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THE EFFECTS OF SUPPLEMENTAL EDUCATIONAL SERVICES ON STUDENT  
ACHIEVEMENT

by  
Regina F. Miller

A Thesis

Submitted in partial fulfillment of the requirements of the  
Master of Arts Degree  
of  
The Graduate School  
at  
Rowan University  
May 6, 2009

Approved by \_\_\_\_\_

Date Approved 5-6-09

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## ABSTRACT

Regina F. Miller

### THE EFFECTS OF SUPPLEMENTAL EDUCATIONAL SERVICES ON STUDENT ACHIEVEMENT

2008/09

Dr. Roberta Dihoff and Dr. John Klanderma  
Master of Arts in School Psychology

Supplemental educational services (SES) are a core component of the No Child Left Behind Act of 2001 (NCLB) that provide free academic assistance in reading, language arts and mathematics for eligible students. Supplemental educational services include tutoring and other educational interventions that align with the state's academic content standards provided outside of the regular school day. Despite four years of supplemental services educational and millions of dollars spent, little is known about the effects of SES on student achievement. This study hypothesized that after the sixth month of SES tutoring, students in the experimental group would achieve higher scores on the language arts and mathematic posttests in comparison to the students in the control group, those students who did not receive SES. The participants for this research were fourth and fifth grade students drawn from an after-school program located in a small urban district in southern New Jersey. The sample size included 42 students. Results indicated that the experimental group raised their posttest scores from initial pretest scores. The experimental group displayed a twenty point mean score increase compared to the control group in both the language arts and mathematics posttests.

## Table of Contents

List of Graphs	iv
Chapter One: Focus of the Study	
Need	1
Purpose	3
Hypothesis	3
Operational Definitions	3
Assumptions	5
Limitations	6
Summary	6
Chapter Two: Literature Review	
Introduction to Previous Research	7
NCLB Act: Volume I – Title I School Choice, Supplemental Educational Services and Student Achievement	8
Supplemental Educational Service Provisions	10
Research Base: The Department of Education	12
Public School Studies	14
Challenges Facing SES: Lack of Funding	16
Monitoring Previous Effectiveness	17
Accountability	18
Participation and Choice Limitations	19
Summary	21

### Chapter Three: Research Design

Sample	22
Procedures	22
Hypothesis	23
Measures	23
Analysis Design	24
Summary	24

### Chapter Four: Analysis of Results

Introduction	26
Results	26
Summary	28

### Chapter Five: Discussion and Implications

Introduction	29
Interpretation of Findings	30
Limitations	31
Conclusion	32
Implications for Future Research	33

References	34
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## List of Graphs

Graph 4.1	Pre and Posttest Scores for Language Arts	27
Graph 4.2	Pre and Posttest Scores for Mathematics	28

## Chapter One: Focus of the Study

### Need

Supplemental educational services (SES) are a core component of the No Child Left Behind Act of 2001 (NCLB) which provides free academic assistance in mathematics and language arts for eligible students. NCLB was signed into law by President Bush in January of 2002 and covers Title I, the federal government support program for disadvantaged students. Under NCLB, states are required to submit annual reports related to the performance of school districts and individual schools must meet state mandated Adequate Yearly Progress (AYP) (Coppus, 2008).

Schools that fail to meet AYP for three consecutive years are required to use up to 20 % of their Title I funds to offers supplemental educational services to all eligible students. Through SES, students who attend Title I schools in the second year or more of school improvement and participate in the free/reduced-price meal program are eligible to receive supplemental educational services at no extra cost to parents (Ross et al., 2006). Supplemental educational services include tutoring and other educational interventions that align with the state's academic content standards. Academic remediation is provided in the areas of language arts, reading and mathematics. These services include tutoring, online/distance learning, mentoring programs and after-school services (Larson, 2004). These services are provided outside of the regular school day, usually in after-school, weekend or summer school programs (Coppus, 2008).

The state educational agency (SEA) is required to identify those organizations that qualify as providers of SES. Districts are responsible for establishing and maintaining contracts with the providers and notifying parents that educational services are available for their child. According to recent estimates by the Department of Education (DOED), 2.3 million students are currently eligible for SES. However, approximately only 11% are enrolled nationwide. Eligible students are largely students of color, students from low-income families, and students with limited English proficiency (Burch, 2007).

Despite four years of supplemental services and millions of dollars spent on SES, little is known about the effects of SES on student achievement. There is virtually no research on the effectiveness of SES (Burch et al., 2007). There are a few organized efforts to track the effectiveness of SES and little is known about the population being served (Ysseldyke et al., 2008). Therefore, the provision of SES, with its largely free market approach, is the most aggressive school choice experiment at the federal level to date (Gorman, 2004).

According to the Center on Educational Policy (CEP), forty-one states and more than half of the school districts reported that the greatest challenge of SES was monitoring the quality and the effectiveness of the SES providers (Coppus, 2008). Much of the information collected and reported to the public comes from the providers themselves, not from outside assessors. Very few states and districts have any idea whether the tutoring is actually helping students learn. Isolating measurable impacts of SES is highly challenging for researchers due to the variety of confounding factors that can influence the results of field-based educational programs (Chatterji, 2005). Therefore,



it is quite apparent further research is necessary in order to monitor the effectiveness of SES programs and the quality provided.

### Purpose

The purpose of this study is to determine achievement score gains in the subjects of language arts and mathematics associated with a SES program provided for fourth and fifth grade students in a local urban district.

### Hypothesis

This study hypothesized that the students in the experimental group, those students provided with tutoring through SES in language arts and mathematics for six months, would display a measurable increase in scores for both language arts and mathematics at the 6 month benchmark, in comparison to the students in the control group, students who were not provided with any additional tutoring through SES in language arts and mathematics. The null hypothesis stated that the provision of SES in language arts and mathematics would have no effect on the scores of the experimental group for both language arts and mathematics at the 6 month benchmark.

### Operational Definitions

#### Adequate Yearly Progress (AYP):

Under NCLB, this is the measure of the extent to which students in a school demonstrate proficiency in reading/language arts and mathematics.

Center on Educational Policy (CEP):

The entity considered the national and independent advocate for public education and for more effective public schools.

Department of Education (DOED):

This entity was created in 1980 by combining offices from several federal agencies. The DOED's mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access.

No Child Left Behind (NCLB):

The 2001 law that reauthorized a number of federal programs aiming to improve the performance of U.S. schools by increasing the standards of accountability for state and school districts.

School in Need of Improvement (SINI):

A school that has not accomplished AYP for two consecutive years; in order to exit the program a school must make AYP for two consecutive years.

Supplemental Educational Services (SES):

Tutoring and other educational assistance that is provided beyond the regular school day; these services are funded by the federal government in order to increase the academic achievement of students from low-income families.

Supplemental Educational Services (SES) Provider:

A public or private (non-profit or for-profit) entity that meets the state's criteria for approval: providers may include public/private schools, educational service agencies, faith/community based organizations or private businesses.

Supplemental Educational Services Quality Center (SESQ Center):

Center established through a grant from the U.S. Department of Education in 2003 to help families learn how to receive extra academic help for their children at no charge.

Title I:

Special federal funds for the public schools in which about 40% or more of its students come from families that the federal government define as "low-income"; schools receiving Title I funding are regulated by the federal legislation, including NCLB. (Coppus, 2008).

Assumptions

This study carried a number of assumptions. First, it was assumed the parents chose the SES provider for their child/children and were debriefed on the provisions of the SES program. Secondly, it was assumed that all SES tutors were certified, qualified and trained as instructors for the SES program. The researcher assumed that the student – teacher ratio remained consistent throughout the duration of the program. As a fourth assumption, the researcher assumed that the demographics of the student population, both control and experimental, were academically comparable. Lastly, it was assumed that all

students in the experimental group received a set and equal number of tutoring hours held in an ideal instructional format.

### Limitations

Within this experimental study, It is important to denote the existing limitations. It is necessary to discuss the demographics and population size of this study. It may be difficult to geographically generalize this study to other parts of the country because the research occurs in southern New Jersey. As well, the sample size was relatively small and may not be representative of the general population. Additionally, the researcher did not have control of the instructors chosen, the instruction materials utilized or the instructional format of the SES program.

### Summary

In Chapter 2, the researcher will review existing literature pertinent to supplemental educational services. The researcher will review studies conducted through the Department of Education and various public school systems concerning the effectiveness of SES. The researcher will review the current challenges facing supplemental educational services including: lack of funding, monitoring of program effectiveness, accountability, participation and choice limitations. In Chapter 3, the research design will be presented specifying the participants, measures, collection of data and analysis design. Chapter 4 will present the results through data analysis. In conclusion, Chapter 5 will discuss the implications of the researcher's findings, the limitations of the study, the implications for student test scores and future research.

## Chapter Two: Literature Review

### Introduction to Previous Research

Supplemental educational services are considered a core component of NCLB. In order to gain a better understanding of supplemental educational services (SES), it is necessary to discuss the essential components of the No Child Left Behind Act of 2001: Volume I. With this knowledge in place, the provisions of SES must be examined. Empirical evidence must be researched and the challenges facing SES explored.

This research will decipher the student and family criterion and eligibility requirements necessary for SES services. As a key component of success, supplemental educational service programs rely heavily on the responsibility of those involved with the program. This includes the responsibilities of parents, as well as, those of states and districts in accordance with SES. The requirements and dynamics of the SES provider are considered an important component of this thesis. The requirements necessary to provide supplemental educational services, as well as the demographics of these providers will be reviewed. The mode, intensity and setting of SES will be discussed, including curriculum and staff.

Hundreds of millions of dollars have been spent on these out-of-school tutoring programs over the past six years. However, little is known of the effects these tutoring programs have on the academic achievement of students. This effect is considered the single goal of this federal program. Unfortunately, very little empirical evidence exists

measuring the effects of SES on student achievement. A few states, including Chicago and Minneapolis, have conducted studies providing an insight on the effectiveness of SES. In addition, most recently, the U.S. Department of Education began pilot studies focused on the effectiveness of SES. Here, these studies will be explored in greater detail.

Finally, it has been found that a variety of challenges face SES and therefore, it is necessary to explore these topics for the purpose of this study. These challenges include a lack of funding, program monitoring effectiveness, the accountability of SES providers, student participation and parent choice limitations.

Supplemental educational services are considered a relatively new component to the educational system of the United States. The focus and research of this thesis aims to provide a better understanding of SES and to provide additional empirical evidence through the investigation of the topics discussed.

#### NCLB Act: Volume I – Title I School Choice, Supplemental Educational Services, and Student Achievement

The No Child Left Behind Act of 2001 is known as the first federal policy in the history of U.S. education to expand options for parents with children geographically zoned to attend schools with lower performance outcomes (U.S. Department of Education, 2002). At the heart of NCLB, is the insistence that public schools annually test all students in grades 3 through 8 in reading/language arts and mathematics. Each state must measure whether its public schools are making “adequate yearly progress” (AYP) toward universal pupil proficiency in these two core subjects (Hess, 2004).

A key component of the federal NCLB Act is to provide new educational options to parents with children attending Title I schools identified for improvement because AYP was not met for two or more years (U.S. Department of Education, 2007). This policy allows parents, with students attending these schools, the option to transfer their child/children to another school within the district. The second option, as well as the primary focus of this thesis, is the opportunity for parents to enroll their children in supplemental educational services (Jennings et al., 2002).

The supplemental education services are to be made available if the school has not met AYP for three years or more. According to the U.S. Department of Education (2005), SES is defined as “additional academic instruction designed to increase the academic achievement of students in low-performing schools” (U.S. Department of Education, 2002). As previously stated, these services include tutoring, remediation and other academic instruction. Reading/language arts and mathematics remain the primary focus of academic instruction.

Within those districts where school choice is not an option, states are encouraged to redirect funds and offer SES after only two years of failing to meet AYP (Kasmin, 2006). LEAs must continue to provide the options of school choice and supplemental educational services until the school has achieved AYP for two consecutive years (US Department of Education, 2002) (Kasmin, 2006). It is noteworthy to mention here that, according to the U.S. Department of Education, NCLB aspires to have 100 percent of students in the United States achieve proficiency according to the academic standards set by each state by the year 2014. NCLB holds schools accountable to display improvement

in student achievement so that all public school students are proficient in reading and math by the end of the 2013-14 school year (Ysseldyke et al., 2008).

### Supplemental Educational Services Provisions

Eligibility for SES is limited to students from low-income families who attend Title I schools. LEAs are required to use the same data to determine eligibility for SES that they use for making within-district Title I allocations (Kasmin, 2006). Low-income status is determined by a student's participation in the federal free and reduced price school lunch program. If this demand is too great, priority is given to the lowest-achieving students among the low-income population (Vergari, 2007).

States and districts are responsible for implementing the SES program and must notify service providers of the school's potential need in the first year. The LEA is responsible for identifying eligible students and annually notifying their parents of service options (Burch, 2007). Parents then arrange supplemental educational services, choosing from a state approved list of providers.

Supplemental educational services must be high in quality, research based and created with the design to increase student academic achievement (U.S. Department of Education, 2002). Providers of SES must meet health, safety, and civil rights laws. They must also ensure that instruction is "secular, neutral, and nonideological" (U.S. Department of Education, 2002) (Vergari, 2007). In a survey conducted in 2006, the Center on Educational Policy found that the majority of states used five criteria developed by the Department of Education to review SES providers including: a demonstrated record of increased student achievement, use of research based strategies,



consistency with in-school instructional programs, financial stability and compliancy with health, safety, and civil rights laws (Coppus, 2008). However, NCLB permits substantial flexibility.

SES state approved providers may be for-profit or non-profit and public or private firms. Providers may include private or charter schools, institutions of higher education and private businesses. However, no organization is automatically considered to be an approved SES provider (Sunderman & Kim, 2004). Approximately 2,000 providers offer supplemental services nationwide. According to the Center on Educational Policy, in 2005 -2006, 54 % of all-state approved providers were profit making companies, 21% were non-profits not affiliated with a religious group, 9 % were school districts, 7% were other public entities, 5 % were organizations with religious affiliations and 3% were other types of organizations (Ascher, 2006).

The mode and type of instruction can vary. Evidence to date suggests that a wide range of instructional formats are in use. These include independent study, homework help, one-on-one tutoring, small group instruction and internet-based distance learning. According to Muñoz, Potter and Ross (2008), individual tutoring has been regarded by many researchers and practitioners as one of the most effective ways of adapting instruction to individual differences in school settings (Slavin, 2006; Tingley, 2001).

According to Fleischman (2004), reports show that educational technology holds the possibility for a significant contribution to student achievement. Research conducted on the effectiveness of computer-based tutoring has found that students often learn more in classes where they receive computer based instruction and respond with a more

positive attitude toward the subject. Research has also found that students learn lessons in less time and that computer based instruction is less expensive.

There are no existing federal requirements regarding the frequency or the intensity of instruction (Burch, 2007). To date little is known about what the students are being taught in SES after-school settings. The lack of curriculum information is problematic because the goal of SES is to target academic subjects. Providers are not required to ensure that all staff meets the “highly qualified teacher” provisions of NCLB. The setting for SES also varies. It may be offered in schools, in classrooms and non-school settings, such as public libraries, church annexes and homes. Companies such as Sylvan Learning Centers and Huntington Learning Centers also provide additional private alternatives and some districts contract with them to provide SES services (Burch, 2007).

### Research Base

#### The Department of Education

Very few states have any indication as to whether supplemental educational services are actually helping students learn. The research base on the effectiveness of SES is virtually nonexistent. According to the U.S. Department of Education in 2005, 15 states had not yet established any monitoring processes, 25 states had not established standards for evaluating provider effectiveness and not one state had finalized their evaluation standards (Ascher, 2006). To date, the DOED has not conducted nor commissioned a national evaluation of the program.

However, the DOED conducted an achievement impact analysis within-subject pre-post comparisons and comparisons between students participating and not

participating in SES. The analysis includes data for a period of 5 years from 2000-01 through 2004-05. Nine districts were included; however the impact analyses were based on six to seven districts due to data issues. Although the research included several key findings, the findings particular to the effectiveness of SES were statistically significant. Across seven districts, participation in SES had a statistically significant and positive effect on students' achievement in reading and mathematics (US Department of Education, 2007).

In addition, the DOED initiated two SES pilot programs during the 2005-06 school year in a select number of states and school districts. These programs have continued through the 2008-09 school year. The first pilot is currently taking place in urban school districts. Pilot districts are eligible to serve as SES providers and must implement good practices to increase student SES participation. The practices include sending early, clear, and concise notification to parents of their children's eligibility to partake in SES. The district must provide an informative website, including eligibility and participation data. It must also include a list of available SES providers in the district and available schools a student may transfer to within the district. Sign-up forms must be readily available with extended enrollment periods. Finally, an independent third party must evaluate the effectiveness of SES and provide analysis to the parents (US Department of Education, 2008). These districts will provide evidence to their state that they have been successful in meeting the conditions of the pilot.

The second pilot took place in the state of Virginia. During the 2005-06 school year, four districts were given permission to offer SES to schools in year one of improvement. This is one year earlier than the NCLB requires. Since the onset of this

pilot, this flexibility has been offered to other states. These states have agreed to increase the number of eligible participating students, maintain a comprehensive list of providers, ensure their districts are reaching out to families in a timely manner and providing a level playing field for all providers (US Department of Education, 2008).

### Public School Studies

A rigorous district-based evaluation of SES was conducted in 2004-05 (Rickles & White, 2006) and 2005-06 (Rickles & Barnhart, 2007) by the Los Angeles Unified School District. These studies found that SES programs minimally improved test scores for students attending the district-provided program which no longer exists (Coppus, 2008). Results showed positive but small gains (2-3 scale-score points) for SES students relative to comparison groups (Muñoz, 2008).

A study conducted in Pittsburgh produced favorable results from an evaluation of SES and another after-school tutoring program known as the Educational Assistance Program. Results from this study showed small to moderate positive program effects in math. These effects were stronger when students attended both programs. In addition, greater attendance was moderately associated with higher achievement (Zimmer et al., 2006).

The Minneapolis Public Schools conducted two paired studies to explore SES impact. The first study attempted to determine reading gains as indicated by the Northwest Achievement Levels Test (NALT) (Heistad, 2005). Two test scores were compared for 602 students who took the same two NALT tests: one in the spring of 2004, in grades 2-6 and one in 2005, when the students were in grades 3-7. The study was

compared to the rate in the national grade norms (Burch, 2007). The second study compared two groups of students with similar demographic characteristics. One group received SES and the second group did not receive the services. All SES students took the NALT during the spring of 2004 and the MCA 2005 reading tests.

The Minneapolis Public Schools studies did not yield statistical significance. The studies found that the students receiving SES did not perform as well as the matched samples. Overall, the average growth for students of SES was 66 percent of the national norm. The study found no significant difference among SES providers either. The number of service hours did not significantly correlate with the reading score gains (Burch, 2007).

The Chicago Public Schools attempted to determine any achievement score gains associated with SES. In order to assess achievement, test score data was analyzed from the 2003-04, 2004-05 and 2005-06 school years. The sample population included students in grades 4-8. Gains in reading and mathematics scores on the Iowa Test of Basic Skills (ITBS) were compared among students who did and did not receive SES services. Results were then analyzed for expected gains during the 2004 -05 school year. Those students in grades 4-8 who received at least 40 hours of SES tutoring in 2004-05 displayed higher gains in both subjects respectively than eligible students who did not receive the services (Burch, 2007).

For the 2005-06 school years, change in achievement performance, from the 2005 ITBS to the 2006 Illinois Standard Achievement Test (ISAT) of SES participants in grades 3-8 were compared to students with similar demographic backgrounds. The results displayed a small but significant improvement in reading achievement and a negligible

improvement in math achievement. The study also found that younger students displayed the largest improvement in both math and reading scores. In all three parts of the study, SES providers were compared and evaluated for performance. The cost of the provider did not appear to have a direct relationship to score gains. In fact, the least expensive provider during the 2005-06 school year yielded students with the most significant improvement in math and reading achievement (Chicago Public Schools, 2005).

Both the Minneapolis and the Chicago studies provided useful groundwork for future studies and for the particular purpose of this thesis. However, limitations existed in both studies leaving many questions unanswered. In the Minneapolis study, it was quite possible that significant variations in the two populations existed. Those Minneapolis students tested may have varied from the national comparison in terms of income status. In the Chicago study, the average gains for students who did receive SES may have resulted from factors other than the free tutoring. Parents who took an active role in the education of their children were often found to be better educated themselves and were more engaged in their children's education.

## Challenges Facing SES

### Lack of Funding

In order to strengthen SES, policymakers face serious issues that must be addressed. The design of SES has created many political issues. The laws surrounding SES place an enormous burden on local and state administrators. However, the legislation does not provide additional administrative funds specifically set aside to cover the costs of implementing and evaluating SES (Burch, 2007). When a district fails to meet AYP,

the district must contract with third parties if the district can not provide SES services themselves. Therefore, the money leaves the district and providers receive payment regardless of the quality or quantity of services provided.

If an SES provider gives fewer hours of tutoring at a higher cost, the district has no say. For example, the Chicago study found that the district could provide about 80 hours of tutoring for 500 dollars per student, while commercial tutoring programs worked with students for 50 to 60 hours at the price of approximately 1600 dollars per student (Stover & Hardy, 2008).

In a 2002 survey conducted, information was gathered on NCLB from 47 states and Washington, D.C. This survey included 274 districts and 33 school district case studies. This survey found that one of the most challenging provisions of NCLB included the logistics and cost of implementing school choice and SES, including the extra unpaid administrative time it takes to implement these provisions. Twenty- four of the 40 states who responded indicated that fiscal problems were adversely affecting their ability to implement the law (Pinkerton et al., 2003).

#### Monitoring Program Effectiveness

As previously stated, despite six years of supplemental services and millions of dollars spent on out-of-school tutoring, little is known about the effects of tutoring on student achievement. Due to the lack of funds available for SES, as apparent in the lack of research base knowledge, monitoring tends to be inconsistent and ill-defined. Again the law requires the states, not SES, to monitor the program effectiveness with insufficient staff and inadequate federal funding.

The tutoring being evaluated is not uniform across providers to a standard instructional format delivered by tutors with similar backgrounds and training. The broad scope of the evaluation context, with multiple providers, districts, and schools greatly reduces the ability of the researchers to control measures and adjust for multiple variables (Ross et al., 2006). Some work has been done in this area, in part conducted by the Center for Research in Educational Policy (2005) and the Supplemental Educational Service Quality Center (2005). They recently issued a policy brief designed to assist states with an effective system in which to evaluate SES providers. The document contains three possible dimensions including:

- Effectiveness: Did the provider increase student achievement in reading/language arts or mathematics?
- Customer Satisfaction: Are parents and students satisfied with SES?
- Service Delivery: Did the provider comply with the state and district laws and contractual procedures? (Burch, 2007).

The education industry association most recently created a compilation of state district and SES provide evaluations. This research indicated that SES was highly regarded, motivated students, and had a positive impact on academic performance (Miner, 2007).

### Accountability

The system for holding SES providers accountable for the academic outcomes of their students is quite ambiguous in comparison to the AYP requirements for schools. One key variable that influences success naturally is known as implementation fidelity (Desimone,



2002; Ross, 2007). This raises a question as to whether or not SES providers are rendering the required services documented in their proposals. As previously stated, SES providers are not required to meet “highly qualified” standards which the NCLB law applies to teachers. This works against the aim of NCLB to match the most qualified teachers with those students of the greatest need (Kasmin, 2006). Most tutors are certified teachers, some are college graduates without any teaching experience, and about 7% are high school students (Ascher, 2006). Some providers prepare the tutors to work with the SES program. This preparation can range anywhere from one hour to 20 hours. Some providers, but not all, evaluate their tutors. Reports found that in about 40 % of districts, few or no providers contacted teachers in 2004-05. In addition, districts do not have a say as to whether or not tutoring is aligned with the curriculum in the classroom.

#### Participation and Choice Limitations

Many districts display low percentages of eligible students participating in SES. Within a study of 10 urban school districts, fewer than 18 % of eligible students requested and received SES in 2002-03 (Sunderman & Kim, 2004). Another study examined 59 districts required to offer SES and found that 23 % of the overall students received SES in 2003-04. In 2004 -05, nationally, 18 % of eligible students received SES (Center on Educational Policy, 2005) (Vergari, 2007).

According to the Education Industry Associations, more than 3.3 million students are eligible for services. Of this 3.3 million, only 14 % receive assistance (Stover & Hardy, 2008). Many factors can attribute to this large discrepancy in participation. As more schools are required to implement SES programs, many districts struggle with

understanding federal mandates and rules. Many do not know how to create a successful program and once again (due to lack of funding), districts are reluctant to work with commercial firms allowed to provide tutoring under NCLB because they do not want the Title I funds to leave their districts (Stover & Hardy, 2008).

According to Ascher (2006), approximately 2000 providers existed in and around 2006. Parents were reported to have been able to select from an average of nine providers per district. In 2005, this number more than doubled to approximately twenty choices per district. Unfortunately, while some had a plethora of providers to choose from, others had too few or providers that did not match the needs of their students (Ascher, 2006). A survey conducted by the CEP found that in 42% of districts surveyed, the providers could not service students with disabilities. In 51% of the districts, not one provider could service the English as a second language (ESL) population. In addition, it has been discovered that fewer providers exist for middle school and high school students.

Geography has also been discovered to pose a limitation on parental choice. Some programs are district run and operate in a nearby school building or a community center or church annex. Some tutoring companies provide transportation as an incentive. However, in many districts students and parents are forced to travel a distance if services are not offered in their area. One study conducted in Madaree, North Dakota found that the closest SES provider was 160 miles away. Unsurprisingly, these students, who were forced to travel five and six hours from their Indian Reservation quickly opted out of the program. According to the Center for Educational Policy (CEP), there is an average of two providers for rural districts in comparison to an average of five or six providers for suburban and urban districts (Pinkerton et al., 2003).

## Summary

Chapter 2 has taken a look at supplemental educational services in closer detail. Previous studies conducted on the effects of SES have been explored, as well as the provisions of and present challenges facing supplemental educational services. As previously noted, supplemental educational services are considered a relatively new component to the educational system and therefore face many challenges. These challenges include a lack of funding from an administrative as well as implementation perspective. Studies conducted on program monitoring are few and far between. The studies that have been conducted, have only begun to pave the road for future trials.

Thus far it has been difficult to monitor the accountability of SES providers because clear cut guidelines are still non - existent. Additionally, many students and parents within the educational system are unaware of the entity of supplemental educational services and what these services can offer to those struggling in reading/language arts and mathematics. For the purposes of this study, the researcher hopes to delve further into the entity known as SES and the program's possible effectiveness on student achievement.

## Chapter Three: Research Design

### Sample

The research participants for this study were fourth and fifth grade students drawn from an after-school program located in a small urban district in southern New Jersey. The students attending the after-school program came from three local elementary schools within the same district. The sample size was comprised of 42 students, 24 students were female and 18 students were male. The students participating in this study were chosen because they all attended elementary schools and an after-school program located in an abbot district. Within this district, one of the three elementary schools had not met Adequate Yearly Progress (AYP) for the past three years in a row. Therefore, as part of No Child Left Behind (NCLB), the students who attended this particular elementary school were eligible for supplemental educational services (SES). Of the 42 students who attended the after-school program, 21 students were eligible for the additional supplemental educational services.

### Procedures

Before the researcher could collect data, permission was obtained from the after-school program project director to gain access to the student data. Once permission was received, the researcher was given access to the pretest scores as well as the posttest scores recorded during the 6 month benchmark of the program. The identities of the students were coded anonymously by the researcher and then the data was analyzed.

## Hypothesis

This study hypothesized that after the 6 month benchmark of tutoring provided through SES, students in the experimental group would achieve higher scores on the language arts and mathematic posttests in comparison to the students in the control group, those students who did not receive SES. Secondly, this study hypothesized that posttest scores would represent an increase from initial pretest scores for those students within the experimental group. The null hypothesis stated that the provision of SES would show no effect on the students' language arts or mathematic achievement as measured by the posttest scores. This study sought to reject the null hypothesis.

## Measures

Each student's progress was monitored weekly through the use of an instructional web-based program, *Brainchild*, geared toward the New Jersey state standards. Each of the 42 students received a web login and password. This login allowed the students attending the after-school program to review their language arts and mathematic skills during program hours. Before beginning the program, students in both the experimental and control groups performed the web-based pretest in order to assess areas lacking in language arts and mathematics ability. The program was grade specific and geared toward the New Jersey ASK-test in accordance with state standards. Once the students completed the pre-test, they were permitted to log-on to *Brainchild* and complete practice exercises based on their pretest scores. Each time a student logged on to the website, their performance was tracked and recorded. All students, in both the control and experimental groups, logged approximately 48 hours of the web-based tutorial.

In addition, those students in the experimental group participated in SES approximately five hours weekly for six months. The students in the control group did not receive the additional supplemental educational services. All students, in both the control and experimental groups, were administered the pretest and the 6 month benchmark posttest. The tests administered were web-based and grade-level specific according to the *Brainchild* software. The data used in this study was drawn from the results of the pre and posttests.

### Analysis Design

In order to measure the effects of supplemental educational services on the language arts and mathematical achievement, a pretest-posttest design was used. Students in the experimental group received tutoring services from SES in addition to their weekly practice on *Brainchild*. The control group consisted of those students who did not receive additional tutoring services along with their weekly practice on *Brainchild*. The independent variable was whether or not the students received the additional supplemental educational services in the subjects of language arts and mathematics. The dependent variables were the students' initial pretest and the posttest *Brainchild* scores, in both control and experimental groups, during the six months of the program. A mixed two-way ANOVA was conducted in order to analyze the data.

### Summary

The focus of this study was to examine the effects supplemental educational services had on students' achievement in both language arts and mathematics. Chapter 3

discussed the research design in detail, including information about the subject sample, methodology, measures and the data collected. The information provided in this chapter may further aid other researchers in replicating this study for future and further discussion as to the effects of supplemental educational services on students' achievement. In the preceding chapters, the data analysis will be discussed in further detail, as well as a review and interpretation of the results of the study.

## Chapter Four: Analysis of Results

### Introduction

The purpose of this study was to determine achievement score gains in the subjects of language arts and mathematics associated with an SES program provided for fourth and fifth grade students from a local urban district. There were a total of 42 participants included in the study. Both the experimental and control groups included 21 students respectively.

This study hypothesized that the students in the experimental group, those students provided with SES in language arts and mathematics for six months, would display a measurable increase in scores for both mathematics and language arts at the 6 month benchmark, in comparison to the students in the control group, students who were not provided with any additional SES in language arts and mathematics. Secondly, this study hypothesized that posttest scores would represent an increase from initial pretest scores for those students within the experimental group.

### Results

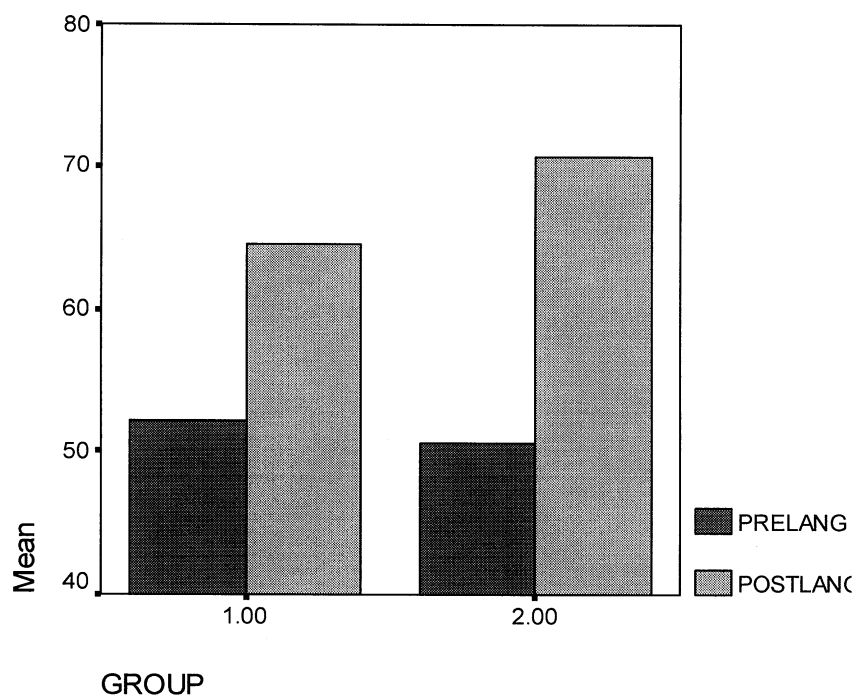
The researcher conducted a mixed two-way ANOVA in order to analyze the data collected for both pretest and posttest scores in language arts and mathematics. An alpha level of .05 was used in analyzing the results. The results for hypothesis one were significant. There was a significant main effect of SES on language arts scores ( $F=$



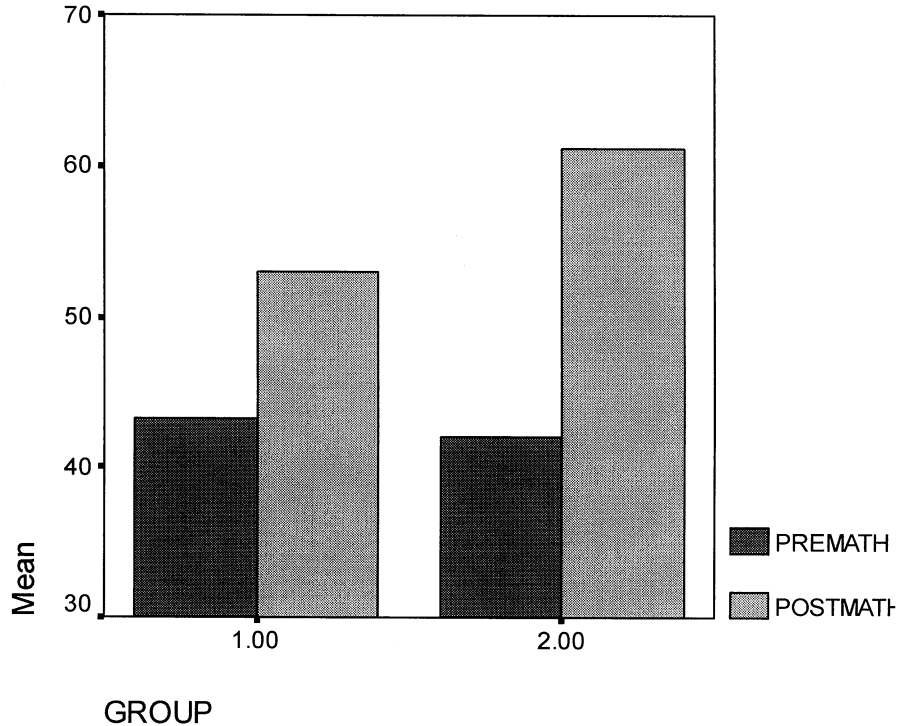
4.6969,  $df=1$ ,  $p=.036$ ) and a significant main effect of SES on mathematic scores ( $F=4.114$ ,  $df=1$ ,  $p=.049$ ).

Initial pretest scores did increase in comparison to the posttest scores for the experimental group in terms of the second hypothesis. The scores increased overall for both subjects of language arts and mathematics in Groups 1 (control) and 2 (experimental) (See Graphs 4.1 and 4.2).

Graph 4.1 Pre and Posttest Scores for Language Arts



Graph 4.2 Pre and Posttest Scores for Mathematics



### Summary

Chapter four has presented the findings of the researcher. The researcher proposed that SES would have a significant effect on the posttest scores of both mathematics and language arts within the experimental group after a 6 month time span. Significant results rejected the null hypothesis. Additionally, the researcher found that posttest scores obtained from the control group, in mathematics and language arts, increased as well. The following chapter will discuss the implications of the researcher's findings, the limitations of the study and the need for further research.

## Chapter Five: Discussion and Implications

### Introduction

Supplemental educational services (SES) became a core component of the No Child Left Behind Act of 2001. In many districts and states, SES has provided free academic assistance in language arts and mathematics for eligible students. This study set out to measure the effectiveness of SES on student achievement in both language arts and mathematics. The design of this research included an experimental group, those students who received SES for a period of six months with the additional use of the web based software program *Brainchild* to track their progression in both language arts and mathematics, and a control group, those who did not receive additional tutoring services but did have use of the additional software.

Progress was assessed through the administration of a pretest in both language arts and mathematics at the onset of the study and a posttest in both subjects at the 6 month benchmark of the study via the web based software program *Brainchild*. The students in the experimental group received additional tutoring sessions with an SES instructor in a group setting for approximately 5 hours weekly. The researcher hypothesized that the experimental group would display a measurable increase in scores on the administered posttests of language arts and mathematics. The researcher also hypothesized that posttest scores would represent an increase from initial pretest scores for those students within the experimental group. The researcher did not anticipate an increase in posttest scores for those students in the control group.

## Interpretation of Findings

Statistically significant differences were found between the experimental group and control group. As hypothesized, the experimental group showed a measurable increase in scores for both language arts and mathematics at the 6 month benchmark, in comparison to those students in the control group. Graph 4.1 of Chapter 4, displayed the findings and comparisons of the experimental (Group 2) and control group's (Group 1) pre and posttest scores in language arts. While the mean score of the control group was 52.4% pretest and 64.4% posttest, the mean score of the experimental group was found to be 50.6 % pretest and 70.6% posttest respectively.

Graph 4.2 of Chapter 4, displayed the findings and comparisons of the experimental (Group 2) and control group's (Group 1) pre and posttest scores in mathematics. The mean score of the control group was 43.3 % pretest and 53.0 % posttest, while the mean score of the experimental group was found to be 42 % pretest and 61.1 % posttest.

The second hypothesis was statistically significant according to mean test scores of the experimental group. The researcher previously hypothesized that posttest scores would represent an increase from initial pretest scores for those students within the experimental group. Again, as previously stated these mean scores were statistically significant and displayed in Graphs 4.1 and 4.2 of Chapter 4. This study also found a slight increase in the pre and posttest scores of language arts and mathematics in the control group. This was not an initial hypothesis presented by the researcher.

According to the mean test scores, the control group displayed an approximate 10 point increase in both language arts and mathematics from pre to posttests. In contrast,

the experimental group displayed an approximate twenty point increase in both language arts and mathematics. This increase was approximately double the increase of mean test scores displayed by the control group.

### Limitations

As with any experimental study, it is important to denote the limitations of the current study. These limitations include sample size and geography, instructor certification and format of provided instruction. The sample size was relatively small, consisting of only 42 subjects. The subjects were drawn from a small school district in Southern New Jersey. With such a small sample, it would be difficult to generalize the findings of this study to other parts of the country. Additionally, the researcher assumed that all participants were considered academically comparable. If they were not, this may have skewed the mean test scores.

As found in other studies, supplemental educational services providers are given the leeway to create their own agenda and therefore, the mode and type of instruction can vary. In terms of this particular study, the researcher relied heavily on the idea that the SES provider followed protocol to the best of their ability. Therefore, the researcher did not have control over the instructors chosen for the program or the instructional format followed. It was the hopes of the researcher that the instructors were certified teachers and therefore, knowledgeable in the fields of language arts and mathematics. The researcher also assumed that the students in the experimental group were receiving at least five hours of additional tutoring weekly over a six month period in an ideal

instructional format. This study did not take student and instructor attendance and/or holidays into consideration.

In addition to five hours of tutoring, the students, both in the control and experimental group, were assumed to log approximately 48 hours of the web-based tutorial. Although this was a requirement of the afterschool program the sample population was drawn from, the researcher can not be sure this requirement was fulfilled. This additional tool may have aided some students more than others. Some students may have taken the tutoring and the web-based tutorial seriously and some may not have. Again, these factors may have contributed heavily to the student test scores.

## Conclusion

This study set out to study the effects of supplemental educational services on students' achievement. In particular, this study attempted to measure the effects of supplemental educational services on the subjects of language arts and mathematics. To date little is known about what students are being taught in SES after-school settings. This study found statistical data supporting the effects of SES on the subjects of language arts and mathematics. This study found the experimental group to score two times higher than the control group in terms of mean pre and posttest score comparisons. Although statistically significant, this data may have been skewed for a number of reasons.

As previously mentioned, the type and duration of instruction in an ideal location could not be completely controlled. If the instructors were considered highly qualified, this could have contributed to score increases. However, it is noteworthy to mention that the means posttest scores for both the control and experimental groups were both below

the considered passing grade average of 72 adhered to by the district. So although, student scores may have increased, they are still well below passing.

Within the study, students in the experimental group received 5 hours of tutoring through SES. Additionally, students in both the control and experimental groups participated in approximately 48 hours of the web-based tutorial, *Brainchild*. According to the statistical results, both the control and experimental groups displayed an increase in mean posttest scores in comparison to mean pretest scores in both subjects. It is possible that the web-based tutorial had an effect on these scores. Therefore, SES may not be able to account alone for the increase in the experimental group mean posttest scores.

#### Implications for Future Research

Under the No Child Left Behind Act of 2001 (NCLB), the federal government supports programs for disadvantaged children. Regardless of shifts in government party and policy, the percentage of disadvantaged children of America will continue to grow. Therefore, it is pertinent that continuous research be conducted on programs such as supplemental educational services. Although this study was small in sample size with a variety of limitations, the findings should not be completely dismissed. It is apparent that supplemental educational services provided, either with a tutor or a web-based tutorial, displayed a measureable affect on students' achievement. Therefore, further research on the effects of supplemental educational services on students' achievement should be conducted in order to provide greater opportunity for the youth and future of America.

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