Preliminary Findings of a Multisite Study of the Implementation and Effects of Supplemental Educational Services (SES)

Introduction

The Intervention

Under No Child Left Behind (NCLB), local educational agencies are required to identify for school improvement any elementary school or secondary school that, for at least two consecutive years, has not made adequate yearly progress as defined in the State's plan under section 1111(b)(2). These schools are required to offer parents of children in low-income families the opportunity to receive extra academic assistance, or supplemental educational services (SES). The central objective of this research study is to improve student learning and achievement by identifying successful approaches (and the variables that contribute to success) in the organization and management of Supplemental Educational Services (SES) programs within school districts and the delivery of SES programs by approved SES providers.

Research Questions

(1) How can school districts increase participation in SES by students who are eligible and most likely to benefit?
(2) What factors influence parent or student choices in selecting (and staying with) SES providers?
(3) What are the key characteristics of different program models of SES tutoring, as enacted by providers and as regulated by districts and states, and how do they influence SES program impacts?
(4) What is the impact of SES on student achievement in reading and mathematics?
(5) What are the policy levers and program administration variables that state and local educational agencies and providers can use to increase SES program effectiveness?

Research Design

The project involves three linked phases of research. *Phase 1* is an in-depth qualitative study designed to define key elements of SES program models and the policy and practice variables that mediate implementation of these models and to also inform the construction of the measures of SES treatment for quantitative analysis. *Phase 2* is a quantitative study investigating selection into SES (i.e., who registers and participates) and SES program impacts, using propensity score matching and fixed-effect methods

with nonequivalent (internal, no-treatment) comparison groups. *Phase 3* is a follow-up qualitative study to examine whether program features identified in Phase 1 continue over time and to further inform our interpretation of the quantitative findings of program impact from Phase 2. We are conducting this research in five urban school districts located in four states and representing different student demographics: Milwaukee, Wisconsin; Minneapolis, Minnesota; Chicago, Illinois; and Austin and Dallas, Texas.

The findings presented below come from preliminary analyses of the Phase 1 and Phase 2 data. The qualitative and quantitative study findings that we highlight here are linked through the guiding research questions and, to some extent, shared samples. The preliminary findings below reflect specific patterns observed in quantitative and qualitative data analyses, as well as preliminary overarching patterns that we see when the findings from these two study components and their data are integrated. We organize our findings as such.

Core Preliminary Findings: Quantitative Analysis

1. SES hours attended by participating students
    - The number of hours of SES attended by students depends on the fixed hourly rate charged by SES providers; the per-pupil SES allotment in each districts; and individual characteristics of students and providers that affect attendance rates (some observable, and some we are not able to measure)

2. Student characteristics related to SES registration and attendance
    - Whites, Hispanics, and Asians significantly less likely to register for or attend SES; however, when they attended, they were significantly more likely than African Americans to reach both the 40- and 60-hour attendance level
    - Students classified as English language learners had 50% higher odds of both registering for and attending SES
    - Students who attended SES in prior school year significantly more likely (130%) to register for SES and attend SES, and, at the elementary level, to attend at least 40 or 60 hours
    - Elementary school students were more likely to register for and attend SES, and attend more hours than middle and high school students

3. Estimated effects
    - Statistically significant effects of SES on changes in students' (standardized) math and reading scores for elementary students and math scores for middle school students who received 40+ hours of tutoring
    - Effect sizes (at levels of 40 and 60 hours of tutoring) were approximately 0.06 standard deviations for elementary students, or less than 1/6 of average annual gains in math and reading by 3rd-5th graders; these mean effect sizes of SES are 1/4 to 1/5 the size of those of other interventions targeted at elementary school students (0.23-0.33)

- For middle school students, mean SES effects are 1/4 the size of average annual gains in math by middle school students, or about 1/10 to 1/3 the size of effects of other educational interventions for middle school students
- Estimated SES effect sizes for high school students in math and reading vary in size and are not statistically significant

4. Provider attributes, hours of SES and SES effects
   - Hours of SES attended: the number of hours of SES students attended is a consistent, statistically significant (positive) predictor of students' math and reading gains across providers
   - Participation in online SES programs is negatively related to students' math and reading gains; online providers charged significantly more per hour than other SES providers ($65 v. $41) and invoiced districts for significantly fewer hours than other SES providers (18 v. 35)
   - Students attending district-operated SES providers received an average of 48 hours of SES compared to 29 hours on average for other providers
   - Less than 10% of high school students in combined-site sample received 40 or more hours of SES in 2008-09
   - Small numbers of students receiving 40 or more hours of SES in districts (other than Chicago) likely contributed to lack of statistical power for detecting statistically significant effects of SES (at this level of SES attendance)

Core Findings – Qualitative Analysis

5. Instructional Practice and SES Effects: Descriptive Patterns
   a. Across districts, providers followed the letter of the law in terms of the instructional focus of programming and grouping patterns
      - Content of sessions was reading and language arts in 28 of 56 observations; content was math in 32 of 56.
      - Homework was done in a little less than one-fifth (10 of the 56) tutoring sessions observed
      - Across districts, ratios of students to tutor were relatively low. Home-based tutoring almost always involved a 1:1 grouping. Slightly over half of all observations involved 1:1 (29 out of 56)

   b. There is solid evidence of good instructional practices in place across formats
      - Frequently observed indicators (>.7)* of quality tutoring practice:
        - Use of materials toward goal of instruction in math and reading/language arts
        - Engage positively with students
        - Listen actively and attentively to students

   c. However, intensity of instructional intervention diluted by two observed factors
   (1) Discrepancies in advertised time and actual instructional time
        - Advertised time in our sample ranged from 60-150 minutes. Irrespective of the format, students received less instructional time

than what was advertised by providers (21.3 fewer minutes per session on average). Offline sessions—especially in school- and community-based formats—had the largest discrepancies between advertised and instructional time.

(2) Attendance flux
- Of the 33 observations with 2 or more students, 18 (54.5%) had more than one student entering a session late or leaving early.

d. Quality of instruction further compromised for target population by:
- Lack of differentiated curriculum for English language Learners (ELL) and Students with Disabilities (SWD). With very few exceptions, neither curriculum nor instruction was tailored to the unique needs of ELL or SWD students. Where present, instructional adjustments inadequate for ELL or SWD needs; tutors and providers did not have enough training or information for effective instruction.
- Little evidence of research-based practices (identified as crucial elements of effective practice for students underserved in regular classrooms), including: integration of artistic/physical recreation activities into content area instruction, peer-to-peer tutoring and cooperative learning.

6. SES Practices: Comparison with out-of-school time (OST) "Best Practices"

We found patterns in preliminary analysis of observation data related to certain OST best practices:
- Observations across sites scored fairly highly (>.7) on ratings related to the best practices of focused instruction and positive relationships among staff and students
- As well, of observations scoring highly (>.8) on student engagement ratings, two best practices were common: focused instruction and positive relationships with students
- These patterns indicate a need to look more closely at these two best practices
- In contrast, activity-oriented tutoring was very rare (average occurrence of .08 across all sessions); this pattern indicates a need to look more closely at why these practices are missing and whether the quality of SES in practice would increase with more activity-oriented instruction

Synthesis of Findings

As we see from the quantitative findings, the intensity of the SES intervention is directly tied to the hourly rate charged for service provision. The more providers charge, the less likely students will receive the level (in terms of hours) of tutoring that are a key predictor of program effectiveness. However, even among those receiving a level of tutoring necessary to generate effects, the magnitude of these effects is modest as gauged by effect sizes for similar kinds of interventions. For high school students, participation and attendance are significantly lower than for elementary and middle school students and no effects of SES are observed, suggesting the potential of a policy change that

would redirect SES resources to lower grades and reserve resources at the high school level for other more effective interventions.

Preliminary findings from the qualitative analysis suggest that the lack of effects or minimal effects may stem from critical omissions in the quality and character of instructional programming. Among the critical omissions we observed are programming to address the needs of ELL and SWD students—a problem made more troubling by evidence that at least in the case of ELL students, these students are signing up and attending SES at higher rates than other students.

With these significant limitations in mind, based on our analysis and under certain conditions, we see some positive outcomes for some participating students as measured by changes in their mathematics and reading test scores. In addition, in observations of practice, we saw preliminary evidence of structures and practices (i.e., format of tutoring, grouping patterns, clustering of instructional practices) that appear to be linked to student engagement. However, calculations comparing the per-student SES dollar allocations by districts to annual average per-student spending and the achievement gains generated by SES participation relative to annual student learning gains during the regular school day suggest that SES is no more cost-effective in producing gains in student achievement than the schools themselves.

Continuing research and policy implications

In at least one of the five study sites (Austin Independent School District), federal stimulus funds were used to increase the per-student SES dollar allocation in 2009-10, and potentially, the number of hours of SES a participating student could attend. In the continuing quantitative analyses, we will compare SES hours attended and SES effects to see if they are higher in 2009-10 than 2008-09 (as well as changes in subsequent years, 2010-11 and 2011-12). Along these same lines, in both the quantitative and qualitative studies, we will explore the implications of changes in how districts in our study are targeting SES to their eligible students—such as prioritizing those with very low academic performance in addition to those with low incomes—and consider how these changes influence access, programming, hours attended and the effectiveness of SES.

The qualitative component of the study will continue to examine in-depth the interactions and relationships among variables that are fundamental to intervention quality—i.e., student grouping patterns, location, time spent on instruction and attendance flux during sessions, and student engagement and patterns of OST best practices—especially as the number of observations increases over the course of the study. In addition, we will investigate the potential to explore both quantitatively and qualitatively the possible cumulative impacts of SES on students who attend SES over multiple years, particularly given that prior SES attendance is one of the most important predictors of SES participation in subsequent school years.