

# Using Mixed-Method Evaluation Approach to Examine the Implementation and Effectiveness of Supplemental Educational Services

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# Objective

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The main objective of this evaluation is to adopt a mixed-method evaluation approach (value-added & qualitative data) to evaluate the effectiveness and implementation of the Supplemental Educational Services (SES) in MPS for the school year 2007-08.

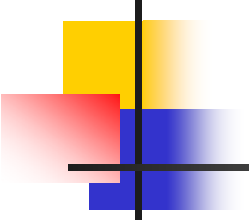


# About SES

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In compliance to the *No Child Left Behind Act*, economically disadvantaged students who attend schools that fail to make AYP for three consecutive years or more eligible to receive the Supplemental Educational Services (SES).

SES is defined as additional academic instruction provided by non-profit, profit, or faith-based organization aimed to increase the achievement of students in low-performing schools.

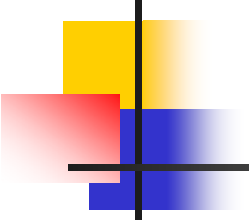


# What is the importance of this study?

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The U.S. Department of Education requires that SES providers must demonstrate effectiveness in improving student achievement.

The Federal have spent hundred million dollars on SES, local districts or State Department are responsible to determine whether these SES providers are effective to impact student learning.



# What is the importance of this study?

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Many states and school districts have limited capacity to monitor the quality and evaluate the effectiveness of the SES providers.

This study also demonstrates how a local district, even with limited funding and capacity, still can conduct a high-quality mixed-method evaluation to evaluate the effectiveness and implementation of SES (or other federal educational programs).



# Why Using Mixed Methods?

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Value-added analysis is a popular and promising technique for evaluating the effectiveness of educational programs.

However, it is important to link the value-added findings with qualitative data collected through other methods (observation, interviews, & program documentation etc.) to understand the implementation of the educational programs.



# Why Using Mixed-Method Design for Evaluating SES?

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Ross et. al. (2008) recommended to conduct some small-scale mixed-method studies to relate the outcomes of SES to the contextual variables and to obtain in-depth information regarding the implementation of SES.

Ross et. al. (2008). Implementation and outcomes of Supplemental Educational Services: The Tennessee state-wide evaluation study. *Journal of Education for Students Placed at Risk*, 13, 26-58.



# References

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Tashakkori, A., & Teddlie, C. (2002). *Handbook of Mixed Methods in Social & Behavioral Research*. CA: Sage.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2<sup>nd</sup> ed.). CA: Sage.

Lissitz, R. (2005). *Value-added models in education: Theory and application*. MN: JAM Press.



# Evaluation Questions - Effectiveness

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- 1) Do SES improve the academic achievement of economically disadvantaged students who received the services?
- 2) Are there any differences in achievement growth for students who received the services across the SES providers?



# Evaluation Questions - Implementation

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- 1) What are the SES participation rates by subgroup and grade level?
- 2) What are some best practices of SES providers to improve student achievement?
- 3) What are the key elements to improve the implementation of SES from the perspectives of the SES providers ?

# 明華 MCA 實驗學校

明華 MCA 實驗學校创建于 2000 年，以追求高质量的中文教育和各类特色技能教育为宗旨，坚持小班教学，提供精品教育和全方位教育。

现招收一年级新生(须年满 5 周岁)和各年级插班生。

## 主要課程介紹：

### 1. 马立平中文加强课程 (1-4 年级)

以马立平教材和课堂教学为核心，配之以星营故事会和星营网上课堂教学和辅导，并加强学生学习过程的考核和跟踪。

### 2. 奥林匹克数学与技能课程 (2-4 年级)

以北师大最新版小学数学教材为核心，配之以小学奥林匹克数学教材和其它开发技能的教学材料。在巩固学生的基本数学知识的基础上，着重开发学生发现问题和解决问题的能力 and 创造力。







# Method

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We adopted the mixed-method evaluation approach to examine the effectiveness and implementation of SES.

- (1) Probability match-sample (propensity score) value-added analyses;
- (2) Field observations at the SES provider sites;
- (3) Semi-structured interviews with the SES providers.



# Data for Value-added Analyses

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The original data contained 9,199 student records from 23 schools that were eligible to Receive SES in 2007-08. 1,109 students on the eligible list received SES services.

This study used a sample of 423 participants in reading and 366 participants in math who enrolled at grades 3-8 in 2007-08 with test scores on both the CALT and Spring MCA-II tests.



# Probability Matching

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Since students are not randomly assigned to SES, probability matching was adopted to minimize the selection bias.

For each grade, a logistic regression analysis was conducted to compute the propensity scores (probability) for each SES participant and students who eligible but did not receive SES conditional on: Prior achievement, gender, ethnicity, English Language proficiency status, & Special education status.

Sorting the propensity in order within grade. Matching each participant to a non-participant with the closest propensity score.



# Value-Added (Residual Analyses)

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Separate regression analyses were conducted for reading and math at each grade level.

Outcome variable:

Spring 08 statewide assessment scores

Predictor variables:

Prior achievement (Fall 07 NWEA scores), gender, ethnicity, English Language proficiency status, special education status, SES participation status.

Compute the residuals & determine whether students making expected growth or above ( $> 0$ ).

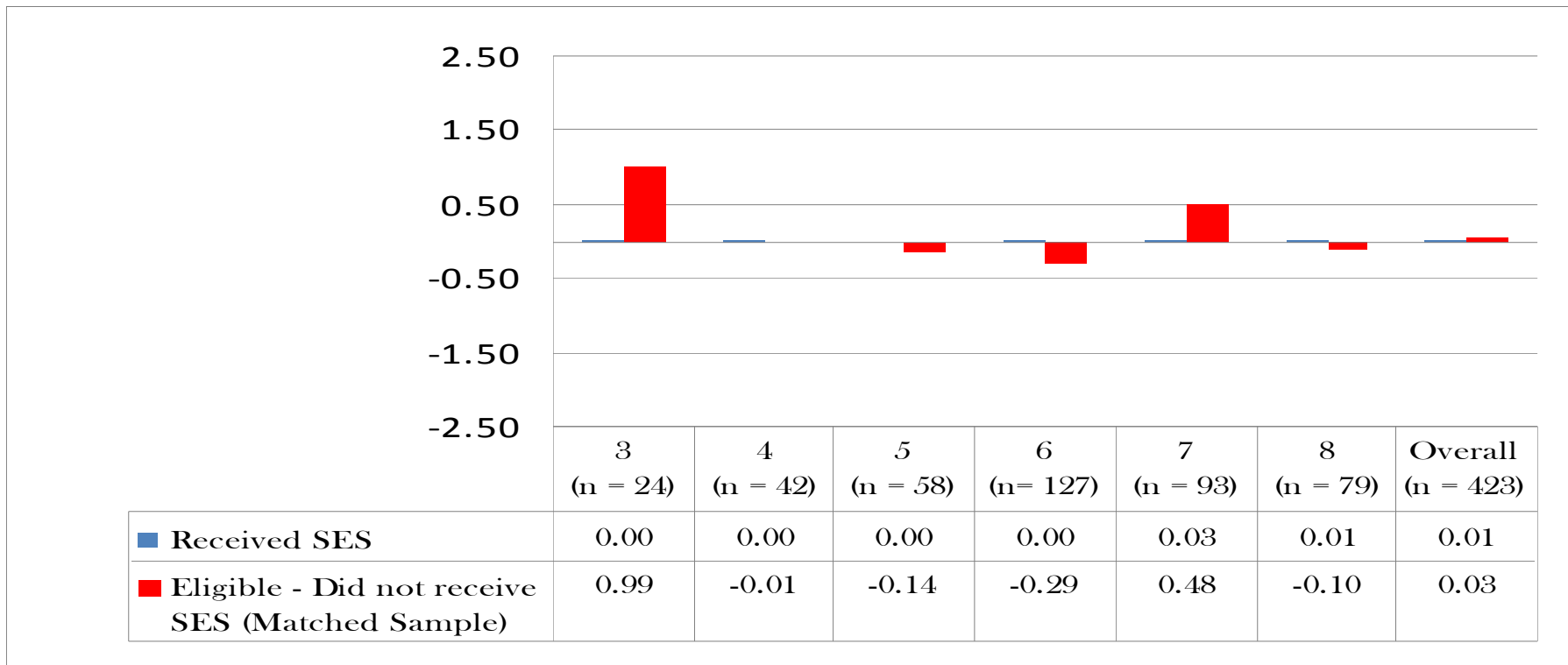


# Evaluation Questions - Effectiveness

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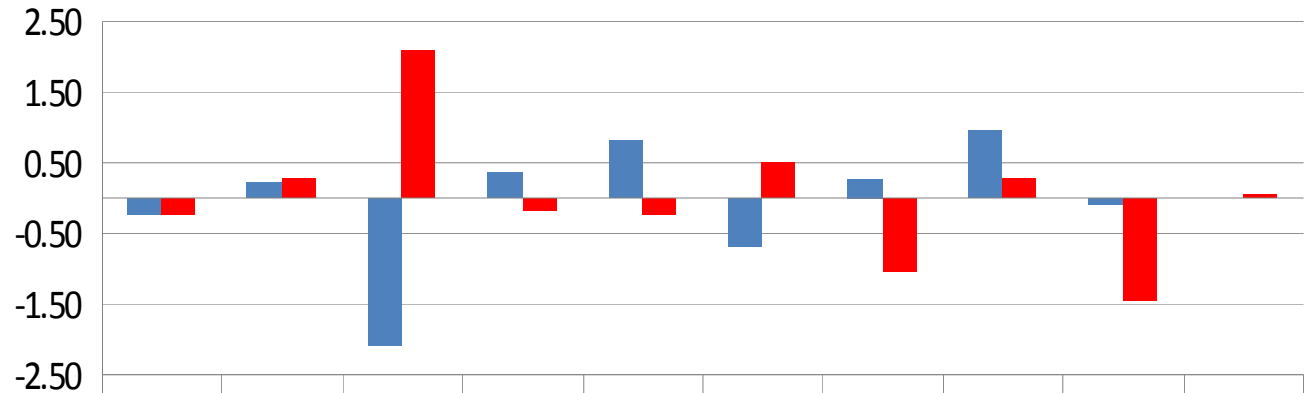
- 1) Do SES improve the academic achievement of economically disadvantaged students at various subgroups who received the services?
- 2) Are there any differences in achievement growth for students who received the services across the SES providers?

# 2007-08 SES Value-Added Analyses on Reading by Grade



**Results:** There was no statistically significant difference on reading performance between SES participants and the matched group at each grade level and across grade levels. The SES participants performed at their expected achievement level at every grade.

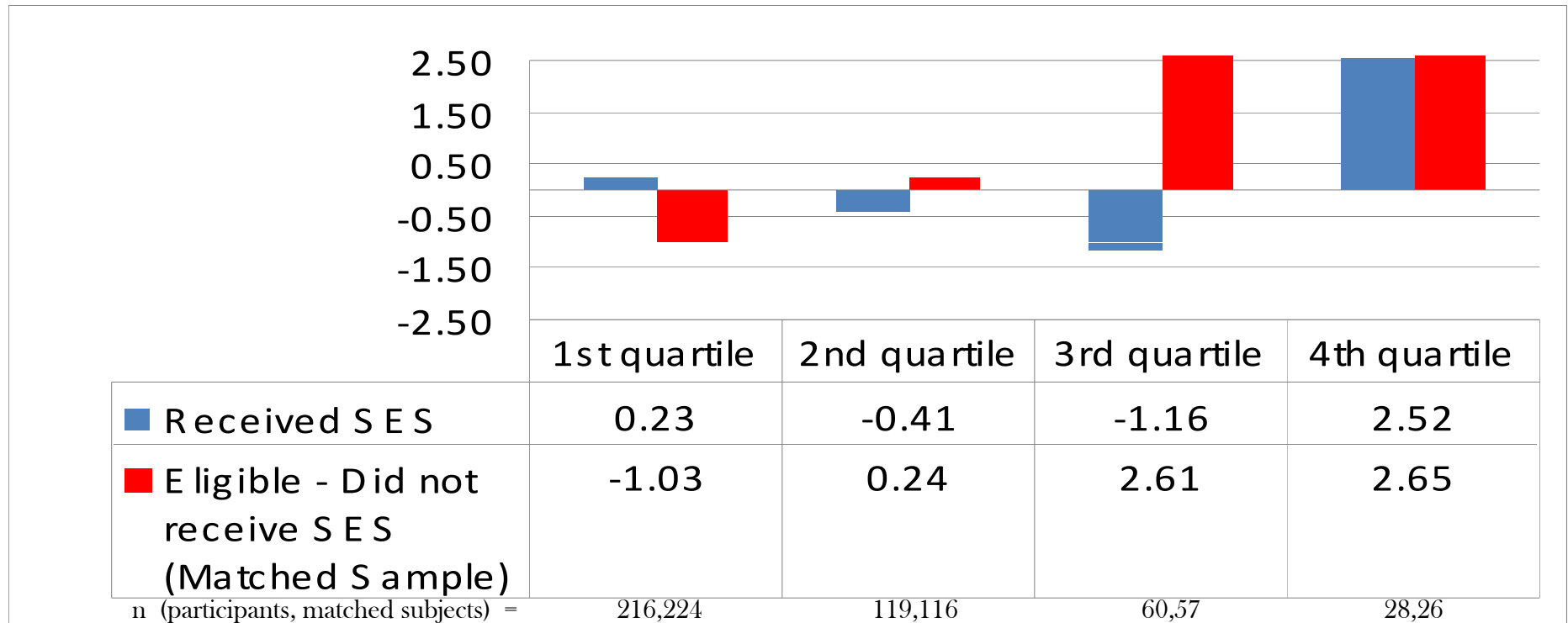
# 2007-08 SES Value-Added Analyses on Reading by Demographic



■ Received SES	-0.22	0.21	-2.08	0.38	0.81	-0.70	0.26	0.96	-0.09	0.01
■ Eligible - Did not receive SES (Matched Sample)	-0.24	0.29	2.10	-0.18	-0.23	0.49	-1.05	0.28	-1.45	0.03
n (participants, matched subjects)	196,206	227,217	25,20	247,253	28,27	96,99	27,24	127,128	56,59	423,423

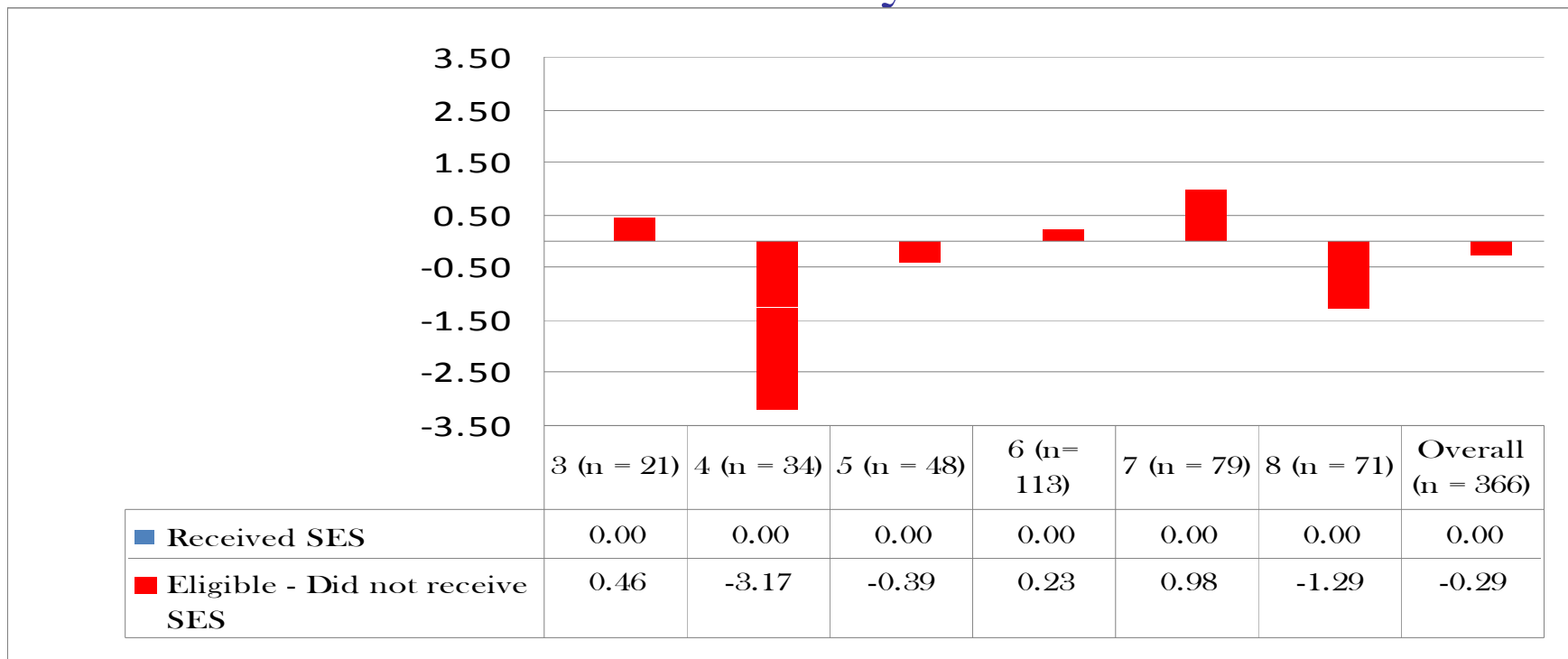
**Results:** There was no statistically significant difference on reading performance between SES participants and the matched group performance for all subgroups. The SES participants performed at their expected achievement level, except for Native Am. and Hispanic students.

# 2007-08 SES Value-Added Analyses on Reading by Prior Achievement Level



**Results:** For students who scored at 3rd quartile on Fall NEWA reading, the SES participants performed statistically significant lower than the matched group in reading. For SES participants who scored at 4<sup>th</sup> quartile on Fall NEWA reading, they performed higher than the expected level, nevertheless, there was no statistically significant difference to the matched group.

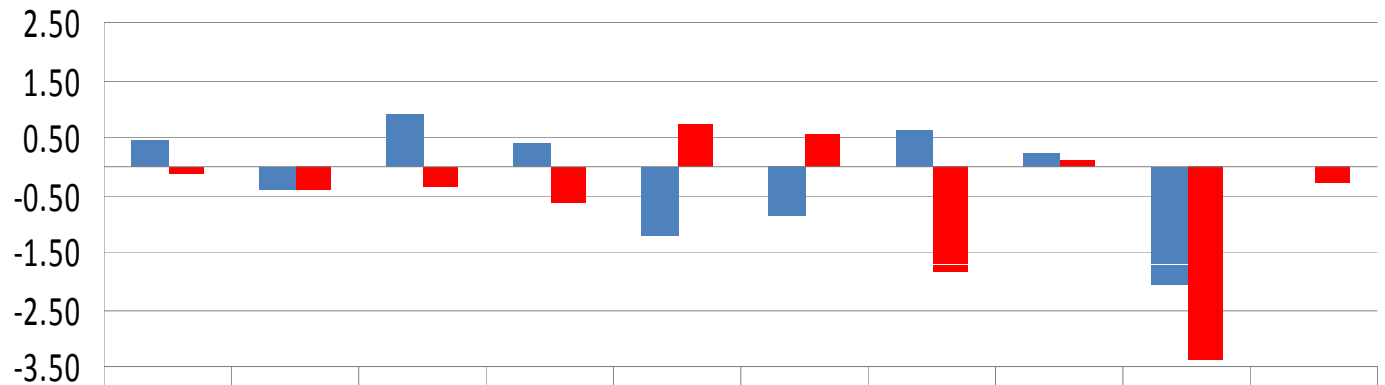
# 2007-08 SES Value-Added Analyses on Math by Grade



n = number of subjects received SES, same number of subjects matched at each grade level.

**Results:** There was no statistically significant difference on math performance between SES participants and the matched group for all subgroups. The SES participants performed at their expected achievement level.

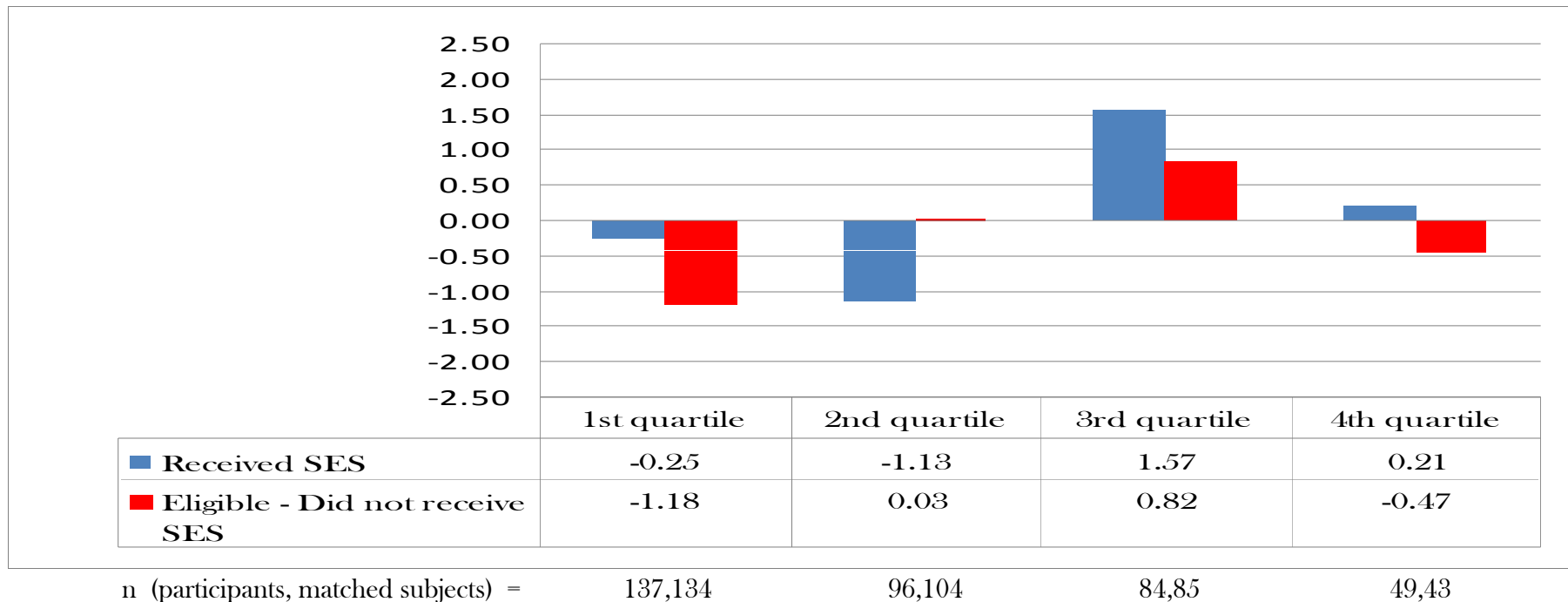
# 2007-08 SES Value-Added Analyses on Math by Demographic



■ Received SES	0.46	-0.39	0.92	0.40	-1.22	-0.87	0.64	0.19	-2.06	0.00
■ Eligible - Did not receive SES	-0.12	-0.44	-0.36	-0.62	0.70	0.57	-1.87	0.08	-3.37	-0.29
n (participants, matched subjects) =	166,178	200,188	20,17	200,205	26,25	95,96	25,23	121,105	38,32	366,366

**Results:** There was no statistically significant difference on math performance between SES participants and the matched group performance for all subgroups. The SES participants performed at their expected achievement level, except for Asian, Hispanic, and Special Education students.

# 2007-08 SES Value-Added Analyses on Math by Prior Achievement Level



Results: There was no statistically significant difference on math performance between SES participants the matched group regardless of the prior achievement level. For SES participants who scored at 3<sup>rd</sup> quartile on Fall NEWA math, they performed higher than the expected level, nevertheless, there was no statistically significant difference to the matched group.

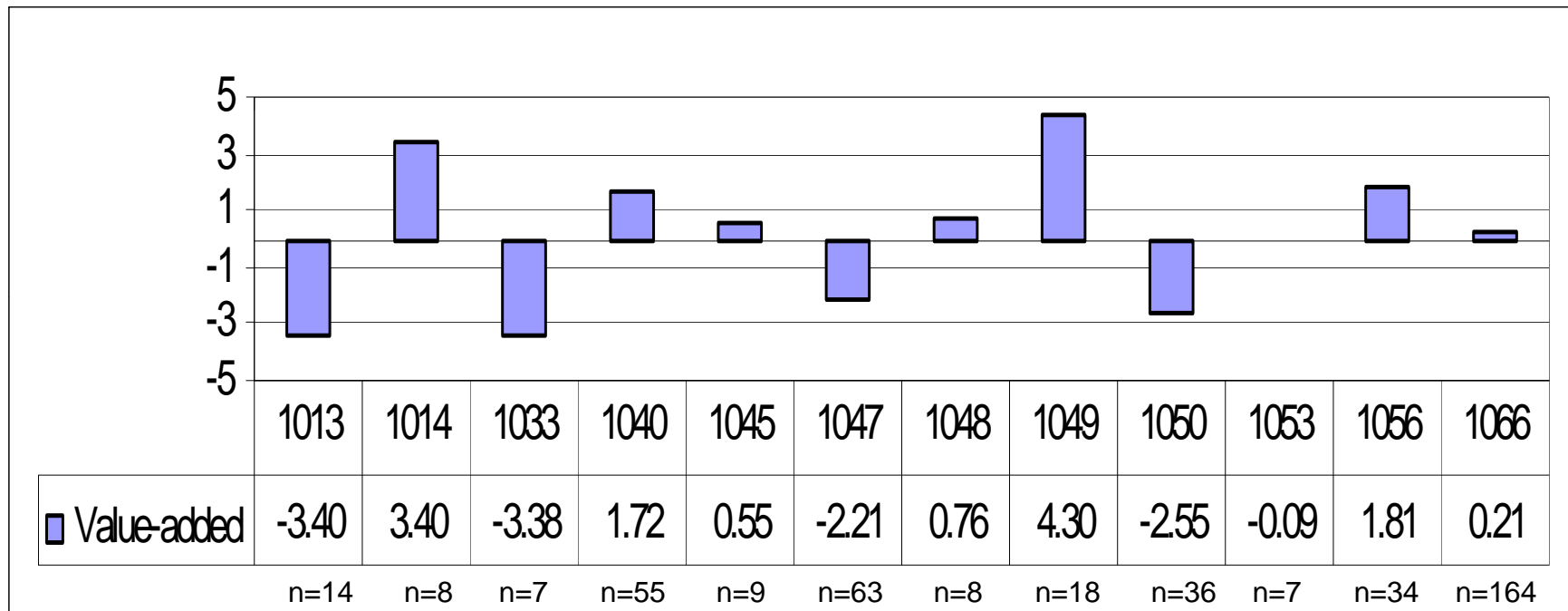


# Evaluation Questions - Effectiveness

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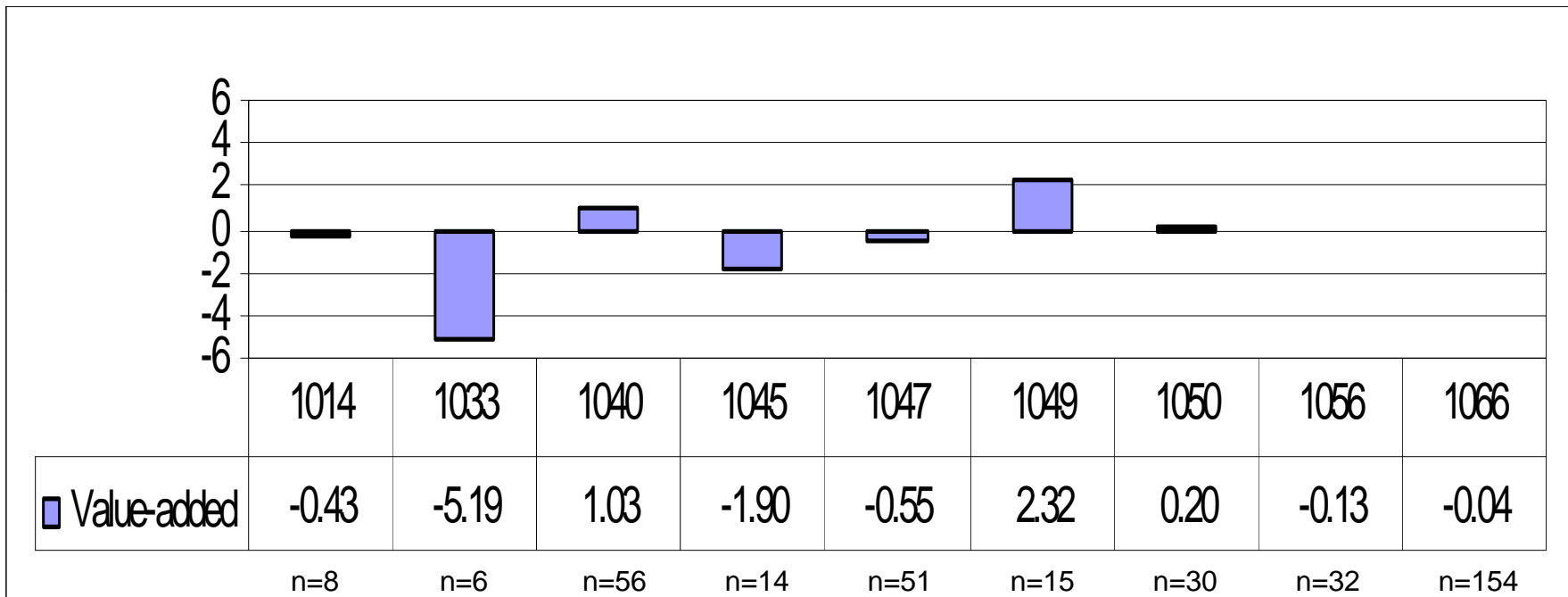
- 1) Do SES improve the academic achievement of economically disadvantaged students at various subgroups who received the services?
- 2) Are there any differences in achievement growth for students who received the services across the SES providers?

# 2007-08 SES Value-Added Analyses on Reading by SES Providers



Results: There was statistically significant differences on the reading performance of participants among the SES providers. Students received SES in reading from Provider 1049 and Provider 1014 performed significant higher than their expected performance while students who received SES in reading from Provider 1013, Provider 1033, Provider 1047, & Provider 1050 performed significant lower than their expected performance.

# 2007-08 SES Value-Added Analyses on Math by SES Providers



Results: There was no statistically significant difference on the math performance of participants among the SES providers. However, students received SES in math from Provider 1049 performed significant higher than their expected performance while students who received SES in math from Provider 1033 performed significant lower than their expected performance.



# Evaluation Questions - Implementation

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- 1) What are the SES participation rates by subgroup and grade level?
- 2) What are some best practices of SES providers to improve student achievement?
- 3) What are the key elements to improve the implementation of SES from the perspectives of the SES providers ?

## Participation: 2007-08 Number & Percent of SES Participants in MPS by Demographic Subgroups

Demographic Subgroups	Number of SES eligible students	Number of Participants	Percent of Participating (within group)
Female	4688	613	13.1%
Male	4511	496	11.0%
Native American	597	42	7.0%
African American	4641	786	16.9%
Asian	1279	65	5.1%
Hispanic	2154	173	8.0%
Caucasian	528	43	8.1%
Limited English Proficiency	3136	437	13.9%
Students in Special Education	1577	137	8.7%
<b>Total Number &amp; Percent of SES Participants</b>	<b>9199</b>	<b>1109</b>	<b>12.1%</b> <b>National = 17%</b>

# Participation: 2007-08 Number & Percent of SES Participants in MPS by Grade

Grade	Number of SES eligible students	Number of Participants	Percent of Participating (within group)
<b>K</b>	484	13	2.7%
1	443	22	5.0%
2	439	29	6.6%
3	408	36	8.8%
4	395	60	15.2%
5	471	78	16.6%
6	834	159	19.1%
7	874	131	15.0%
8	907	109	12.0%
9	930	104	11.2%
10	1078	170	15.8%
11	944	131	13.9%
12	992	67	6.8%
<b>Total # &amp; % of SES participants</b>	<b>9199</b>	<b>1109</b>	<b>12.1%</b>



# Method - Implementation

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11 (out of 15 SES providers) field observations were conducted. Each site visit consisted of 45-60 minutes observation of a tutoring session and a scoring rubric was utilized to evaluate the quality and practices of the tutoring session.

16 one-on-one semi-structured interviews were conducted with the representatives of 13 out of 15 SES providers to understand how to improve the implementation of SES from their perspectives.



# Evaluation Questions - Implementation

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# Suggestions by SES Providers to Improve Implementation

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- 1) **Improving communication** - improve communication among various stakeholders and District, school, & SES providers need to provide adequate information to parents how SES is beneficial.
- 2) **Building authentic relationships** - build authentic relationships between SES providers and stakeholders (including school staff at the day-time school).
- 3) **Organization for alignment** - ensure the SES is aligned with the District's curricula standards, professional development, quality of tutoring, and connection with day-time instruction and other after school programs.



# Evaluation Questions - Implementation

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# Best SES Practices from Field Observations

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- 1) Small group learning
- 2) One-on-one tutoring
- 3) Computerized instruction
- 4) Use of frequent assessments to monitor student learning

# Discussion

1. Using mixed-method approach to identify SES providers (1049) that consistently made significant value-added gains and their best practices.
2. Develop a fair accountability system to monitor the effectiveness of SES providers based on both quantitative and qualitative measures. Linking the quantitative measures (effectiveness) to the qualitative measures (implementation).
3. Using the evaluation findings to facilitate communications and establish partnerships between district administrators, school staff, and SES providers to ensure the SES are aligned with District's strategic plan, curricula standards, professional development goals, and instructional programs aimed to improve student achievement of disadvantaged kids from low-performing schools.



# Contacts

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