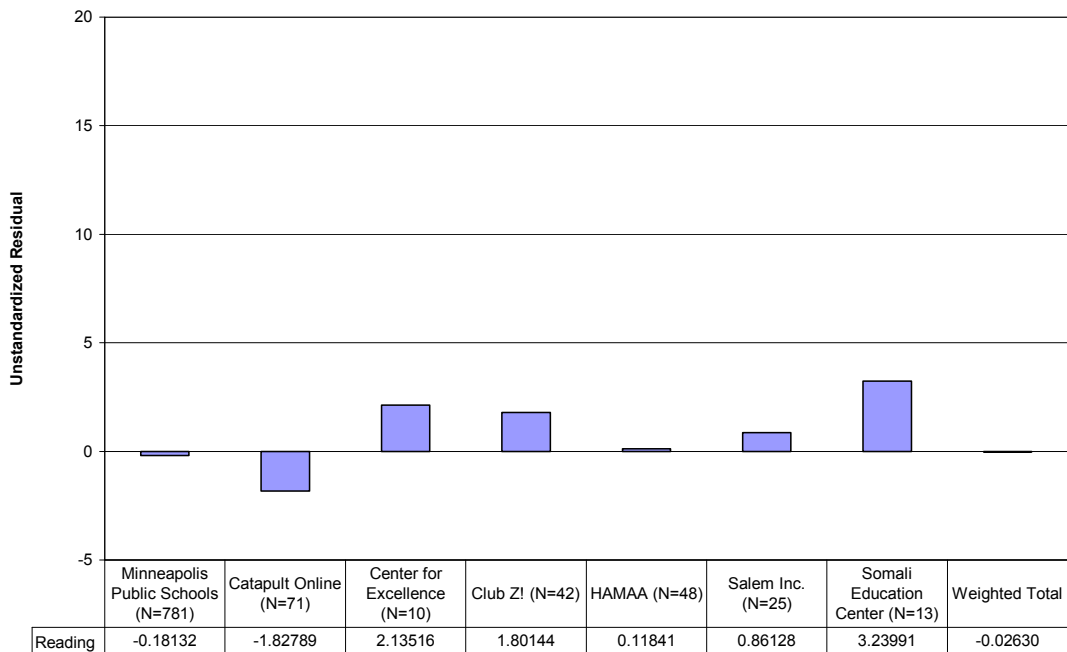
Findings

Reading Achievement

The left-hand side of table 9 (on page 12) summarizes the regression results of predicting MCA-II reading achievement after controlling for prior NALT achievement, demographic characteristics, and SES participation status. Overall, there was no statistically significance on reading achievement between students who participated in SES and those who were eligible but did not participate across grade levels. Note that the SES participants in grades 5 and 6 had insignificant higher reading achievement than eligible students who did not receive SES. On the contrary, SES participants in Grades 3, 4, and 7 had insignificant lower performance than eligible students who did not receive SES.

Figure 1 shows the weighted total value-added numbers on MCA-II reading by individual SES providers. SES providers who served fewer than 10 students were included in the weighted total but were not reported separately in Figure 1. Overall, the weighted average value-added for all SES providers was - 0.03 MCA-II scale score units, indicating that on average, SES reading programs did not improve reading achievement for the participants. The following providers demonstrated small but statistically insignificant growth: Somali Education Center (3.2), Center for Excellence in Urban Teaching (2.14), and Club Z! Tutoring Inc.(1.80), and Salem Inc. Educational Initiative (0.86). Students who received SES from Catapult Online performed worse than their expected growth (-1.82). Students who received SES in MPS also performed less than their expected growth (-0.18). Overall, there was no statistically significance on value-added gains on reading achievement across the SES providers.

Figure 1. MCA-II Reading Weighted Total Value Added by SES Provider



Math Achievement

The right-hand side of table 9 (on page 12) summarizes the regression results of predicting MCA-II math achievement after controlling for prior NALT achievement, demographic characteristics, and SES participation status. Overall, there was no statistically significance on math achievement between students who participated in SES and those who were eligible but did not participate across grade levels. Note that the SES participants in grades 3, 5, 6, and 7 had insignificant higher reading achievement than eligible students who did not receive SES. Only at grade 4, the SES participants had insignificant lower performance than students who were eligible but did not participate.

Figure 2 shows the weighted total value-added numbers on MCA-II math by individual SES providers. SES providers who served fewer than 10 students were included in the weighted total but were not reported separately in Figure 1. Overall, the weighted average value-added for all SES providers was - 0.01 MCA-II scale score units, indicating that on average, SES math programs did not improve math achievement for the participants. Students served by three SES providers showed small but statistically insignificant gains in math achievement: Club Z! Tutoring Inc.(3.76), Somali Education Center (3.82), and Salem Inc. Educational Initiative (1.80). Students who received SES from Catapult Online (-0.75) and the MPS (-0.12) performed less than their expected growth. Overall, there was no statistically significance on value-added gains on math achievement across the SES providers.

Figure 2. MCA-II Math Weighted Total Valued Added by Provider

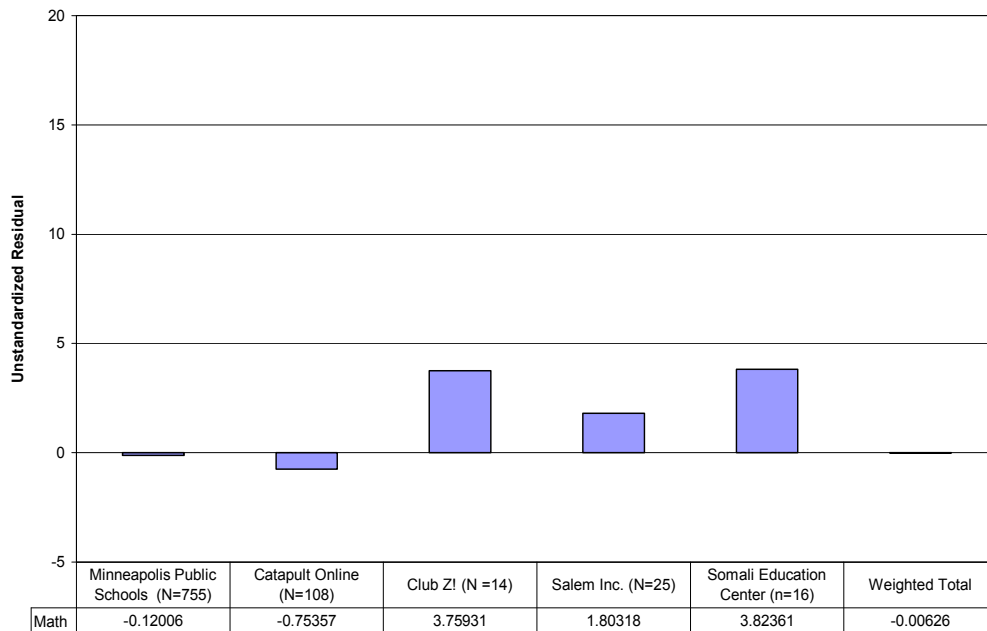


Table 9. Regression Results of Predicting the MCA-II Reading & Math Achievement for Students in the Sample

	Reading					Math				
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
N	586	608	613	896	985	576	619	593	872	987
Constant	187.636	320.287	403.501	507.060	605.419	218.752	277.098	357.249	466.528	581.845
Gender	.121	-.088	1.335	-1.090	-.098	.551	-.877	.323	.057	.680
Native	- 2.334	- 7.147**	- 7.214**	- 6.136***	- 3.617*	-1.846	-5.050**	-5.929*	-2.822	-1.240
Asian	- 3.339	- 7.613***	- .807	- 3.582**	- 1.108	.292	-2.579	.421	-.715	.212
Black	- 3.080	- 6.757***	- 5.254**	- 5.512***	- 4.084***	-2.578	- 4.035*	- 4.723*	-2.988**	-2.673**
Hispanic	- .113	- 3.454	- .3312	- 3.100**	- 1.608	-3.814	-3.803*	-3.600	-1.708	-2.778*
LEP	-.811	- 2.172	- 1.882	.327	- 2.138*	-1.984	-1.023	-3.258*	-.461	-.370
Special Ed	- 4.455**	- 3.499**	- 1.964	- 5.345***	- 2.937**	- 4.180***	- 4.246***	-3.408**	-4.174***	-4.545***
Scale Score Fall 06	.908***	.691***	.745***	.702***	.680***	.713***	.871***	.913***	.835***	.752***
SES Program	-1.604	-.713	.226	.140	- .188	.199	-.819	.604	.626	.855

*p<.05, **p<.01, ***p<.001

SES Participation for Students with Different Achievement Levels

Table 10 shows the participation rates of students in SES by different prior achievement level categories. Note that the higher the achievement level, the lower the SES participation rates in both reading and math. In reading, about one-third of eligible students from the lowest achievement level participated in SES. The participation rates were 24%, 17% and 9% in the second, third and fourth achievement level categories, respectively. In math, almost 31% of the eligible students from the lowest achievement level participated in SES. The percentage of eligible students who received SES decreased for students in the second, third and fourth achievement levels (28%, 17% and 12% respectively).

Table 10. SES Participation Rates in Reading and Math Programs by Prior Performance Level Categories

Performance Category	Total number of students eligible for SES Reading program	Eligible students who did not participate in any SES Reading program		Students who participated in at least one SES Reading program		Total number of students eligible for SES Math program	Eligible students who did not participate in any SES Math program		Students who participated in at least one SES Math program	
		N	Percent	N	Percent		N	Percent	N	Percent
1 st (Below 25 th percentile)	1969	1304	66.2%	665	33.8%	1690	1176	69.6%	514	30.4%
2 nd (Between 25 th and 50 th percentiles)	932	707	75.9%	225	24.1%	942	683	72.5%	259	27.5%
3 rd (Between 50 th and 75 th percentiles)	515	426	82.7%	89	17.3%	633	528	83.4%	105	16.6%
4 th (Above 75 th percentile)	272	252	92.6%	20	7.4%	382	336	88.0%	46	12.0%
Total	3688	2689	72.9%	999	27.1%	3647	2723	74.7%	924	25.3%

Effectiveness of SES on Achievement by Prior Achievement Levels

Table 11 (on page 14) shows the comparison results on achievement gains between SES participants and students who were eligible but did not participate by prior achievement levels. Overall, there was no statistically significant difference on reading gains between SES participants and those who did not participate for all achievement level categories. For math, only SES participants at the highest performance category showed significant improvement as compared to those in the same performance level but did not participate in the SES. There was no statistically significant difference on math gains between SES participants versus those who did not receive the services at the lower three achievement level categories.

Table 11. Comparisons of Reading and Math Achievement Gains for Students who Received SES versus Eligible Students but Did not Receive SES by Prior Achievement Level Category

Performance Category	Reading Weighted Value-Added			Math Weighted Value-Added		
	Eligible students	SES participants	Difference	Eligible students	SES participants	Difference
1 st (Below 25 th percentile)	-.9546	-.2368	not sig.	-.5513	.1730	not sig.
2 nd (Between 25 th and 50 th percentiles)	.2996	.1399	not sig.	-.6360	-1.2578	not sig.
3 rd (Between 50 th and 75 th percentiles)	.9529	.8309	not sig.	1.0871	.19340	not sig.
4 th (Above 75 th percentile)	2.4883	2.6021	not sig.	1.5138	4.8209	sig at .05

Comparisons of Achievement Gains (SES versus ALC & CBO)

To examine whether there are differences in academic gains for students participating in different after-school programs, the study compared the gains made by students who participated in SES with those who participated in ALC or CBO programs. Table 12 shows the distribution of after-school program participation for students who were eligible for SES and had reading test scores on Fall 2006 NALT/CALT reading and Spring 2007 MCA-II reading. There were 450 students (12.2%) received SES tutoring only, 841 students (22.8%) attended ALC programs only, and 159 students (4.3%) attended CBO programs only. Some students attended two programs: 538 students (14.6%) attended both ALC and SES programs, 110 students (3%) attended both SES and CBO programs, and 6 students (0.2%) attended both ALC and CBO programs. Four students (0.1%) participated in all three programs. There were 1,580 (42.8%) students in the sample who did not participate in any after-school program.

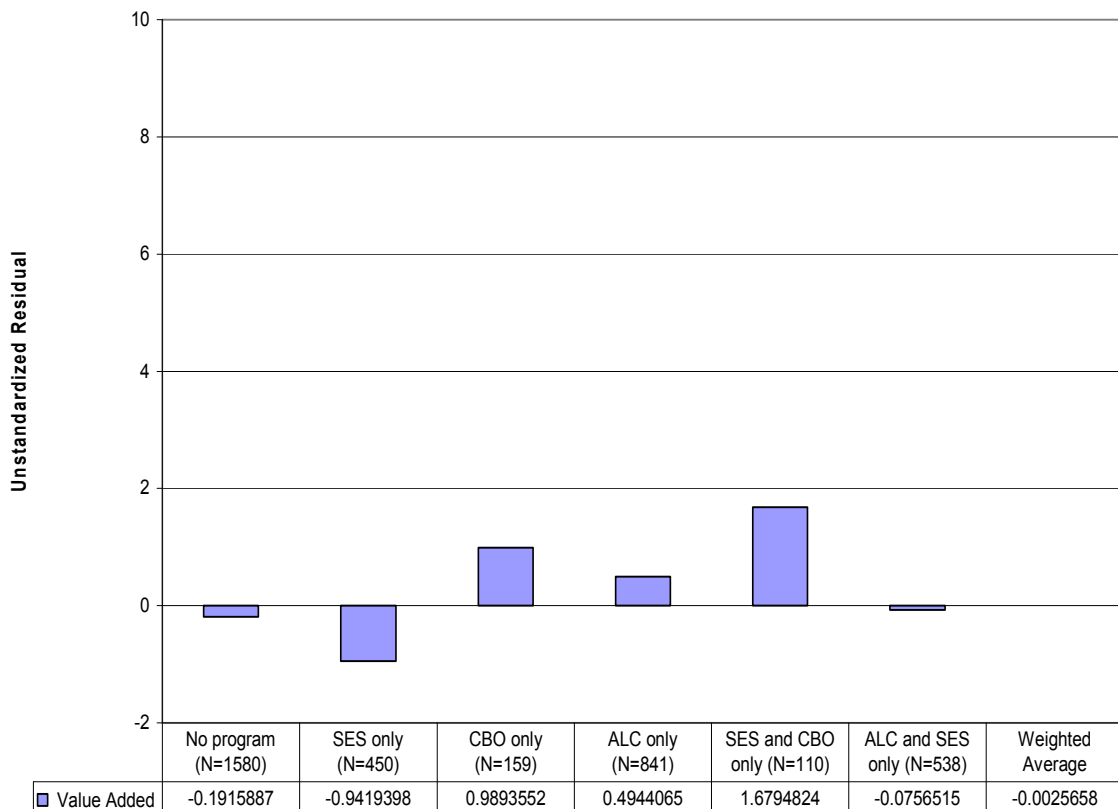
Table 12 also shows the distribution of after-school program participation for students who were eligible for SES and had math test scores on Fall 2006 NALT/CALT math and Spring 2007 MCA-II math/MTELL. There were 447 students (12.3%) attended SES programs only, 817 students (22.4%) attended ALC programs only, and 156 (4.3%) attended CBO programs only. There were 518 students (14.2%) attended both ALC and SES programs, 108 students (3%) attended both SES and CBO programs and 8 students (0.2%) attended both ALC and CBO programs. Four students (0.1%) attended all three programs. In the sample, 1,589 students (43.6%) did not participate in any after-school program.

Table 12. After-School Program Participation for Students in the Sample

After-School Programs	Students with reading test scores in Fall and Spring semesters		Students with math test scores in Fall and Spring semesters	
	Frequency	Percent	Frequency	Percent
Students who participated in ALC programs only	841	22.8	817	22.4
Students who participated in SES programs only	450	12.2	447	12.3
Students who participated in CBO programs only	159	4.3	156	4.3
Students who participated in ALC and SES programs	538	14.6	518	14.2
Students who participated in SES and CBO programs	110	3.0	108	3.0
Students who participated in ALC and CBO programs	6	0.2	8	0.2
Students who participated in ALC, CBO and SES programs	4	0.1	4	0.1
Students who did not participate in any after-school program	1580	42.8	1589	43.6
Total	3688	100	3647	100

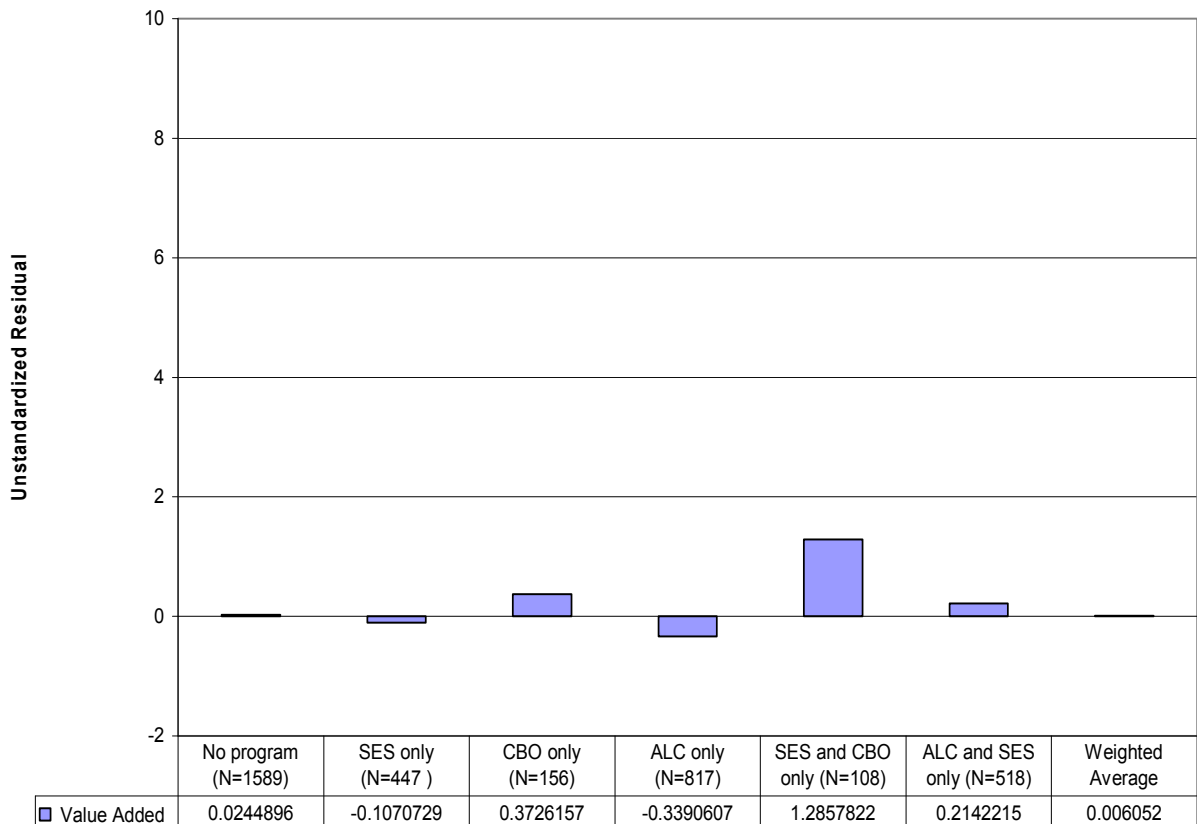
To compare the effectiveness of SES with ALC and CBO on improving reading achievement of their participants, the difference between the predicted MCA-II reading test scores and the actual performance on the MCA-II reading of each student was computed. Then, the weighted total value-added numbers were computed for the after-school program categories described in table 12. Students who participated in both ALC and CBO programs and those who participated in all three after-school programs were not included in the analysis due to the small number of students in these groups. Figure 3 shows the weighted total value added on MCA-II reading by various after-school program combinations. Overall, the weighted average value-added for students who attended SES only was -0.94 MCA-II scale score units, suggesting that on average, receiving SES tutoring only did not improve the reading performance as expected. Figure 3 also shows that there were slight and insignificant gains for students who participated in ALC only (0.49) and CBO only (0.99). On the contrary, students who did not participate in any after-school programs had a negative value-added number, indicating that they performed less than expected growth. ANOVA analyses were also conducted and found significant difference on reading gains between students in different after-school programs, $F(5, 3672) = 2.649, p < .05$. However the test of homogeneity of variance was rejected, indicating violation of assumptions. Hence, the result of the ANOVA test should be interpreted with caution. The post-hoc analyses indicated that there was no statistically difference on reading gains between different after-school programs combinations.

Figure 3. MCA-II Reading Weighted Total Value Added by Program



A similar value-added analysis was conducted to compare the effectiveness of SES with ALC and CBO on improving math achievement. The difference between the predicted MCA-II math test scores and the actual performance on the MCA-II math of each student was computed. Then, the weighted total value-added numbers were computed for the after-school program categories described in table 12. Students who participated in both ALC and CBO programs and those who participated in all three after-school programs were not included in the analysis due to the small number of students in these groups. Figure 4 shows the weighted total value added on MCA-II math by various after-school program combinations. Overall, the weighted average value-added for students who attended SES only was -0.11 MCA-II scale score units, suggesting that on average, receiving SES tutoring only did not improve the math performance as expected. Similarly, students who participated in ALC only did not improve the math performance as expected. Figure 4 also shows that there were slight and insignificant gains for students who participated in CBO only (0.37). Students who did not participate in any after-school programs performed slightly higher than the expected growth in math. The result of a one-way ANOVA indicated that there was no significant differences existed between students who participated in various after-school programs $F(5, 3629) = .862, p > .05$.

Figure 4. MCA-II Math Weighted Total Value Added by Program



Discussion

This study examines the SES participation in MPS and the effectiveness of SES on raising student achievement. In 2006-07, the overall SES participation rate in MPS was 17.7%. This figure is consistent with national estimates of SES participation of 19% in 2004-2005 (U.S. Government Accountability Office, 2006). According to the Center on Education Policy (2006), the percentage of eligible students participating in SES was 18% in 2004-2005 and 20% in 2005-2006. The participation rates for students of color ranged from about 15% to 22%. Only 5% of Caucasian students who were eligible did receive SES. In addition, 23.9% of students with limited English proficiency and 16.1% of students in special education programs received the SES. Although SES in MPS served a larger proportion of subgroups that are targeted by the NCLB, less than a quarter of students in these subgroups did receive the service.

In this study, the participation rate was higher at elementary and middle grades (from grades 3 to 7) but declined at the high school. A similar trend was reported by the U.S. Department of Education (2007) that elementary grades had higher SES participation rates. One possible reason for the higher SES participation rates at these grade levels is that the academic performance of students at these grade levels was included in the state accountability system to assess whether schools was making Adequate Yearly Progress. Hence, schools might prioritize these grades to participate in SES programs to improve their academic performance so as to elevate the overall progress made by the schools.

The findings also showed that there were no significant differences on both reading and math achievement between students who received SES and those who were eligible in SES but did not receive these services. In addition, results of the value-added analyses showed that SES in MPS did not significantly improve reading and math achievement for students who received the services. The findings of the current study are similar to results found in second year of SES implementation in MPS (Heistad, 2006). In the second year of SES implementation (2005-06), a weighted total value-added of -1.52 of MCA-II scale score units was reported for SES reading programs and a weighted total value-added of - 0.13 for SES math programs. In the current study, the weighted total value-added of - 0.03 of MCA-II scale score units was found for SES reading programs and - 0.01 of MCA-II scale score units for SES math programs. These results suggested that MPS students who received SES performed lower than their expected growth after adjusting for their prior achievement and demographic characteristics. The lack of effectiveness of SES over years is certainly disconcerting.

The lack of evidence of effectiveness of SES programs in MPS indicates that further study needs to gather information on whether research-based instructional strategies have been adopted by SES providers. A study conducted in Pennsylvania reported that grouping students by skill level was related with achievement gains for students receiving SES (Zimmer, Christina, Hamilton, & Prine, 2006). While there has been scant research on effective instructional strategies used in SES tutoring, research on tutoring and after-school programs may be relevant. The literature on after-school programs reported that gains in academic achievement are more likely to occur in after-school programs where staff are well-trained and supervised, pre-assessments are used to ascertain learners' strengths and academic needs, there are opportunities for skill building and mastery, and tutoring is coordinated with school curricula (e.g., American Youth Policy Forum, 2006; Birmingham, Pechman, Russell & Mielke, 2005; Southwest Educational Development Laboratory, 2006). Effective tutoring programs for reading have the

following components: a certified reading specialist who supervises tutors; tutors who receive ongoing training and feedback; tutoring sessions are structured; tutoring is intensive and consistent; quality materials are used to facilitate the tutoring model; assessments of students are ongoing; and tutoring is coordinated with classroom instruction (Wasik, 1998). Further studies on the instructional strategies used by SES programs that are successful in raising student achievement would yield useful information on developing effective SES programs.

In addition, there was a great variation in the amount charged by individual SES providers, ranging from \$15 to \$70 an hour. This study showed that there is no indication that a higher hourly cost charged by SES providers resulted in greater academic achievement. In fact, one SES provider, Catapult Online which charged \$69 an hour failed to add value to the performance of the students in both the reading and math programs they provided. Another concern is that the math and reading programs provided the school district itself, also failed to add value to the performance of the students they tutored. Since Minneapolis Public Schools and Catapult Online served a total of 83% of SES participants, the lack of demonstrated effectiveness by these two largest SES providers suggest that it is important to allocate the resources effectively to other SES providers that might improve student achievement.

The results showed that lowest-achieving students participated in SES programs to some extent. In the study, 34% and 30% of the students in the lowest achievement category (i.e. their prior achievement level was below the 25th percentile) received tutoring in reading and math programs, respectively. However, these students did not make significant growth above their expected performance on reading or math. Instead, the only group of students who made significant improvement were students in the highest achievement category (i.e. students whose prior achievement level was above the 75th percentile) who participated in SES math programs. According to Ceci and Papierno (2005), when interventions intended to narrow the achievement gap is given not only to the group of children who most need assistance, but also to the more advantaged group, an unintended consequence sometimes occurs: the pre-intervention gap between the two groups actually widened as a result of the intervention. In the case of SES, low-achieving children may benefit from the tutoring, but students who are more proficient may benefit even more from the tutoring, hence widening the achievement gap. Current federal guidance states that if the funds available are insufficient to provide supplemental educational services to each eligible student whose parent requests those services, the LEA must give priority to providing services to the lowest-achieving eligible students (U.S. Department of Education, 2005). In this condition, the LEA should develop some objective criteria to determine the lowest-achieving students. School districts might consider to concentrate or to increase the SES participation of the lowest-performing students. One approach suggested in the federal regulatory guide is to establish a cut-off score on the state assessment and making supplemental educational services available to students whose scores fall below the cut-off level (U.S. Department of Education, 2005). Further studies may be necessary to find ways to increase participation of the lowest-achieving students and to equip SES providers with instructional strategies that are targeted to meet the needs of this specific group of students.

Finally, this study found there was a significant gain difference in reading achievement among students involved in different after-school programs. Nevertheless, these results should be interpreted with caution because the variances between groups were not homogeneous. Although this study failed to ascertain the effectiveness of SES programs relative to other after-

school programs, further studies involving the comparisons of SES programs with other after-school programs would be beneficial.

There are some limitations in this study. One major limitation is that attendance data for SES programs were not available. Due to the lack of reliable attendance data, we were not able to find the extent to which students had actually received tutoring from the SES providers. Hence, it is difficult to examine whether attendance in SES is a confounding factor that relates to the lack of achievement gains of students in SES. The study was also unable to distinguish the effect of SES tutoring from the effect of regular instruction that students received in the classroom. This may be addressed by conducting a study using a matched pair approach, i.e. the test scores of a tutored student are matched to those of a non-tutored student in the same classroom. It was also difficult to draw definite conclusions on the effectiveness of individual SES providers as many of these providers served small groups of students. Future studies could aggregate achievement data over years for students served by individual SES providers to obtain more reliable and valid results.

References

- American Youth Policy Forum. (2006). Helping youth succeed through out-of-school time programs. Washington, DC: American Youth Policy Forum. Retrieved on December 2, 2007 from <http://www.aypf.org/publications/HelpingYouthOST2006.pdf>
- Birmingham, J., Pechman, E. M., Russell, C. A., & Mielke, M. (2005). Shared features of high-performing after-school programs: A follow-up to the TASC evaluation. Washington, DC: Policy Studies. Retrieved on December 2, 2007 from <http://www.afterschoolexcellence.org/content/document/detail/1353/>
- Ceci, S. J., & Papierno, P. B. (2005). The rhetoric and reality of gap closing. *American Psychologist*, 60, 149-160.
- Center on Education Policy (2006). *From the capital to the classroom: Year 4 of the No Child Left Behind Act*. Washington, D.C.: Author.
- Heistad, D. (2006). *Evaluation of supplemental education services in Minneapolis Public Schools: An application of matched sample statistical design*. Minneapolis, MN: Minneapolis Public Schools.
- Southwest Educational Development Laboratory (2006). Time for Achievement: Afterschool and Out-of-School Time. Retrieved on December 2, 2007 from http://www.sedl.org/pubs/sedl-letter/v18n01/SEDLetter_v18n01.pdf
- U.S. Department of Education (2005). *Supplemental Educational Services: Non-regulatory guidance*. Washington, DC: Author. Retrieved on July 15, 2006 from <http://www.ed.gov/policy/elsec/guid/suppsvcsguid.doc>
- U.S. Department of Education (2007). *State and Local Implementation of the No Child Left Behind Act, Volume I—Title I School Choice, Supplemental Educational Services, and Student Achievement*. Washington, D.C.: U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service.
- U.S. Government Accountability Office (2006). *No Child Left Behind Act: Education actions needed to improve local implementation and state evaluation of supplemental educational services* (GAO-06-758). Retrieved October 20, 2006 from <http://www.gao.gov/new.items/d06758.pdf>
- Wasik, B. A.(1998). Volunteer tutoring programs in reading: A review. *Reading Research Quarterly*, 33, 266-292.
- Zimmer, R., Christina, R., Hamilton, L. S., & Prine, D. W. (2006). *Evaluation of two out-of-school programs in Pittsburgh Public Schools*. Retrieved on December 10, 2007 from http://www.rand.org/pubs/working_papers/2007/RAND_WR451.sum.pdf