

The Impact of Attendance in Supplemental Educational Services on Students' Academic  
Achievement

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## DEDICATION

This dissertation is dedicated first and foremost to my wonderful family. To my husband, Mark, your motivation, patience, encouragement helped me through the most challenging moments during this process. Thank you for keeping me on track, regardless of the circumstances. To my beautiful children, Harrison, Samantha, Connor and Annabel, thank you for being there to help me study, ask me questions, tease me about “the paper” and for always being there to remind me of what this is all about. To Dr. Earley, thank you for being a guide, a source of wisdom and a quiet cheerleader when I needed it most. To Kristen, from orientation to dissertation defense, thank you for your constant friendship and support through this entire process. To TC, thank you first for your life-long friendship and second for the SPSS long distance tutoring.

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## ABSTRACT

### THE IMPACT OF ATTENDANCE IN SUPPLEMENTAL EDUCATIONAL SERVICES ON STUDENTS' ACADEMIC ACHIEVEMENT

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This dissertation explores the attendance trends within NCLB's Supplemental Educational Services (SES). With reauthorization of NCLB on the horizon, knowing as much as possible about NCLB policies is vital to future decision making. Because current SES research tends to focus more on the effects SES has on academic achievement without attention to student attendance within SES, results of such studies could be questioned. Current SES enrollment practices register a student for SES and thus the student is a participant in SES. No distinction is made between students who enroll and never attend SES tutoring and those who enroll and fully complete programs. This study utilized a data set from Virginia Department of Education of students enrolled in SES during school years 2006-2009 and conducted quantitative analysis of student achievement in relation to the number of SES hours they attended. This study concludes with future research suggestions within SES to better inform policy makers.



## 1. Introduction

The purpose of this study was to examine the possible relationships between attendance and academic achievement in Supplemental Educational Services tutoring, free tutoring provided to eligible students through the No Child Left Behind Act of 2001 (NCLB). The assumption imbedded in NCLB is that every individual needs to succeed. Depending on how success is defined, research does support the notion that education and prosperity are tied together. A 2001 study by Hanushek and Woessman (2007) shows successful schooling is directly correlated with individual earnings and overall economic growth. This relationship is not limited to the United States. In 2000, European world leaders met in Lisbon to discuss improving the economy by improving innovation. A policy brief written by Schleicher and Tamassia (2000) summarized the meeting's findings which suggested that the solution for Europe in meeting the Lisbon goals is to invest heavily in education and skills. Schleicher and Tamassia note that technology is lifting the barrier to entry for countries like China and India, and the only way to compete is to provide an education system that is flexible and meets the needs of all citizens. Traditionally, the U.S. economy has relied on a skilled labor force, which hinges on human capital to maintain economic superiority (Hanushek & Woessmann, 2007). This trend is not likely to slow. In fact, each year there are over 200,000 engineering jobs available in the United States, whereas only 60,000 U.S. engineers graduate from college

(Machi, 2008). Connecting somewhat to Schleicher's point, Machi notes that this gap in workforce is often filled by foreign workers from China or India. And, as Schleicher found for Europe, Machi concludes that this is not a sustainable solution to the problem for the U.S. With an increased need for a technologically trained labor force in the United States, education continues to be a very important factor of the country's economic success. The road to a well trained labor force starts with basic academic success in the K-12 arena. Despite the desire to see all students succeed in the U.S., the reality is some students do not achieve at even minimal standards. According to Kim and Sunderman (2005) the achievement gap is one of the "most educational challenges facing American society in the 21<sup>st</sup> century" (p.3). Most recently, The Nation's Report Card ( Department of Education, 2009), a culmination of educational statistics reported by National Center for Education Statistics, reported no significant changes in the gap in math performance between White and Black students or between White and Hispanic students in fourth or eighth grades from 2007 to 2009, keeping the achievement gap stagnant.

As early as 1965, President Lyndon Johnson proposed legislation to help children in low income schools. Subsequently passed by the Congress as the Elementary and Secondary Education Act of 1965 (ESEA), this bill signaled the interest of the federal government in assisting schools with large concentrations of children living in poverty. ESEA was government's first attempt to increase educational opportunities for poor children in the U.S. Title I, as a part of ESEA and now reauthorized as NCLB, provided additional funding to schools with a high percentage of low income families. ESEA has seen some changes since 1965 with the most recent reauthorization signed into law on

January 8, 2002. The No Child Left Behind Act of 2001 (NCLB) made changes to ESEA. Primarily, NCLB introduced new ways of trying to narrow the achievement gap by holding schools accountable for the success of all students.

### **NCLB Background**

Supplemental educational services (SES), the focus of this study, is defined in NCLB as free extra academic help, such as tutoring or remedial help, that is provided to students in subjects like reading, language arts, and math (Title I, Section 1116(d)(12)(C)). [Note: In this study, SES always refers to Supplemental Education Services and never refers to Socio-Economic Status.] The supplemental educational services portion of NCLB gives parents the opportunity to choose from a list of state approved SES providers. SES providers may include non-profit, for-profit or government programs and that provide out of school time educational programming. NCLB requires that providers be approved by the State Education Agency (SEA), based on both guidelines set by the state as well as requirements set forth in NCLB. NCLB requires that providers give parents information about the progress of their children; ensure instruction and curriculum is consistent with that used by the Local Education Agency (LEA) and the state and that they are aligned with the state's achievement standards; meet all applicable federal, state, and local health, safety and civil rights laws; and ensure all instruction and content are secular, neutral and non-ideological (Title I, Section 1116(e)). Funding available for SES is equal to 20 percent of a school's Title I allocation. Of the 20 percent, five percent must be used for services, and five percent must be used for transportation. The remaining 10 percent may be used for either services or

transportation, giving schools some flexibility about how to spend the funds (Rentner, Chudowsky, Fagan, Gayler, Hamilton, & Kober, 2003). Only eligible children may qualify to receive SES. Eligible is defined as any child from a low-income family as determined by the local education agency for purposes of allocated funds (Title I, Section 1116(d)(12)(A)). In general, this refers to students who qualify for free and reduced lunch.

SES is designed to provide supplemental tutoring to qualified students in schools that do not meet NCLB benchmarks. The idea behind SES stems from a free-market ideology. Parents are given a great amount of freedom to choose providers, locations and programming for their children. Within SES are guidelines driving provider practices and some regulation in terms of how SES is implemented, but overall little regulation exists to determine precise interventions or to control those doing the intervening.

The purpose of NCLB is to ensure that all children have an equal opportunity to receive a high quality education, meeting at least minimum standards as set by each state's department of education (Title 1, Section 1001). NCLB tackles the achievement gap through accountability that impacts education at all levels. NCLB instructs states to first develop and implement a single statewide accountability system. Next, the state must ensure that its local education agencies (LEA), which are made up of elementary and secondary public schools, make adequate yearly progress (AYP) as defined in NCLB law (Title I, Section 1116(b)(2)(A)). Adequate yearly progress requires the state to set standards as defined by NCLB. Although the law does not spell out distinct curriculum, academic standards are defined to include challenging content that is coherent and

rigorous and includes the teaching of advanced skills. Additionally, standards must be described at two levels of high achievement (proficient and advanced) and one level (basic) to describe lower-achieving students (Title I, Section 1116(b)(1)(A)). In order to determine students' achievement levels, NCLB requires states to demonstrate that they have implemented a set of high-quality, annual assessments. Assessments, at a minimum, must cover mathematics, reading or language arts and science. AYP is determined by a variety of factors, but annual assessments are the primary factor in determining the performance of a school and, thus, its Local Education Agency (Title I, Section 1116(b)(3)(A)), and the goal is that all students will meet minimum standards by 2014.

The requirement of holding schools accountable via annual assessment was one of the major changes made to ESEA when it was reauthorized as NCLB. More than mere assessment, however, it is Section 1116(b)(6) that gets to the heart of NCLB's purpose: narrowing the achievement gap. This section of the law requires any LEA failing to make AYP to report such information by demographic groups (often called sub-groups in the literature) to the community. Basically, a school's success or failure, identified by sub-groups, is made public. Therefore, the community at large will know how sub-groups of students are performing at their schools. Four groups are identified: economically disadvantaged, students from major racial and ethnic groups, students with disabilities and students with limited English proficiency (Title I, Section 1116(b)(2)(c)(v)(II)). The thinking behind this provision is that this transparency will garner local pressure for schools to improve.

AYP is determined primarily by scores on state standardized tests. A school has one year to make corrective action after failing to make AYP. If the school continues to fail to make AYP, then three specific sequential steps begin. First, the school must offer its students the choice to transfer to another public school within the LEA. The school is responsible for transportation of the student to the school of choice. Second, the school must offer supplemental educational services (free tutoring) to students who remain in the school (do not choose to transfer). Finally, they must prepare a plan to make arrangements to carry out alternate governance of the school, transferring the school's control to a new management team, which may include a number of options (Title I, Section 1116(a)(8)(A)). AYP failure is tracked annually and schools must fail AYP in consecutive years to be held accountable for these consequences. Schools capable of making AYP after failing will essentially start over.

During the first years of SES implementation, the stakeholders in SES (providers, schools, school systems) evaluated and attempted to improve SES. Bergeron (2008) found providers sought ways to increase enrollment and completion of their programs. At both the LEA and state levels policies have been rewritten to deal with unexpected problems. For example, as the number of SES providers increased, competition between providers also increased. As a result, SES providers became savvy, offering students iPods, free laptops and other incentives to sign up for their programs. Many states, including Maryland and Virginia, now have policies that limit incentives to nominal amounts. Some local entities put limits on such things as payment for student absences and are requiring more stringent paperwork to verify student meetings (Bergeron, 2008).

In spite of efforts to increase enrollment, why some parents do not enroll their children is not entirely clear. It is the responsibility of the Local Education Agency (LEA) to notify parents if their children are eligible for free tutoring through SES and educate them about SES. If necessary schools translate flyers about SES into languages that are appropriate for their families. Over time, school systems have developed creative approaches to communicate with parents about the free services for which their children are eligible. In 2008, Bergeron found several states working to tighten up their SES program. For example, in Delaware, radio advertising was used to market the SES programming. In Virginia, many school systems have evenings where dinner is served to families while they learn about SES programs. These efforts notwithstanding, traditional communication, like letters home, continues to be the most common approach used by school districts to alert parents of their children's eligibility.

In order to communicate with parents more effectively, many schools hold fairs which showcase all providers, allowing parents to investigate and make choices about which service will best fit their needs (Bergeron, 2008). With more aggressive attempts to let parents know about their children's eligibility to receive free tutoring services, an increase in students taking advantage of these services has also been noticed. An increase in student participation from 12 to 19 percent was recorded from the 2003-2004 school year to the 2004-2005 school year (Ashby, 2006). Even though this demonstrates some increase in participation, these numbers still fall short of expected participation rates. The goal of NCLB is that all students will meet minimum standards in reading and math by 2014.

NCLB requires LEAs to meet requirements when parental notification is made. The school must identify each approved provider within the LEA, usually based on geographic location. These lists are generated first at the state level. State departments of education approve providers based on an application process and review and provide LEAs with lists of providers who have met their requirements (Virginia Department of Education, 2009). The LEA literature regarding providers must describe services, qualifications and evidence of effectiveness for each provider and devise procedures and a timeline for parents to follow when selecting a provider. Information disseminated to parents must be easily understood, including providing alternate versions of flyers, registration forms or other literature when necessary. If the LEA's budget is not sufficient to provide services for all eligible students, the LEA is required to inform parents about how it will prioritize selection to determine which students will receive services (Title I, Section 1116(e)(2)).

Although enrollment may not be meeting expectations, students attending schools failing AYP, and therefore eligible for free tutoring, are receiving tutoring at a higher rate than students at regular public schools. A recent study by Sanchez, Ehrlich, Midouhas, and O'Dwyer, (2009) at the Institute of Education Sciences (IES) looked at general statistics related to low income students who attend schools that have failed AYP and compared them to those students attending other public schools. They found 22 percent of students attending failing schools received free tutoring, whereas only 13 percent who attend other public schools were receiving some form of free tutoring. Although the IES study did not look at academic improvement of these enrolled students, it did consider



parent perceptions of SES and found 63 percent of the parents of students enrolled in SES were very satisfied with the services.

It is helpful to get a general understanding of the SES enrollment in Virginia, the state about which this study took place. Between 2006 and 2008 7572 students enrolled in SES tutoring in Virginia. Among that group, 52 percent were male and 48 percent were female. An ethnic breakdown of these participants showed 66 percent were Black, 18 percent were Hispanic, 11 percent were White, and 5% were Unspecified. Finally, Virginia SES students during these two years were represented across grades K-8, with the majority of enrolled students, 15% and 14% respectively, in fourth and fifth grades (Virginia Department of Education, 2009).

### **Statement of the Problem**

Although research from 2003-2009 showed that there has been a slight increase in the rate of student enrollment in SES, these numbers do not indicate how much, if any, of the program they have actually completed (Ashby, 2006). Overall, research on SES is limited and within that body of literature, very little addresses the attendance aspect. As a result it is difficult to determine SES success without having a solid understanding of whether or not students who enroll in SES are actually showing up and completing such programs. In fact, few states collect participation details from providers. Prior to beginning this research, a survey of each of the 50 U.S. state's SES programming was conducted during the 2007-2008 school year (Bergeron, 2008). Using data found on states' SES web sites, emails to SES coordinators and phone calls to SES coordinators, data were gathered regarding individual states' approaches to SES programming. Direct

requests for attendance data were made. Only two states, Virginia and Indiana, were able to produce data related to student participation in SES through attendance or hours completed. It is logical to conclude that part of the reason current scholarly research about attendance in SES is lacking is because there are no reporting requirements related to attendance or time spent within SES. States are either not collecting these data, or they are not compiling and organizing it.

The purpose of this study is to address the current lack of information regarding attendance in Supplemental Educational Services. Whether or not a connection between attendance and SES exists may be significant in future policy decisions related to SES. This study addressed SES attendance by using data sets provided by Virginia's Department of Education. The data sets included information about students enrolled in SES tutoring between 2006 and 2009. The data included whether the students received tutoring in math or reading, their gender and ethnicity, which SES provider they chose to provide tutoring, the total number of SES tutoring hours they attended and pre and post scores for reading and math Standards of Learning assessments, where available. The research questions asked in this study were as follows:

1. Are there differences in the total number of SES hours attended and student demographic variables, including gender, ethnicity, subject area and SES provider?
2. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between enrolled SES

students who have virtually no attendance, zero to one hour, and those who have the highest attendance, over 40 hours?

3. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between SES students who attend 1-15 hours, 16-30 hours, and over 30 hours?

It is the expectation of this research that students who attend more hours of SES tutoring will have greater differences in their state standardized assessment scores.

### **Definition of Key Terms and Abbreviations**

**Achievement gap.** The disparity in academic performance between groups of students. It is most often used to describe the troubling performance gaps between many African-American and Hispanic students, at the lower end of the performance scale, and their non-Hispanic white peers, and the similar academic disparity between students from low-income and well-off families.

**Adequate yearly progress (AYP).** The State's means of determining student achievement that must apply the same high standards to all public school students in the state, are statistically valid and reliable, result in continuous and substantial academic improvement for all students, measure the progress of public elementary schools, secondary schools, local education agencies and the State based primarily on academic assessments, and include separate annual objectives for continuous and substantial improvement for all public school students and students in the four sub-groups (Title 1, 1116(b)(2)(C)).

**Attendance.** The number of sessions a student is reported as present, or attending the session, as reported by the school system to the state Department of Education.

**GAO.** The U.S. Government Accountability Office.

*LEA.* Local Education Agency

**Peer tutoring.** Tutoring taking place between two students of similar age and level.

**SEA.** State Education Agency

**SES.** Supplemental Educational Services or tutoring services conducted outside of the regular school day. These services may be one on one, small group or computer based and may be delivered at school or another location. See graphic below for more information. Note: Nowhere in this study does SES represent Socio-Economic Status, a frequently used acronym in education research.

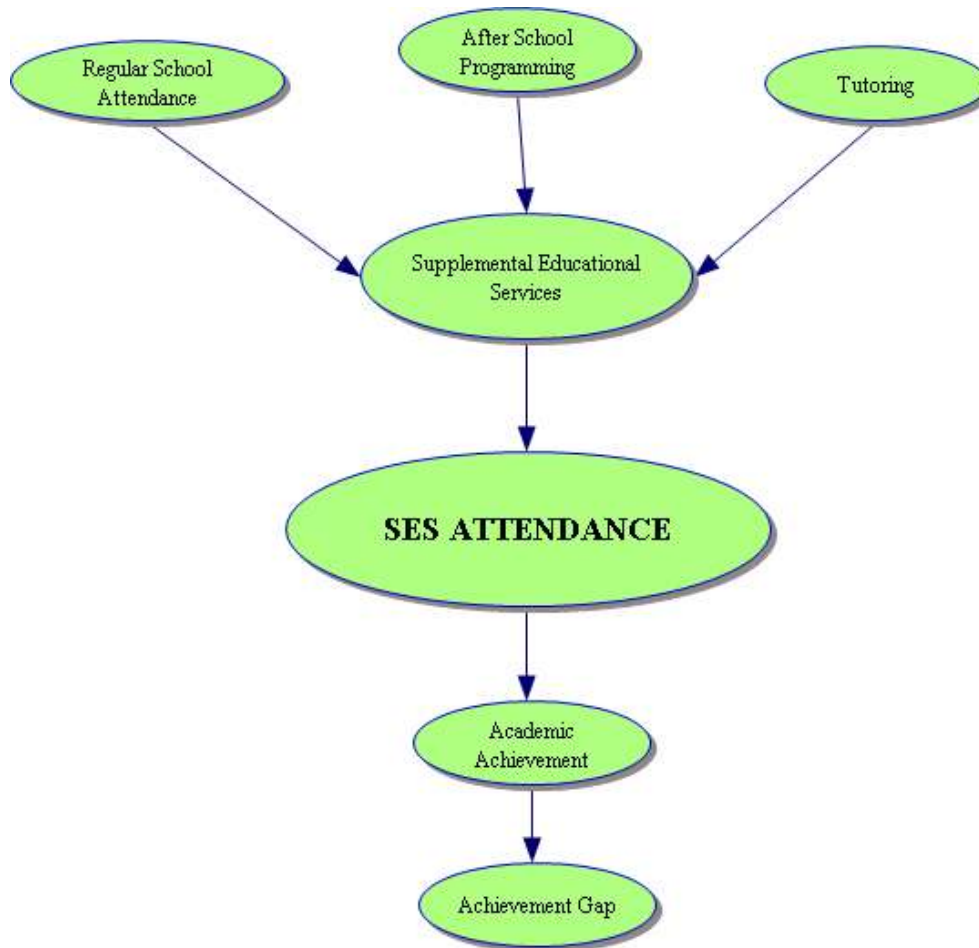
**Title I.** Part of ESEA that aims to close the achievement gap by targeting subgroups. Twenty percent of Title I funds are allocated to pay for SES.

## **Conceptual Framework**

The conceptual framework used to develop this study was multi-dimensional in nature. As Figure 1 illustrates, at its core, this study hinges on the achievement gap and educational policy efforts, such as Supplemental Educational Services, aimed at narrowing the academic achievement gap between students in sub groups and those who do not face similar challenges. One such possible solution, born from ESEA and then NCLB is Supplemental Educational Services, which is a combination of two initiatives

often used to help children who struggle: after school programming and private tutoring. After looking at the literature surrounding SES, however, it became apparent a key ingredient to the success of either after school program or private tutoring is attendance. The end goal focuses on the role SES might play in narrowing the achievement gap that exists between NCLB sub group students and others. NCLB defines sub-groups first by identifying ethnic groups (American Indian, Asian, African American, Latino, White) and then by classifying students with special needs (students with disabilities and English language learners). This study begins with a brief look at achievement and its impact on the individual and society, the current state of the achievement gap and moves to consideration of traditional after school programming, which has existed long before NCLB and SES emerged. Within each of these sections, the nexus of these topic and variables of race, ethnicity, gender and SES provider were considered. The study then moves to examining tutoring in general, considering tutoring from global and domestic perspectives as well as tutoring in its more common forms. Finally, a review of SES in general, achievement with and without attendance considerations, and SES provider research presented to provide a foundation from which the analysis to follow took place.

## Conceptual Framework



*Figure 1* The framework of this study focuses on SES attendance. Surrounding SES attendance are Supplemental Educational Services in general, which breaks down into three categories of interest: regular school attendance, after school programming and general tutoring. The conceptual framework is written from the belief that successful SES experience (which would include solid attendance) lead to improved academic achievement which in turn narrows the achievement gap.

## 2. Literature Review

### **Introduction**

The purpose of this study was to examine the possible relationships between attendance and academic achievement in Supplemental Educational Services tutoring, free tutoring provided to eligible students through the No Child Left Behind Act of 2001 (NCLB). It aims to answer three questions.

1. Are there differences in the total number of SES hours attended and student demographic variables, including gender, ethnicity, subject area and SES provider?
2. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between enrolled SES students who have virtually no attendance, zero to one hour, and those who have the highest attendance, over 40 hours?
3. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between SES students who attend 1-15 hours, 16-30 hours, and over 30 hours?

As the following literature review will uncover, current research in SES is limited in general. Within that scope of literature, however, there is even less information related

to students' attendance patterns in SES. Without understanding the students' attendance in SES, it is difficult to draw conclusions about whether or not SES is, in fact, an effective policy.

The literature review begins by looking at the achievement gap, which is the primary reason Title I, and therefore, NCLB and SES are in existence. Within that discussion, information about the differences in academic achievement between males and females and between various ethnic groups will be presented. Particular attention will be paid to how recent studies report on how the U.S. is doing in its efforts to narrow the achievement gap. The literature review then addresses the importance of education as it relates to both the individual and society. It then delves into the area of after school programs, which have been around much longer than NCLB and SES and have also often been implemented to try and narrow the academic achievement gap. The literature review then looks at tutoring from both a global and domestic viewpoint and from a variety of tutoring perspectives. The review continues with a review of the literature related to attendance in a general sense to see how attendance generally affects student performance in a variety of settings. Finally, a review of the literature about SES, which encapsulates all of the above, provides a look into the current research surrounding SES, any tutoring information available related to SES and academic achievement, and research related to SES that considers attendance, providing a solid understanding prior to the analytical process.



## **Achievement Gap**

### **Ethnic Gap**

Title I, the section of NCLB which funds Supplemental Educational Services, aims to reach out to underachieving students from economically disadvantaged families. By holding schools and states accountable for their students' success and furthermore making such achievement public information, perhaps NCLB has brought the issues surrounding the achievement gap to the forefront.

Federal attempts to narrow the achievement gap go back to the first iteration of ESEA in 1965; however, some research shows there is still a great deal of work to be done in this area. Kaushal and Nepomnyasch (2009) pooled data from 1996 and 2001 from panels of the Survey of Income and Program Participation (SIPP). This survey was a national representation of U.S. households. All participants were required to be 15 years of age and over. They were interviewed by the Census Bureau every four months for a period of two and half to four years. This resulted in a pool of 40,000 individuals from each year. The survey detailed information about economic circumstances of those filling out the survey. Detailed information about demographics, employment, income, child-well being, health care, school enrolment and other data were collected. Using Chi Square analysis Kaushal and Nepomnyasch found two outcomes related to education. First, 20 percent of White students are in gifted classes, and only 15 percent of Black students and 14 percent of Hispanic students are enrolled in the same gifted classes. They also found White children are almost half as likely to have repeated a grade or to have been suspended or expelled from school as black children (2009).

Another secondary analysis of a different data set was completed by Farley and Allen (1987) who reviewed U.S. Census data from 1950 through 1980 and researched changes and trends among Blacks in terms of both the labor force and educational attainment. The findings in educational attainment included the contrast of completed schooling between White students and Black students over four decades. They reported in 1940 Blacks ages 25-34 were three and a half years behind Whites in education completion. By 1960 this gap closed to 2 years, and by 1981 the differences were virtually indistinguishable for median years of school completed for 25-34 year olds. Interestingly, these researchers report percentage of Blacks completing college as compared to Whites decreased from 12 percent in 1940 to five percent in 1981. They propose this trend is due to the decrease in the presence of the Black Colleges in the North, which were more prevalent decades ago.

More recently, the U.S. Department of Education (2009) and the National Center for Education Statistics published the Nation's Report Card which follows the achievement gap between Black and White students closely in both reading and mathematics. In this report, some changes were found from 1992's report to the most current report which used 2007 data. At the state level, gaps still existed in 4<sup>th</sup> grade mathematics, but the gaps were narrower than in 1992 in 15 states with Black students demonstrating a greater gain in average scores than that of the White students. For 8<sup>th</sup> grade students the narrowing of the gap appeared to occur in only four states. Most interesting about these findings is that three of the four states are Southern states (Arkansas, Oklahoma and Texas). Historically these states have shown larger gaps

between Black and White students. In 4<sup>th</sup> grade reading, gaps narrowed in three states (Delaware, Florida and New Jersey). In 8<sup>th</sup> grade reading, there was no statistically significant change in the gap from 1992-2007. This report shows some improvements in some locations, but overall it does not represent the kind of equality in education that was the goal of ESEA and is now the mission of NCLB.

The achievement gap is not only evident between Black and White students, but it also exists between Hispanic and White students as well. KewalRamani, Gilbertson, Fox, and Provasnik, (2007), for the National Center for Education Statistics, reported findings related to the achievement gap for students in ethnic sub-groups. At the time of their report, which was based on 2005 data, Hispanics were the largest minority group in the U.S., but Hispanic children ages 3-5 were less likely to attend pre-school than any other sub-group population. And, similar to the conclusions of the previous study, Hispanics scored lower than White and Asian students on both 4<sup>th</sup> and 8<sup>th</sup> grade reading and math assessments.

The concerns of the achievement gap continues at the college level with research by The College Board's National Task Force on Minority Achievement (1999), which offers compelling evidence about the persistent gaps that exist between African American, Latino and Native American students and White and Asian students who start in the early grades and continue through post secondary levels of education. Their research consists of statistics drawn from NAEP test scores, SAT scores and Advanced Placement (AP) test scores. Overall, the report reveals some progress among minorities within higher education. Between 1980 and 1995 the percentage of African American,

Latino and Native American students earning bachelor's degrees increased nine to 13 percent, earning professional degrees seven to 11 percent, and those earning doctoral degrees remained constant at about six percent. This same minority population, however, grew from 24 percent to over 30 percent in that same time frame, creating an imbalance of academic achievement within the minority population. Perhaps an even more significant finding of the College Board's Task Force's report related to the lack rigor within minority classrooms. Researchers compared test scores on the SAT9 exam to classroom grades and found students from low income schools who took advanced classes and scored A's in those classes scored lower on the test than those students from high income schools with equivalent classroom performance. In fact, the study concluded that a student earning an A in an advanced class in a low income school earned a test score equivalent to a C as compared with students from high income area schools (The College Board's National Task Force on Minority Achievement, 1999).

Turning attention to the achievement gap in Virginia, in 2003, the Education Trust published a report which compared achievement gap results from all states to each other using the results from both each state's standardized assessment and the NAEP math and reading tests. For all students who took math assessments in Virginia, the state on which this research is based, the gap between White students and Black students widened between 1990 and 2000 by 3 percentage points among eighth grade students in mathematics. When comparing reading scores on the NAEP reading assessment of all of Virginia's fourth graders with those of other individual states' fourth grade students,

Virginia ranks fourth overall. In fact, using the same criteria, Virginia's Black fourth graders rank second among all states in reading performance.

### **Gender Gap**

NCLB recognizes ethnic sub-groups, but it does not consider males and females when it identifies student achievement. For the present study, gender was considered; therefore, it is valuable to examine some of the research surrounding gender and achievement. Long, Iatarola and Conger (2009) studied students who entered 8<sup>th</sup> grade between 1998 and 1999 to analyze the difference in student readiness for math when they enter college. Using data provided by the Florida Department of Education, which included state standardized test scores, math subject selection in secondary school, school grades and a measure of college readiness, Long et al. determined whether students were required to take math remediation courses as freshman in college. Once they eliminated students for whom data were not available or who did not attend a Florida college (73), 461 students were examined to see if there were differences in the math readiness level between boys and girls. To analyze the data, they created an empirical model which accounted for math college readiness, highest math level taken in high school, demographic details (ethnicity, gender, LEP status and free and reduced lunch) and achievement in math in 8<sup>th</sup> grade. They calculated an index and compared various groups to each other. Considering gender in particular, they found females were less prepared for college math courses than males. However, when controlling for performance in 8<sup>th</sup> grade mathematics, these differences were reduced significantly, suggesting the gender gap may be most vulnerable during middle school.

Unlike Long et al., Vanneman, Hamilton, Baldwin, Anderson, and Rahman, (2009) with the National Center for Education Statistics reported on the gender gap between males and females in 4<sup>th</sup> and 8<sup>th</sup> grades based on their performance on the National Assessment of Education Progress. This report included information about ethnic gaps as well as gender gaps. They found among 4<sup>th</sup> grade students, performance in math for Black females improved over White females but the difference between Black males and White males was not statistically significant. The same results were seen for 8<sup>th</sup> grade math students. In reading, the opposite results were seen with Black males narrowing the gap between their White peers, but the difference between Black and White females was not statistically significant. In 8<sup>th</sup> grade reading there were no statistically significant gains made for males or females.

Overall, research shows some progress being made regarding academic achievement between White and non White students. However, the research also shows the minority population is growing and the gains being made are not in line with that growth. The achievement gap between ethnic sub-groups continues to be of concern. The research surrounding the gender gap is not as prevalent, and most studies compare males and females in terms of ethnicity. Based on the research available, however, this factor remains important when considering the results of SES tutoring.

## **Academic Achievement and Society**

### **Early Achievement and Dropout Rates**

In order to better understand where NCLB is rooted, consideration of student achievement and its impact on the individual and society is helpful. Hickman, Bartholomew, Mathwig, and Heinrich (2008) used official school data via random sample of 119 students. Using multiple *t* tests, the researchers demonstrated differences in absenteeism between high school graduates and dropouts as early as kindergarten. Using official school records, they looked at the number of days when a student missed school at each grade level from kindergarten through eighth grade. Absences were recorded regardless of whether they were excused or unexcused. For students in grades K-2, Hickman et al. (2008) converted qualitative grades (outstanding, satisfactory and unsatisfactory) to Arabic terms that were then converted to GPA format. For students in grades 3-12 this conversion was not necessary and pure GPA format was used. This study analyzed whether there were differences between graduates and dropouts in academic performance. Results showed a statistically significant difference in the academic performance between graduates and dropouts. They found writing and spelling differences occurred as early as kindergarten. Reading, English, and mathematics differences occurred as early as first grade. They concluded that ultimately students' poor performance in the classroom and standardized testing leads to low academic self-efficacy, which encourages school absences and poor grades, and eventually leads to dropping out of school (Hickman et al., 2008).

Academics and dropout characteristics were further investigated by Monrad (2007) at The National High School Center, which supports research based programs that benefit high school students, particularly those students in NCLB subgroups. Monrad's 2007 study used data the American Institutes for Research collected under contract from the U.S. Department of Education. Monrad sorted and placed these data into a fact sheet that includes snapshot information about high school dropouts. In his 2007 publication, he reported that the lowest performing readers are more at risk to dropping out of high school and that students in the lowest quartile are 20 times more likely to drop out than are their top-performing peers. Although this fact sheet does not specify how the data were computed, its sources, USDOE and NCES, are well respected sources for data related to education.

### **Impact of academic failure**

Continuing his research on high school dropouts, Monrad and the National High School Center (2007) delved further into the possible reasons why students fail to graduate and considered how dropout rates may impact individuals and society. In 2007, the report showed high school dropouts are 3.5 times more likely to be incarcerated, and that within the state prison system, 75% of inmates are estimated to have dropped out of high school. Finally, he claims 59% of inmates in federal prisons drop out (Morand, 2007). Although the National High School Center is a well respected non-profit organization, and these findings are interesting, they should be read with some reservation as Monrad provides no details about how such conclusions were reached.



The effect of high school dropouts on society is multi-dimensional, but ultimately it is the economic strain that may be significant. Using data from the National Center for Educational Statistics (NCES) and the U.S. Department of Justice, the American Youth Policy Forum (2009) released a report regarding the impact of dropping out of high school. The report recognized that the definition of dropout may vary from one organization to another but reported that they used data consistent with that from the U.S. Census. Details of the report included information related to the decline of earning power of high school dropouts from 1971-2002. Male high school dropouts' earning power dropped 35 percent and females' dropped ten percent. Additionally, high school graduates will earn as much as 300 percent more than their high school dropout counterparts. Finally, those dropping out of school become more dependent on public assistance, putting a strain on society as a whole, with only 55 percent of high school dropouts employed compared with 74 percent of high school graduates and 87 percent of those with Bachelor's Degrees.

The link between dropout rates and crime is clear as well. In a New York state maximum security prison, Stephens (1992) researched the education backgrounds of 220 male prisoners and found seventy-nine percent of them were high school dropouts, which is consistent with the National High School Center's finding. Vacca has contributed several studies to research surrounding the relationship between criminals and education. Vacca's 2004 report, which summarized his findings about the relationship between education and prisoners, explored the connection between crime prevention and teaching juveniles to read. His results suggested crime and education are inextricably tied together

and that many factors, like levels of achievement, are related to criminal activity. In a paper reviewing various research studies related to crime and learning disabled students, Winters (1997) suggests poor academic achievement is a common quality of juveniles within the justice system. Winters' review found that criminal offenders with higher IQs, but whose past academic achievement was low, were more likely to commit crimes than those with low IQs and high achievement. Winters highlights the connection between being and feeling successful and being motivated to be productive within society.

High school dropout concerns are not limited to the U.S. The completion of education is a concern throughout the world. Hunt (2008) studied the trend of student dropouts and reviewed literature across the globe to identify various indicators of student dropout rates. This analysis of qualitative, quantitative and mixed-methods studies across six nations was conducted to determine why children drop out of school, the processes involved in dropping out, the factors to mitigate against dropping out and the gaps in research around dropping out of school. One of the many findings of this study offered evidence that children with low achievement as early as 2<sup>nd</sup> grade are more likely to drop out than high school students who demonstrate higher achievement. Hunt's study showed low achievement can actually be a slippery slope where poor outcomes lead to lower expectations and to increased non-enrolment and ultimately dropping out of school. Hunt's analysis shows a link between diminishing achievement and diminishing perception of the value of school. Similar to Winters' (1997) findings, the qualitative aspects of Hunt's research, which included interviews and surveys, showed parental

attitudes changed when students struggle academically. Thus, if parents endorse absenteeism, the poor achievement ensues.

The impact of dropout rates affects the individual and the society. The Alliance for Excellent Education, a non-profit advocacy group with a mission to promote high school transformation to make it possible for every child to graduate and be prepared for post-secondary learning, published a report based on U.S. Bureau of the Census data from 2006. The Alliance's report (2009) illustrated that a single 18-year old dropout earns \$260,000 less over a lifetime and contributes \$60,000 less in federal and state income taxes than those who graduate from high school. Extrapolating these data across the 23 million drop outs in the U.S. results in a loss of \$192 billion in individual income and \$26 billion in taxes annually. The economic impact of high school dropouts is not just monetary in terms of wages and taxes, however. According to two studies comparing the quality of life of GED completers and high school dropouts, high school dropouts will not only earn less and pay fewer taxes, but they will also have greater likelihood of health problems (Ou, 2008; Tyler & Lofstrom, 2009). Using data collected from the National Center for Educational Statistics (NCES) from 1972-2005, Tyler and Lofstrom used a longitudinal design looking at the characteristics of students who dropped out of school and found minorities are more likely to drop out of school than white students, and they concluded the impact of dropping out on segments of the population under stress is exacerbated. Tyler and Lofstrom's work here is not empirical research, rather they analyze existing studies and draw conclusions based on such research. Although it is helpful to examine other works, they leave some questions unanswered. Details about

each study's methods and procedures, such as whether students with GEDs were considered graduates or dropouts, leave some question as to the value of their findings.

Ou's study used a secondary data set from the Chicago Longitudinal Study, which tracked over 1,500 students from high poverty neighborhoods in Chicago (2008). These students graduated from Kindergarten in 1986. The study sample included 1,372 of the original participants and tracked students from birth through age 24. Data were collected from parents, students, teachers and other sources, including a survey given between age 22 and 24 and criminal court records in Chicago. This study was broad in nature and included comparisons of students who graduated, took the GED, and those who dropped out of school. Ou compared these three groups of students to five factors, earnings, health, mental health, crime and substance abuse. Using significance tests (*t*-tests and *F* tests) the five factors were compared with the three groups of students. Post hoc tests (Tukey b) were then run to determine significance between each pair of means. Not only did the study discover economic impacts of dropping out of high school, but it uncovered health related implications on the individuals who drop out as well. Ou used GED students as their own category, which prevented any confusion about where these students belonged. Ou also, considered a variety of factors, including health related factors, to better inform this area of research. Ou's 2008 study was limited to students who participated in the Chicago Longitudinal Study, which may have skewed the results, since all of these students met the demographic requirements of the Chicago Longitudinal Study, but the breadth and depth of his research provide useful results.

The research cited here suggests that graduating from high school may contribute to many benefits at both the individual and societal level (Alliance for Excellence, 2009; Hickman et al, 2008; Hunt, 2008; Monrad, 2007; Ou, 2008; Stephens, 1992; Tyler & Lofstrom, 2009; Vacca, 2004; Winters, 1997). Graduating from high school appears to provide economic advantages over those who do not graduate. Those advantages spill over into areas like physical and mental health as well. When individuals are healthy, economically and physiologically, society is also healthier. More graduates results in economic benefits to society in the form of taxes and fewer individuals dependent on the government for assistance. Research also supports the notion that dropout prevention must begin early. As early as kindergarten, education has an impact on outcomes. SES is one attempt to address this issue when it is most important.

### **After School Programs**

Considering after school programs in general is important when considering SES. One of the major requirements of SES is that the tutoring take place outside of the normal school day, which has resulted in SES becoming an after school program of sorts. But, after school programs are not new. In order to address some of the issues that impact children of low income families and keep children engaged after school hours, after school programs, in general, have become more common. For the purposes of this study, after school programs are those supported by the school system at either a federal, state or local level. They take place after school, usually on school grounds and will typically encompass some academic feature. After school programs represent a diverse network of

providers that state education agencies can tap as they seek to provide students access to rich after school experiences. Newman, Fox, Flynn and Chisteson (2000) reported for a non-profit organization called Fight Crime: Invest in Kids, which provides information about quality after school programming to help children during after school hours. Although their research methods are not clear, they claim after school programs have a long history of providing tutoring and academic enrichment in the schools and communities and typically offer a broad range of enrichment activities and supports that engage children in learning in ways that differ from the regular school day, and many have [self] documented positive contributions to students' academic success.

After school programming is not new. For decades, community organizations, for profit organizations and schools themselves have offered students supplemental afterschool enrichment. In 2000, Chung, in conjunction with the U.S. Department of Justice and the Department of Education, compiled information from research about the impact of afterschool programs. Chung's report found students participating in afterschool enrichment were safe and resulted in solid academic achievement. Although this report was not an empirical study, the information was based on various empirical studies conducted about after school programs across the country.

The Afterschool Alliance (2008), a non-profit organization supporting after school programming, annually evaluates after school programs like Federal 21<sup>st</sup> Century Community of Learning Centers, which provide after school programming for at-risk youth. In a similar manner to Chung (2000), the Alliance's 2008 Academic report summarized analyses of a variety programs throughout the nation. The Alliance attempts

to avoid the typical after school program evaluation, which is self-reported. Although these studies are often acceptable to stakeholders like parents and teachers they are not as valuable to the federal government or other major funders. The Alliance commissioned third party evaluators to examine dozens of after school programs nationwide. In this case, the evaluations included a meta-analysis of 35 programs by Mid-Continent Research for Education and Learning (McREL); a meta-analysis covering 73 studies by the Collaborative for Academic, Social and Emotional Learning (CASEL); a study of 35 high-quality afterschool programs in California, Colorado, Connecticut, Michigan, Montana, New York, Oregon, and Rhode Island by researchers at the University of California, Irvine, the University of Wisconsin-Madison and Policy Studies Associates; a study of Chicago's After School Matters by researchers at the Chapin Hall Center for Children at the University of Chicago; a study of academically focused New Hampshire programs by the RMC Research Corporation; and a study of the five-city, California-based Communities Organizing Resources to Advance Learning (CORAL) (After School Alliance, 2008). The Alliance compiled the data of over 100 studies. The primary requirement set by the Alliance to include studies in the analysis was that the studies must have been conducted by a third party evaluator. They aggregated the data into categories of after school program benefits, improved attendance in school, improved test scores and students at risk, for example. Their findings show overall after school programs having a positive impact student attendance, with some programs showing a decrease in absences of up to 9 school days. Academically, the report indicated students participating in after school programs improved their state standardized test scores, SAT

scores and overall grade point averages over non-participating students. Another academic outcome of after school programs was seen in data that showed students with the highest attendance at after school programs had significantly higher reading achievement than students in regular day care environments. The Alliance study also found long term benefits of after school programs and evidence that students attending after school programs had a higher likelihood of graduation than matched non-participants. Finally, the report showed that those students with the greatest need showed the greatest gains, supporting the notion that after school programs are useful at reaching a population similar to the population served by SES programming. The report does not discuss methods of data analysis in detail. So the findings, while interesting, may have limited value.

Considering after school programs with a different goal in mind, Carswell, Hanlon, O'Grady, Watts, and Pothong (2009) evaluated an inner-city after school program called Alternative Education Program (AEP) for African American youth at risk. The AEP program was an intervention for students in grades six through twelve who had already shown signs of elicited behavior such as drug use or criminal activity. The intervention included focus groups, case management and other aspects above and beyond typical after school programs. A Student Questionnaire was given to 78 males and 31 females, providing self-reported data about their experiences before and during the AEP. Parents and caregivers were also given a questionnaire, the Caregivers Questionnaire, which inquired about similar experiences from the caregiver's perspective. Of the 109 student participants, 60 were experimental and 59 were part of a



control group. The study reported a number of findings based on the implementation of the AEP and found family involvement, high quality instructors and structured programming to be key factors of a successful after school programming which targets at risk African American youth. Carswell et al. do not make clear the specific way in which the data were collected during program implementation and then analyzed after implementation. It is difficult to ascertain the benefit of this study without more details about this process.

Finally, Lauer, Akiba, Wilkerson, Athorp, Snow, and Martin-Glenn (2006) conducted a synthesis of the research on out-of-school time programs. Researchers acknowledged the lack of rigorous research related to after school programs. For their meta-analysis, they selected only those studies (35) that were published in peer-reviewed journals, researched K-12 students, conducted analysis of academic achievement and evaluated the program effectiveness for students who were at risk of failure. To be included, studies had to have disaggregated data per after school program and used control or comparison groups to estimate effect sizes. In analyzing the 35 studies, they identified five characteristics by which all studies were measured. These identifiers were: time frame, grade level, program duration, program focus and student grouping. Once the studies were identified, they were coded for this information. They used a variety of research based coding procedures, depending on the specific area of study. Lauer et al. also paid special attention to construct validity, external validity, internal validity and statistical validity to help produce more solid results. They used two different pairs of authors for the coding process to increase reliability. Results of this study were separated

into reading and math outcomes. For reading, results showed a statistically significant benefit for at-risk students who attended out-of-school time programs. Considering the identifiers within the reading programs, results showed neither time frame nor program focus had statistically significantly impact outcomes. Homogeneity analysis for grade level, however, showed some variation of effect sizes. As well, duration of programs was statistically significant, finding that programs longer than 44 hours and shorter than 210 hours were most effective. Finally, in reading, student grouping showed significant results as well, with one on one grouping having the largest effect.

In mathematics, results also showed out-of-school time programs had an overall statistically significant effect. Again, time frame did not show a significant impact on outcomes, but unlike reading, program focus, specifically those focused on academics, showed a statistically significant effect. For grade level, high school students showed the largest effects. For duration of programming, the greatest effect was seen in students who attended 46 to 75 hours of programming. Overall, this research study showed after school programs can have positive impacts on student achievement. The preponderance of evidence surrounding after school programming suggests that after school programs may be helpful in a host of ways to children, from safety to academic achievement. It is not entirely clear, however, whether they may contribute significantly to narrowing the achievement gap.

## **Tutoring**

### **Global View**

“Tutoring has a long and venerable curriculum history. It is as old as civilization itself. In fact, tutoring has been around longer than the common school forms of education that we take for granted today” (Gordon, Morgan, Ponticell & O’Malley, 2004, p. 60.). If one is to consider the possible impacts SES may have on student achievement, it is important to understand tutoring from a variety of perspectives. Tutoring exists in many forms, environments and for different purposes. Perhaps most interesting to note is that the tutoring phenomenon is not limited to the United States. Nath (2008) studied the tutoring trends in Bangladesh. Using five databases spanning seven years (1998-2005) provided by a government program called *Education Watch*, Nath used data results from surveys for over 33,000 participating households and over 3,000 tests from students involved in tutoring. Using a multi-stage sampling procedure, trained field investigators went door to door and administered the household survey. Additionally, assessment of basic education was completed in a one to one setting, and students in school groups of students were given assessments to determine specific competencies.

How Nath analyzed the data collected was not clear in his report. However, demographic breakdown of the surveys showed boys were more likely to be tutored than girls, students who live in urban areas were more likely to be tutored than those living in rural areas and older students were more likely to be tutored than younger students. In terms of academic achievement, Nath’s research used results of a standardized test of

basic skills given to all students, which included some students who received tutoring and some who had not. Outcomes of this analysis showed 50 percent of students who received tutoring passed the test, with only 27.5 percent of students who had not received tutoring meeting the same goal. Another aspect of this study included results from a competencies assessment from five classrooms. The assessment contained a total of 27 academic competencies. Nath found that those students receiving tutoring met two more competencies than those students not receiving tutoring. The particular competencies achieved were not mentioned. As well, specific student numbers were not discussed in this study; therefore, the actual significance of the findings is difficult to measure (Nath, 2008).

Whereas Nath looked at the potential academic impact of tutoring, Dang (2007) considered only the economic aspects of tutoring. His study of tutoring in Vietnam used data provided by Vietnam Living Standards Survey (VLSS), which is a national survey conducted by Vietnam's General Statistics Office. The survey included 138,641 households. The purpose of the study was to provide an overview of the tutoring situation in Vietnam and identify which families were using private tutoring. There was an assumption suggested in the study that tutoring was beneficial. The study found 34 percent of households spend money on private tutoring. Additionally, this study showed a great disparity of how much various households spend on private tutoring, with the richer families spending over 30 times more on tutoring than those from poorer areas.

Unlike Nath and Hai-Anh Dang who studied countries outside of the United States, Lee (2007) brought global research into the U.S. when he compared the academic

progress of students in Korea to those in the United States. Using results from the TIMMS (Third International Math and Science Study) and teacher surveys from 41 countries on students receiving after school tutoring in math, Lee analyzed the secondary data sets, used independent samples *t* tests, correlations, multiple regressions and logistical regressions and found that, although after school mathematics tutoring is common in all countries studied, there are significant differences both within and between countries in terms of how tutoring is carried out. One of the major differences discovered between Korea and the U.S. is that tutoring in Korea is primarily for the purpose of enrichment for higher achieving students, whereas tutoring in the U.S. is primarily for remediation of students who are academically struggling. Supplemental Educational Services is a good example of the tutoring Lee observed here, as its primary purpose is to help close the gap between higher achieving and lower achieving students who are struggling academically.

As the previous research shows, tutoring is a global phenomenon. To further illustrate the extent to which tutoring has become a part of the academic landscape, Gordon, Morgan, O'Malley, and Ponticell (2007) conducted a literature search using ERIC, PsycINFO and Dissertation Abstracts data bases to find out the history of scholarly research related to tutoring. They searched articles, books, papers and speeches published from 1960 – 2004. Their research showed over 4,500 citations on tutoring and over 5,000 citations on mentoring. They broke down the findings further by categorizing the types of tutoring being conducted. They did not indicate whether they limited their

findings to peer reviewed items; however, the findings reveal a significant interest in tutoring within the area of education research.

### **Domestic View**

**One on one tutoring.** SES is particular to the U.S.; therefore, it is important to look carefully at tutoring as it exists for students in the United States. Focusing on one on one, private tutoring in the U.S., Elbaum, Vaughn, Hughes, and Moody (2000) studied the effectiveness of one to one teaching of reading to elementary students using a meta-analysis of 29 studies which included tutoring interventions in elementary reading. These researchers restricted studies to those published between 1975 and 1998; had participants who were elementary students and identified as at risk for reading failure (scoring in the lowest 20-30 percentile on grade level reading assessments or possessing learning disabilities); received one on one instruction in reading compared with those who did not receive one on one instruction in reading; and had data outcome which was amenable to the calculation of effect size. They calculated effect sizes by computing the difference between the mean posttest score of the intervention group minus the mean posttest score of the control group and divided by the standard deviation of the control group. They found, on average, students receiving one to one instruction performed at a level  $2/5$  of a standard deviation higher than the average level of the control group.

Unlike Elbaum et al., Gordon et al. (2007) conducted a series of studies over a seven year period of time. Interventions using a variety of tutoring models, these studies took place from 1991 through 1998 in with three separate interventions and resulted in

one of the most intensive studies related to tutoring. The data gathered from years of research was compiled in a book by Gordon et al. (2007) where the authors discussed tutoring from a variety of perspectives. Moreover, this series of studies applied models of mastery learning, PSI (peer tutoring) and individual instruction. Each used the Individual Instruction Program made up of several detailed curriculum scripts across 300 learning descriptors. Over 7000 students (K-16) were included in the combination of studies and differences across time blocks (length of tutoring sessions) as well as differences in performance were examined. Results indicated that there were consistent differences in academic achievement across time blocks. Additionally, a 6-month to one year gain in skills improvement appeared to occur around the 30<sup>th</sup> hour of instruction. This detail of the study is important in terms of SES as studies begin to try and find the tipping point in a tutoring experience where academic gains begin to be noticeable. Looking at individual, peer and computer assisted tutoring environments, the most telling result included that which revealed greater success among students tutored at home rather than at school or at an alternative location such as a library.

Overall these studies provide insight about tutoring from a variety of perspectives and how tutoring impacts students in a number of different ways. Within the tutoring arena, there are different types of tutoring, each offering its own benefits and challenges.

**Peer tutoring.** Tutoring may be conducted in a variety of settings, and although peer tutoring is not an option within Supplemental Educational Services, looking at the effects peer tutoring may have on academic achievement may provide further insight into how tutoring may affect student achievement. As well, SES providers may use college

students as tutors, and thus, in some high school settings a peer-like environment may be created. Peer tutoring is one form of tutoring frequently used due to its affordability and ease of implementation. Labbo and Teale (1990) studied the effect of cross-age peer tutoring, which is when older students tutor younger students. One of the goals of cross-age tutoring is helping the tutor improve academically as much as the tutee. In this study, Labbo and Teale (1990) selected 20 low level fifth grade readers as determined by their performance on the *Iowa Test of Basic Skills*. Once selected, the participants were randomly assigned to one of three groups, cross-age tutoring, where older students read trade books to the kindergarten students and helped to analyze stories as they read them; art partner group, where older students simply read to younger students (This group was used as a control to check to see if simple social interaction was what made cross-age tutoring successful.); finally a basal group who received regular classroom instruction only. Labbo and Teale (1990) chose to conduct a mixed method study, which yielded quantitative results based on the pre and post testing and qualitative case studies on two of the children. Results showed students participating in the cross-age tutoring program made greater gains that were statistically significant when compared to those students who did not receive the tutoring intervention. The case studies further explained these differences by shedding light on the students' differences and the varied ways they experienced the tutoring program.

Although Labbo and Teale (1990) studied upper elementary students in fifth grade, Green, Alderman and Liechty (2004) implemented peer tutoring in a 2<sup>nd</sup> grade classroom for at-risk students. The study included 13 tutees and 12 fourth and fifth grade



tutors who received in-depth training initially and ongoing observation and training to ensure fidelity of the study. The tutees received 30 minutes of tutoring each week by trained college students. The study found tutored students who completed the program made statistically significant gains in reading as compared with students who did not receive tutoring. This study provides a strong argument for tutoring, but using college students in the process may have skewed the results in terms of the effectiveness of the student tutors. Even though there was no attempt to parse out the differences between the tutoring implemented by elementary students with that of the college students, it is important to note the 2<sup>nd</sup> grade students being tutored showed statistically significant academic gains. In general, tutoring had a successful impact on the students.

Similar to the Green et al. (2004) study, Paquette (2009) implemented a cross-age tutoring program where fourth grade students tutored second grade students in the 6+1 writing traits model. Peer tutors were trained and monitored. Students received 600 minutes of tutoring, and using pre and post testing. Researchers used ANCOVA, with the pre test being the covariate, to analyze potential gains. This study not only considered the second grade students being tutored, but it also included the fourth grade tutors' pre and post evaluations as well. Results showed no statistically significant difference in the second graders' academic achievement. However, the fourth grade peer tutors did show statistically significant gains in academic achievement after working as peer tutors during the intervention.

Studies by Paquette (2009), Green et al. (2004), and Labbo and Teale (1990) suggest that peer tutoring has shown some success in promoting language arts

achievement. Looking at another discipline, Fuchs, Fuchs, Thompson, Svenson, Yen and Al Otaiba (2001) studied the impact of peer tutoring on kindergarten students in mathematics. In 20 classrooms teachers were randomly assigned whether or not to implement the Peer Assisted Learning Strategies (PALS) treatment during mathematics, which included peer tutoring twice weekly for 15 weeks. A total of 168 students participated. Teachers in the treatment groups divided ranked their students in order of math competencies and then matched the top half of the class with the bottom half of the class to create peer tutoring relationships. After 15 weeks of implementation, results showed improvement in academic achievement for most but not all students. A qualitative component in this study included observations and concluded teachers viewed the intervention as successful.

Fuchs, Fuchs, Thompson, Al Otaiba, Yen, and Yang (2002) continued this line of research and trained 20 first grade teachers in the PALS (Peer Assisted Learning Strategies) method. After randomly assigning teachers to PALS or no PALS groups, researchers followed the 327 students taught by the selected teachers. Students in treatment groups were, again, matched based on math ability and participated in peer tutoring throughout the duration of the study. Their performance was tracked in mathematics using pre and post testing. Students in the PALS group made statistically significant gains in achievement over their counterparts. In particular, this study showed larger gains for students with learning disabilities. The researchers noted their belief that the high levels of engagement during the peer tutoring experience might explain this

result. Again, peer tutoring is not an option in SES, but looking at the potential benefits to this type of tutoring provides another perspective of the tutoring process.

**Volunteer tutoring.** Like peer tutoring, volunteer tutoring is a form of academic enrichment supported by the SES provisions in NCLB. But, if one is to fully understand SES tutoring it is important to consider the possible impacts all types of tutoring may have on student achievement, including volunteer tutoring. SES programs do not provide volunteer services; however, SES does allow for non-profit based organizations to participate, which may most closely mirror a volunteer-type tutoring experience. Researchers have noted the advantages to volunteer tutoring go beyond academic gains and produce affective benefits as well (Heath & Mangiola, 1991; Labbo & Teale, 1990;). Baker, Gersten, and Keating (2000) researched the impact of volunteer tutoring on young students. This study included 24 students over their first and second grade school years. Students were given assessments in the fall and spring of first grade and then again in the fall and spring of second grade. Using a control group of average achievers, researchers implemented a volunteer tutoring program which used a particular method for teaching reading. Volunteer tutors, made up primarily of members of the local business community, attended a two hour training and were given a handbook with explicit instructions about how to implement the reading program. The tutoring program was a one to one tutoring environment, where students met with their tutors two times per week for 30 minutes per session. Pre and post testing included assessment of reading features such as fluency, decoding, vocabulary and comprehension. At the end of second grade

results from ANCOVA showed students in the tutoring group made statistically significant gains over the control group over the two year period of time.

Unlike Baker et al.'s work with mainstream students, researchers at Eastern Michigan University replicated a previous study first done in 2000 to evaluate the impact of a volunteer tutoring program's impact on diverse students' performance in reading and writing. Moore-Hart and Karabenick (2009) used graded words in isolation (GWI) grade level equivalency to evaluate the 167 culturally diverse students participating in the study, ranging from five to twelve years in age in grades one through five. Of the sample 52% were male and 48% were female. All students in the sample were reading well below grade level, with some students as many as four years below grade level. Using Americorps trained volunteer tutors, students received thirty minute, one on one sessions, two-four times per week. All tutoring sessions were delivered using a consistent format. This mixed method analysis used reading gains to gauge program effectiveness and parent and teacher observations, interviews and surveys to gauge attitudes about the programming. Results suggested both affective and academic gains in reading. For reading gains based on pre and post assessments, Moore-Hart and Karabenick found students who attended more tutoring made more gains, with students attending twice per week gaining .74 grade level equivalents and students attending four times per week gaining 2.74 grade level equivalents. Teachers reported the volunteer tutoring to be a positive experience for their students, giving them "another opportunity to read to someone" (p. 156). Parents also reported the experience in a positive light, with all respondents expressing a desire for their children to continue.

Across the globe, tutoring continues to be part of the educational landscape. Whether private-for-pay, in peer form or volunteer, tutoring as a supplement to the regular school day has become a more common option for students whose families can afford it. According to the EduVentures Learning Market and Revenue Report, private tutoring in the U.S. has gone from being a cottage industry to generating more than \$6 billion annually (Gordon et al., 2007). Tutoring is a difficult industry to measure, however, since much of the work is done privately, with revenues never reported as actual income.

### **Attendance**

It may seem logical to draw a connection between attendance at tutoring sessions and academic achievement. However, research related specifically to tutoring and attendance is rare. To address the issue of attendance and its impact on learning outcomes, this section first addresses general information about attendance patterns among groups of students in various states throughout the U.S. It then discusses scholarly research surrounding the impact of attendance on academic outcomes within a classroom environment. Later discussion about SES and attendance will address the scant information available regarding attendance and tutoring.

### **Attendance Patterns**

It is helpful to consider attendance patterns of students when thinking about how attendance may impact academic achievement. Achievement gap data suggest the gap between White and non-White students continues to exist. The assumption might be, then, that attendance rates vary between these groups as well. In Arizona, however, the

Arizona Department of Education (2008) published a state report card and revealed attendance rates for the year 2007-2008 did not vary greatly between ethnic groups or between male and female students. The attendance rates for these groups ranged from 92 to 94 percent, regardless of gender or ethnic background. In Virginia, the state's report card published by the Virginia Department of Education (2008) did not include attendance rates between girls and boys, but it did present differences in attendance trends between various ethnic groups. In fact, the Virginia data indicated no difference between ethnic groups' attendance rates, with all groups having a 95 percent attendance rate in 2008. In Maryland, these trends continue. The Maryland Department of Education (2008) state report card indicated virtually no difference between attendance rates between ethnic groups, ranging from 94 to 95 percent. The attendance rates for both boys and girls were reported at 95 percent. It seems across states, attendance rates for students in kindergarten through grade 12 do not differ by sub-groups.

### **K-12 Attendance**

Understanding attendance patterns helps lay a foundation for further investigating attendance and its impact on student achievement. Studying the youngest students, a study by Chang and Romero with National Center for Children on Poverty (2008), an advocacy group that supports young children, found attendance to be vital as early as Kindergarten, claiming excessive absences (10 or more) negatively impacts both long and short term academic performance. The same group continued their research, studying children who are chronically absent in kindergarten and found they perform lowest in reading and math and general knowledge in first grade. The study found that students of

Latino heritage were impacted by attendance even more significantly than those of non-Hispanic backgrounds. This advocacy group's research methods are not clear and could be interpreted as biased. Another study by Sanchez, Ehrlich, Midouhas, and O'Dwyer (2009) found similar results with regard to attendance and Hispanic students. Sanchez et al. used data from the Institute of Education Sciences of the U.S. Department of Education and researched the differences between Hispanic and non-Hispanic students in Massachusetts. They followed ten Hispanic and ten non-Hispanic high school students from 2002-2006 and compared, among many things, demographic information and students' scores on the MCAS (Massachusetts state standardized test). One finding of this study was that Hispanic students with higher attendance scored statistically significantly higher on the assessment in both English and mathematics than non-Hispanic students with lower attendance, all other variables (gender, special education, socio-economic status, first language and country of origin) being held constant. They concluded that Hispanic students with greater attendance rates out-performed students with more absences. In this study, they did control for other variables, helping to support the notion that the attendance, itself, impacts academic outcomes among Hispanic high school students.

Attendance patterns also are of interest to those directly involved with the educational process. Jacobson (2008) a reporter for *Education Week* wrote about Savannah-Chatham County School District in South Carolina. Its superintendent, Thomas B. Lockamy, started data collection in response to a belief that the reliability of his school system's data were faulty. He found a pattern that revealed a connection between

absenteeism in early grades and truancy during early adolescence. Although this was not an empirical study and more of a practical situation for and leader in education, the notion that a superintendent would draw such conclusions is telling.

From a small southern school system to a large urban district, concerns about school attendance persist. Allensworth and Easton (2007) examined data from 20,803 Chicago Public School students from 2000 to 2005. They analyzed data from surveys given to students and teachers in 2000 when students were freshman and then again in 2005 when students were seniors (or had dropped out). Their findings included statistically significant evidence showing attendance to be a predictor of graduation. Eighty-seven percent of students missing up to four days of school per semester graduated, while 44 percent of those missing ten to fourteen days per semester graduated, and nine percent of students missing 20 to 24 days per semester graduated. Considering the numerous studies that connect attendance and academic achievement, it is not surprising that this study found attendance to be a predictor of meeting graduation requirements.

Unlike Allensworth and Easton (2007) who studied the general population, Harris and Franklin (2009), focused on a very needy demographic group when they invited teenage girls who were either pregnant or already mothers and enrolled in high school to participate in their study about the impact of attendance on achievement. Their study started with 24 girls, 12 in a treatment group and 12 in a control group. This quasi-experimental design, invited those who did not participate to be a part of the control group. Once the participants were gathered, this study implemented a special program



that encouraged and supported those in the treatment group to attend classes and complete other assignments to improve academic achievement. Using attendance (defined as presence in school for at least half of the day) and pre and post grade point averages Harris and Franklin used ANOVA for both attendance and grade point averages, and results showed those girls in the treatment group had much higher attendance, and greater academic outcomes, than the girls in the control group. It is important to note, the study's control group lost four girls to attrition during the study. As well, it is possible that using girls who were not interested in the program to begin with skewed the results since one may assume these girls were less motivated initially and thus may have had lower attendance and lower performance due to other variables not considered during the study.

Moving from GPA to more long term results of showing up for class, attendance as it relates to graduation has also been of interest. Nichols (2003) considered indicators of failure to pass graduation exams and attendance. He gathered records for over 6000 students, who did not meet state graduation requirements from 1992-1999, and tracked student performance (grade point average), demographic data (gender, ethnicity, and socio-economic status) and student attendance (average yearly absences). Nichols noted that an extremely high number of students who were failing and for that reason were included in his study, were of minority background. For the classes of both 2000 and 2002 academic years, 80% of minority students failed to meet minimum graduation competencies. Nichols does not specify the analytical process taken to draw conclusions; however, results found a connection between academic failure and an extraordinary high

number of absences, particularly for students who struggled academically. For example, failing students were absent twice as often as students who passed basic competencies. These differences were similar when ethnicity and socio-economic status were considered, and when comparing low income students to high income students the lower income students accumulated more school absences, with absences more than doubling for low income and minority female students from 1992 to 1999. This study did not control for other variables, and therefore only an association, not causation, may be made here. The notion that attendance contributes to overall academic success is supported here.

### **College and University Attendance**

Beyond the K-12 classroom, attendance impacts student outcomes. Soto and Anand (2009) investigated a college level cell biology course which spanned two semesters of study. Their participants included 184 students from the spring semesters of 2004 and 2005 cell biology class. They used university transcripts during the first week of class to determine pre scores, including GPA, completion of pre-requisite classes and grades earned in those classes. Attendance was tracked throughout the study. Data were taken from the class records kept by the instructors. Using chi-square test of independence, they found that the most significant association for passing the course was perfect attendance. Further investigation showed that attendance was even more impactful on outcomes than watching a video tape of lessons in lieu of actually attending the course. This study does not indicate whether the researchers controlled for previous

academic performance, and thus result may be connected to the students' inherent abilities in biology or interest in the course.

Differing from Soto and Anand's study of a single classroom (2009), Brint and Cantwell (2008) used an entire college class to analyze the impact of attendance on student outcomes. Controlling for performance and academic ability in their study at the University of California, Riverside, they used self-reported data from 6300 undergraduate students. Specific questions about time use were asked, and students were given points from 0 to 30. Using students who score above the mean in one category only, Soto and Anand attempted to authenticate the self-reported data. Their study explained, students scoring above the mean in class attendance would score below the mean on watching television, for example, if they were reporting their time spent accurately. Once accurate responses were determined and others were eliminated, the results showed the number of hours of class attendance a student reported related to academic engagement and high grades, even after controlling for performance and ability. This further supports the importance of attendance and academic outcomes.

Another study similar to Soto and Anand (2009) was completed by Chen and Lin (2008). They conducted a randomized experiment, but the college participants were not randomly selected, rather the content of the course was randomly taught in two concurrent semester sections. Students, who chose to enroll in each section of the course, were voluntary participants. A total of 114 students participated, enrolled in two sections of the college finance course which was taught by the same professor. The course content was randomly taught in each section and attendance was recorded throughout to track

which students missed particular lessons. By conducting their study in this manner, Chen and Lin were able to then analyze how different students did on lessons when they were present and when they were absent. Students did not know which lessons would be taught when so their absences became part of the treatment process. The researchers even offered a video lesson as an opportunity for students who were absent to make up missing the lecture. They used these opportunities as further study into the impact of actually attending a class versus being exposed to the material via video lesson. Exam performance was their dependent measure of student achievement. Two types of attendance were created, actual attendance and experimental attendance. Actual attendance was the recording of whether a student was in class or absent. Experimental attendance was whether the professor randomly chose to omit a particular lesson on a particular day. Using a fixed-effects model, Chen and Lin found students who with higher attendance had higher effects. Those with perfect attendance had an effect of 18.0. For those missing fewer than two lectures, the effect was 14.7. For those missing fewer than three lectures, the effect was 11.7, and finally, for all participants the effect was even lower at 9.4. Their study suggests the importance of attendance in a college classroom.

Attendance plays an important role in students' achievement. The value of solid attendance reaches across gender and ethnic lines. If attendance has been shown to be important in the general classroom environment, it is reasonable to believe it may play a role in the outcomes of SES.

## **Supplemental Education Services**

### **SES Background**

As discussed in Chapter 1, the supplemental educational services provision of the No Child Left Behind Act of 2001 (NCLB) reinforced the expectation that schools will ensure “the academic achievement of eligible children on academic assessments...and attain proficiency in meeting the State’s academic achievement standards” (Title I, Section 1116(e)(12)(C)). The logic behind supplemental educational services provision is to encourage parent involvement by giving parents the freedom to select the tutoring program and provider that they feel best suits their needs as long as that provider is approved by the state (Title I, Section 1116(e)(1)).

Supplemental Educational Services providers must be approved by the state in which they are offering services. In general, states require an application and approval process that requires providers to show evidence of success, research based practices, solid communication with parents and schools and financial solvency of the organizations (Bergeron, 2008). SES providers may consist of for profit, non profit, faith based or community organizations and may also be public school systems. Content and structure of the many providers varies greatly (Blankenship, 2007; Casserly, 2007).

### **SES and Academic Achievement**

The impact of SES tutoring on student achievement remains inconclusive. To date, both experimental and quasi-experimental research have resulted in a variety of conclusions (Beese, 2008; Bonelli, 2007; Chicago Public Schools, 2007; Cooper, 2007;

Gordon et al., 2007; Heinrich & Meyer, 2006; Heinrich, Meyer & Whitten, 2009; Munoz, Potter & Ross, 2008; Potter, Ross, Paek & McKay, 2007; Ross & Potter, 2005; Ross, Potter, Paek, McKay, Sanders, & Ashton, 2008; ; Ryan & Fatani, 2005; Springer, Pepper & Ghosh-Dastidar, 2009; Zimmer, Gill, Razquin, Booker, & Lockwood, 2007; ). Some evaluations have found positive effects in mathematics and reading. Other studies have resulted in more mixed conclusions. Still other research has suggested SES instruction results in negligible impacts on student achievement. Some of these studies include attendance in their analysis, and a several use attendance as a core variable. The methods and findings of these studies are discussed below.

### **General Achievement without Attendance Consideration**

This section reviews literature that studied SES and academic achievement but did not consider attendance in its analysis. For example, Beese (2008) conducted a mixed methods study which included quantitative analysis comparing pre and post tests in reading and math, supplemented by interviews of teachers and administrators regarding their attitudes towards SES effectiveness. Beese studied 395 students across two school districts and three school years (2004-2007). Beese used both quantitative and qualitative research methods. Her data source was the Ohio Department of Education and included students' scores on state standardized tests. Test results in reading and math were used to analyze whether or not students participating in SES over the three year period made statistically significant gains in their performance. Beese found a positive relationship between student participation in SES and student achievement. This study did not

compare those students participating with those who were similar but did not participate. It simply considered gains made by those students participating in SES. No controls were used to consider other possible factors contributing to student gains. Finally, and most relevant, attendance was not considered in this analysis. In other words, a participant was any student enrolled in SES who also had adequate assessment data to consider. Participation was not defined by a minimum number of sessions or hours attended. In fact, a student could have enrolled and never attended a single session and still be considered a SES participant.

For the quantitative component of this study, Beese used *t* tests to compare the difference between the pre and post tests. All but one *t* test resulted in a *p* value less than .05, resulting in statistically significant differences. She then calculated confidence intervals for effect size and weighted effect size and found, at the 95% confidence level, the confidence interval for reading did not intersect zero and was therefore, a true effect. For math, however, the confidence interval did intersect with zero. A true effect in math could not be certain (Beese, 2008).

The qualitative component of the Beese (2008) study included surveys and interviews of parents, teachers and SES administrators. This aspect of the study revealed problems reported by teachers and administrators with communication between providers and schools. Parents, however, reported they were very satisfied with the communication from providers. Administrators shared that they were concerned with attendance by those who enroll in SES, but teachers showed little interest or knowledge of the program. Finally, and somewhat in contrast, parents thought the tutoring was helping their children

improve performance in school. The qualitative piece of this study had limitations. Of 515 surveys delivered to administrators and teachers only 44 were returned, and out of 1200 surveys given to parents only 84 were returned. It is plausible those who returned the surveys, particularly the parents, did so because of their satisfaction and the other 1116 parents were not happy and, therefore, did not respond.

Investigating SES research conducted in Virginia, another study which yielded interesting data related to SES participants but did not consider attendance was done by Ross and Potter (2005) at The University of Memphis's Center for Research on Educational Policy (CREP). The CREP supported research that explored the impact of SES on student achievement in a variety of states, and in 2005, CREP published a report on SES in Virginia. The state's Department of Education collected data regarding students enrolled in SES from its local education agencies. This data set included numbers of students served by SES providers during the 2003-2004 school year, and the associated frequencies and percentages of students passing the Standards of Learning (SOL) tests in mathematics and reading. Comparisons were then made across divisions in each subject with students who were eligible but were not participating in SES to those students who were eligible and enrolled in SES. They concluded this first phase of research was inconclusive for a number of reasons. First, no pre-test data were available for students receiving SES. Student variables known to correlate strongly with achievement could not be controlled. Finally, after an attrition of 68% due to a lack of student identification numbers, the sample sizes overall were relatively small (633 out of 921 students). Results of this study were considered an initial formative effort to begin to



look at SES results. Ross concluded that the importance of studying SES outcomes is two-fold. First, with so much irregularity among SES providers (and thus programming) research over time will yield greater information by adding to the database for particular providers and contexts; therefore, the potential for making valid conclusions about effectiveness will increase over time. Second, NCLB requires that state assessments be used to evaluate schools and thus determine whether SES is necessary. Therefore, it is logical to consider the impacts, if any, SES may be having on student achievement over time. The conclusion of the Ross and Potter (2005) study showed effect sizes were less significant regarding student achievement. The researchers indicated multiple studies across states are necessary in order to adequately monitor the potential academic achievement resulting from SES.

Ross, Potter, Paek, McKay, Sanders and Ashton (2008) continued this line of inquiry in Tennessee where they conducted a descriptive study of perceptions of Supplemental Educational Services by stakeholders. Employing a quasi-experimental design, achievement scores of students in grades 4-8 (N=1325) who received SES tutoring were compared with those students who did not receive tutoring. Using three different fixed effects models, researchers controlled for different variables. In one model they controlled for students' prior achievement. In another model they nested teachers within grades as a random effect, and in a third model they matched similar SES students with control students within the same classroom (teacher). The second phase of this study surveyed district SES coordinators, principals and/or site coordinators and teachers of students receiving SES. Although the qualitative component of this study showed

generally positive reactions toward SES by stakeholders, the effects on tutoring between tutored and non-tutored students were small and with a few exceptions not significantly different from zero. It is worth noting this study did not account for attendance or define attendance in any way, making the results somewhat questionable since a student could be enrolled and never attend a single session and still be considered a SES participant.

Like Ross et al., Muñoz, Potter and Ross (2008) studied both stakeholder perceptions and student achievement in a large urban school district in Louisville, Kentucky. They surveyed district SES coordinators, principals/site coordinators, teachers of students receiving SES and parents of students receiving SES. The students selected were in grades 2-10 and included those participating in SES and those who were eligible to participate but who chose not to participate. Students were matched using five variables (previous assessments scores on the Kentucky state standardized test (KCCT), gender, race, participation in free or reduced lunch and single parent homes). Using ANCOVA for both math and reading and controlling for baseline scores, race and free and reduced lunch determined that the KCCT scores and race were significant covariates, but program effect was not significant. In other words, the SES tutoring did not have an effect on student achievement. In this study, the descriptive phase showed a lack of support from stakeholders, many claiming the services were not providing high quality interventions to students. Researchers concluded a possible explanation was the limited duration of the SES programming. Again, attendance was not considered in this study, leaving question to how many students whose scores were analyzed actually completed their SES tutoring program (Muñoz et al., 2008).

Like the Muñoz et al. research results which did not show SES program effect to be significant, Bonelli (2007) also had results that did not favor SES tutoring. Bonelli studied SES students in California. Comparing 258 students enrolled in SES with 258 students attending eligible schools but who were not enrolled, Bonelli used the California Standards Test (CST) in both reading and math to research possible differences in scores. Students who ranged from third to fifth grades were matched using baseline test scores. Participating SES students were matched with non-participating students who had reading and math scores within ten points. Bonelli analyzed CST scores and considered whether scores increased or decreased. In most cases, both SES students and non-SES students showed gains in their performances in both reading and math. But, conversely to what one might expect, non-participating students' scores increased at a higher rate than those students participating in SES. One consideration in this study is that Bonelli delimited SES students by including only SES participating students who were not enrolled in any other after school programming. It is possible non-participating SES students were enrolled in numerous or more intense after school academic programming. As well, Bonelli did not consider attendance when identifying participating students. Therefore, an enrolled student could have enrolled and never completed a single session. This study is another example of the lack of research about SES attendance.

Similar to the Bonelli study, Potter et al., (2007) did not include attendance in their analysis of SES programs in Virginia during the 2005-2006 school year. Unique to this study, however, was the analysis which used the SES provider as the basis for analysis. The Potter et al. study in Virginia included a descriptive study of SES provider

perception and an evaluative study to determine academic achievement as it related to SES. The descriptive part of this study consisted of surveys given to all stakeholders in the SES process. Principals, teachers, parents of SES students and providers were questioned to get their perceptions of the effectiveness of the SES process. Each questionnaire had four choices, strongly agree, agree, disagree and strongly disagree. Questions varied depending on the stakeholder being questioned, but questions revolved around communication and perceived effectiveness of SES. Responses were recorded for each respondent and percentages for each answer category were compiled. As expected, based on literature regarding parents' attitudes about SES, parents had the highest percentage of positive responses.

Then, using students' pre and post scores on Virginia's Standards of Learning assessments, Potter et al. used cross tabulations to examine student success in gaining proficiency on SOL assessments. Unlike most studies analyzing SES academic achievement, Potter et al. study did not consider actual score gains. Instead, they categorized the scores into basic (failing), proficient (passing) or advanced (pass-advanced), which are the three ways Virginia categorizes its assessment results. These researchers were simply looking for whether students' scores broke these thresholds as a result of tutoring. Their research question was related to students gaining proficiency, not to the actual gain scores for each student. First, Potter et al. conducted a power analysis and found only four of the 19 providers (about 20 percent) serving students during 2005-2006 had enough students (198) to be included in the reading evaluative portion of the study. All four providers showed statistically significant improvement in reading scores.

Only two providers served enough students in math to be included in the evaluative portion of the study. Neither provider showed statistically significant differences in math scores. One limitation pointed out by Potter et al. is that because most students began SES tutoring with low pre test scores (basic), they could only go up or stay the same. Another limitation as noted in several other SES studies is that attendance was never discussed.

Overall, there is little research dedicated to the effectiveness of SES, and much that has been done has not accounted for attendance. Other findings have been inconclusive, leaving question as to whether SES is providing the academic reinforcement needed to bridge the achievement gap.

### **Achievement with SES Attendance Considered**

Even though some SES studies document academic gains, as noted by many authors, studies often do not account for attendance patterns (Springer, Pepper, & Ghosh-Dastidar, 2009). Zimmer et al. (2007) authored a report for the U.S. Department of Education, and although participation rates were indicated, no definition of participation was provided. No distinction between enrollment and actual hours completed was made in this report. Therefore, a student enrolled could have attended one session and have been considered a participant, which may have skewed results of studies using these data to analyze SES participants' academic achievement.

The few studies measuring tutoring attendance show effects exist but their findings are somewhat contradictory. Referring back to Gordon et al. (2007), 30 hours of

tutoring was found to be the benchmark where students made significant gains. Heinrich, Meyer and Whitten (2009) accounted for SES attendance rates, using student data provided by the Milwaukee Public School system (MPS). These researchers used a data set including information from four consecutive school years (2004-2008). Propensity score matching was used to match eligible students who did not participate with students who were eligible and did participate to determine if SES tutoring impacted academic achievement. Data included student transcript and demographic information, such as Individual Student Achievement Plans (IAP) that describe academic goals to be met during SES tutoring and billing information which allowed for the calculation of student participation in various programs. MPS also provided researchers access to student results from standardized tests administered to students during the same period of time. Heinrich et al. (2009) ultimately used results from five different assessments, depending on the students' grade level for any given year. The variation of tests each year limited the study because not all students had pre and post test results for every test, every year. To accommodate this aspect of the research, they created cohorts of students within the larger sample for each year and each assessment to gauge gains. They used SES attendance and gain scores on these standardized tests to determine a potential impact on academic achievement among SES students in grades eight through twelve.

One of the challenges of using a data set like the one provided by MPS is the researcher is not conducting an intervention or creating a treatment group. Heinrich et al. (2009) noted that by putting students into categories, based on the number of hours students attended, the researcher can create control groups within the data set itself.

Heinrich and colleagues first compared students who attended zero hours with students who attended more than 20 hours and students who attended more than 40 hours of SES tutoring. Although not many studies have addressed attendance and its potential impact on academic achievement, the few that have done so have found 40 hours (roughly) to be the tipping point (Gordon et al., 2004; Heinrich, Meyer & Whitten, 2009; Ryan & Fatani, 2005). In other words, once students attend the 40<sup>th</sup> hour of tutoring, academic gains begin to be statistically significant. Recall, in the literature surrounding after school programming, 40 hours of attendance began to show academic benefit to students. Heinrich et al. used fixed effects model and found there were no statistically significant effects for students attending 20 hours or 40 hours compared with students attending zero hours. (No discussion about controlling for demographic variables was found in Heinrich's report.) After finding no statistically significant differences between these groups, Heinrich et al. then created even more precise groupings of 1-10 hours, 11-20 hours, 21-30 hours, 31-40 hours and more than 40 hours. Similar analysis was run as with the previous analysis. Among all of the estimates, effects for one group were statistically significant. Middle school students receiving at least 20 hours of tutoring had gains that were statistically significant compared with students receiving less than 20 hours of tutoring. In this in-depth analysis of SES hours attended and academic achievement among secondary SES students, only one grade level showed any differences in academic achievement. The results of this study left question as to the effectiveness of SES tutoring.

As was found in many other SES studies, a qualitative component was added to this study to measure stake holder attitudes (Beese, 2008; Cooper, 2007; Ross, 2008). Interviews and surveys were given to teachers and SES administrators. Common themes included the problem of student attendance in SES and what is actually being done during sessions which are attended. One interesting finding that emerged from the qualitative data here was that most of the time spent in a single SES session was self-directed activity, not one on one or even small group teacher directed learning.

Like Heinrich et al. (2009), Spring, Pepper, and Ghosh-Dastidar (2009) accounted for attendance when they studied 143,801 students from 121 elementary and middle schools from 2003 through 2008. Springer et al. divided students into three categories: not enrolled, enrolled but not attended, and enrolled and attended. By doing so, they differentiated between SES eligible students who enrolled but never attended tutoring. They included demographic variables: gender, ethnicity, grade level, free and reduced lunch status. In addition, they also included attendance during the regular school day, in order to create a variable that tracked students' normal school attendance. SES attendance also was included and was gathered from the SES coordinators and was based on the hours billed for each student. About half of the sample was female, 47.8% were black, 36.4% were White, and 12.4% were Hispanic. The average regular school day attendance rate was 95%.

Using a fixed effects model, initial analysis showed a positive statistically significant effect on reading and math gain scores (Springer et al, 2009). However, this first analysis considered all enrolled SES students, with no consideration for attendance.



Once students who enrolled but never attended were separated from those who enrolled and attended at least one session, the results showed the students who enrolled but never attended were driving the original positive, statistically significant results. The results of this phase of analysis, which did consider attendance, showed no statistically significant difference between students who enrolled and attended at least one session and those who enrolled and never attended a single session in reading or math. Although their study did not directly compare attendees with non-attendees, Springer et al. seem to imply, based on the difference in the two analyses results, that students who enrolled in SES but did not attend tutoring were performing better than those students who enrolled and attended at least one session.

Springer et al.'s previous phase of analysis only considered attendance in terms of no attendance or some attendance (2009). In their second phase of analysis, they used a mean number of tutoring sessions to compare students' attendance on a continuum and found moderate to large SES effects on student test score gains in mathematics and small to moderate effects of SES tutoring in reading. In math, students attending the mean number of sessions gained .095 standard deviations while students in the 95<sup>th</sup> percentile of attendance gained .25 standard deviations. In reading, this effect was smaller, but still significant, with students attending the mean number of hours scoring .072 standard deviations higher than students attending fewer hours. This phase of their research seems to imply that students who attended more SES tutoring outperformed those students who attended fewer sessions. These results may raise question as to why those students who

enrolled but never attended helped drive positive results in the initial phase of the study. This study did not look at why this might be so.

Most SES researchers study student achievement within a single geographic area or LEA. Cooper (2007), however, researched SES somewhat differently. Instead of limiting his research to a single city or LEA, Cooper studied a single SES program, Building Educated Leaders for Life (BELL). This is a non-profit educational program that has been in effect in eight large urban cities for thirteen years. At the time of Cooper's study (2004-2005), BELL was providing SES in four cities, including New York City, which is where the study took place. BELL was serving 2,000 students in grades K-6. The researcher used the New York state and New York City annual assessment scores for 2004-2005 school year to compare attendance and academic achievement. Using a matched treatment-control method, Cooper matched participating students with non-participating students with similar traits based on ethnicity, gender, grade level, previous academic achievement, LEP status, special education and attendance. Cooper researched students attending seven New York Public schools in which the SES BELL program was implemented. Although the study does not explain exact strategies used in the BELL program, it is described as a curriculum based, small group (one teacher and eight students) tutoring, and prior to this study, BELL had served 8,000 students.

In this 2007 study, Cooper analyzed academic achievement of students enrolled in the BELL program through SES. Although BELL services students in grades K-6, only students in grades 3-6 were considered for this study because only these grades took state

standardized assessments, the measure used to determine academic progress. Using assessments provided at the state level, the researcher used test scores for 1510 students who were eligible for SES but who did not enroll and 714 students who were enrolled and participated in SES. With such a large discrepancy in these student groups, this study used propensity score matching to select a participating group and a non-participating group to ensure high quality matching for analysis. Pre and post testing in math and language arts were used to determine whether students participating in BELL made greater gains than non-participants. A *t* test of independent samples was used to compare achievement on the state standardized assessment between the two groups. Results were mixed. Students attending BELL for math showed statistically significant gains. Results for students attending the BELL program for reading showed no detectable effect. However, when analyzing attendance, Cooper found students attending the program for 40 or more days performed statistically significantly higher than those not participating in SES while students attending 27 days or fewer showed no statistically significant difference in performance than those not participating.

Another interesting finding within the Cooper study related to race (2007). For reading, Cooper found race was negatively correlated with achievement for non-participants, but for SES students, being an ethnic minority was associated with higher reading scores. Her finding may suggest that the BELL program itself offers something uniquely applicable to minority SES students. Although this study is useful to some degree because it was one of the only studies which considered attendance in its findings, these conclusions are marginally helpful because this study did not specify how long each

session was or whether the tutoring was consecutive days or sporadic. With varied outcomes related to attendance in SES, more research is needed to better understand what impact, if any, attendance may have on the success of SES.

Unlike the Cooper study (2007) which determined academic achievement related to SES using state standardized test scores, Ryan and Fatani (2005) considered attendance when they studied Chicago students' scores on the Iowa Test of Basic Skills (ITBS) from 2003-2005. These researchers started with a sample of 61,466 students from pre-kindergarten through twelfth grade. They parsed out students who participated in SES and those who were eligible to participate but who did not register for the service. Those who participated received between forty and eighty hours of SES tutoring. They calculated gains by taking the difference between the pre and post test scores and dividing by the expected gain. By using the ITBS, as opposed to a typical state standardized test, this study could use expected gains because the ITBS reports grade level equivalency and expected gains can be calculated. This study also focused on comparing students with more than forty hours of tutoring with those who did not enroll in SES. Comparisons were made across grade levels and differences in achievement were found in all grade levels and in both reading and math, with statistically significant gains made in grades five, seven and eight. Again, this study suggests forty hours to be a minimum number of hours to observe academic achievement, which is generally in line with the previously mentioned research that has considered attendance.

Consideration of providers is a common aspect of the 2005 Ryan and Fatani study and the work of Potter et al. (2007). For part of their analysis, Ryan and Fatani used

providers as a basis of accounting for academic achievement as it related to SES tutoring. Their study included 22 total providers. They eliminated all providers servicing fewer than 40 students, leaving 17 providers in the actual analysis. In this case, about 25 percent of the providers were eliminated. Basing their analysis on annual growth using the Iowa Test of Basic Skills, they found one provider's students made gains on average of 1.4 grade levels in reading, whereas another provider's students made gains of only .93 grade levels in reading. In math the highest gain was made by a provider whose students gained 1.21 grade levels, with the lowest gains made by a provider whose students gained only .6 grade levels. They also discuss providers in terms of attendance rates of students. They do so, however, by indicating a percentage of completed time. The highest attendance rate was reported by a provider whose students attended 86.3 percent of the time. The lowest attendance was reported by a provider whose students attended 69.1 percent of the time. Although in this aspect of Ryan and Fatani's research, attendance is not linked to achievement, it is interesting to see the trends in completed programming reported in this manner.

Although a student is registered for SES, tracking and reporting attendance continues to be a problem (Heinrich, Meyer & Whitten, 2009). Research related to attendance within SES programming is rare. It is challenging to gather attendance data from states' departments of education (Bergeron, 2008), perhaps NCLB does not require attendance tracking. Some states do collect attendance but provide only a total number of hours attended. However, this is reported solely as a number of hours, not as a percentage of the program actually completed (Bergeron, 2008). This can be helpful for certain

studies but because programming varies by provider may not be indicative of how much of a single program a student completed.

According to the Education Industry Association (EIA), an organization whose membership partially consists of SES providers, attendance is a challenge regardless of the provider type, location of the tutoring or the student-teacher ratio (EIA, 2006). Their survey of member providers showed most respondents reporting attendance rates as low as 50 percent. The EIA data is somewhat valuable; however, the information from respondents is self-reported and not verifiable by any third party. Moreover, EIA did not consider at any factors that might explain attendance. Current research regarding attendance within SES programming is sparse and inconclusive. In order to better understand the possible connections between attendance and SES, further study is needed.

Research supports the notion that academic achievement is important to the overall success of the society (American Youth Policy Forum, 2009; Hickman, et al., 2008; Hunt, 2008; Monrad, 2007 ). Further study links the successful completion of school to an individual's quality of life (Alliance for Excellent Education, 2009). Whereas academic success has been linked to economic success and better health (Ou, 2008; Tyler & Lofstrom, 2009), academic failure seems to be connected to crime, which burdens society and ultimately thwarts success on both a personal and societal level (Stephens, 1992; Vacca, 2004; Winters, 1997). Research shows the economic impact of a poorly educated society to be significant. The costs in terms of incarceration, health care

and welfare are immense. Furthermore, fewer educated, and thus working adults, results in a significant reduction in taxes paid, both locally and federally.

Academic success is the result of many factors. Research supports attendance as one of those factors (Allensworth & Easton, 2007; Chang & Romero, 2008; Harris & Franklin, 2009; Jacobson, 2008; Sanchez, et al., 2009 Nichols, 2003). As early as kindergarten, researchers have seen connections between attendance and successful completion of school. Attendance seems to be important from a pure practical standpoint; if students are not present they cannot learn. But, it also seems to impact students in an affective way as well, which research shows results in lack of confidence and less involvement in school and ultimate failure to graduate.

NCLB was written to address the achievement gap, which has narrowed some since 1965 and the passing of ESEA (DOE, 2009). But, recent studies show the gap still exists, and there are still some students who are not achieving at the same levels as others (College Board, 1999; Kaushal & Nepomnyasch, 2009; KwalRamani et al., 2007). SES is a key component within NCLB to try and address the achievement gap. Overall, there is scant research related to SES, and that research seems to show inconsistent conclusions in terms of academic achievement (Beese, 2008; Bonelli, 2007; Chicago Public Schools, 2007; Cooper, 2007; Gordon et al., 2007; Heinrich et al., 2009; Heinrich & Meyer, 2006; Munoz, et al., 2008; Potter, et al., 2007; Ross & Potter, 2005; Ross, et al., 2008; Ryan & Fatani, 2005; Springer, et al., 2009; Zimmer, et al., 2007; ). Within the body of research surrounding SES, very little addresses whether students enrolled in SES are showing up and finishing programs. As well, few studies go beyond the SES enrolled label to better

define enrollment in terms of how many hours or sessions students complete. The purpose of this study is to extend current SES research to specifically address attendance among enrolled SES students by addressing three specific questions. First, are there differences in the total number of SES hours attended and student demographic variables, including gender, ethnicity, subject area and SES provider? Second, are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between enrolled SES students who have virtually no attendance, zero to one hour, and those who have the highest attendance, over 40 hours? Third, are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between SES students who attend 1-15 hours, 16-30 hours, and over 30 hours?



### 3. Method

#### **Introduction**

The purpose of this study was to examine the possible relationships between attendance and academic achievement in Supplemental Educational Services tutoring, free tutoring provided to eligible students through the No Child Left Behind Act of 2001 (NCLB). It addressed three questions.

1. Are there differences in the total number of SES hours attended and student demographic variables, including gender, ethnicity, subject area and SES provider?
2. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between enrolled SES students who have virtually no attendance, zero to one hour, and those who have the highest attendance, over 40 hours?
3. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between SES students who attend 1-15 hours, 16-30 hours, and over 30 hours?

## Data Source

It is helpful to understand the general demographics of the school systems (and thus students) in Virginia, which was the basis of the data used in this study. The data used in this study came from three academic school years, 2006-2007, 2007-2008, and 2008-2009. Therefore, looking at the make-up of the schools and students in Virginia during those school years specifically is particularly helpful. In 2006-2007 public schools in Virginia enrolled 1,221,544 students. In 2007-2008 1,232,436 students were enrolled. In 2008-2009 total enrollment was 1,236,109. An ethnic breakdown of these students is provided in the table below (VDOE, 2010).

Table 1

*Virginia Student Enrollment By Race and School Year*

SY	Unspec	Am. Indian	Asian	Black	Hispanic	White	Hawaiian	Total
06-07	27,112	3,908	63,196	319,715	98,749	707,771	1,093	1,221,544
07-08	30,724	3,770	66,276	320,467	105,627	703,937	1,186	1,232,436
08-09	34,591	3,752	69,165	317,790	110,709	698,783	1,319	1,236,109

This study used data provided by the Virginia Department of Education. The data set included information about students enrolled in SES from 2006-2009. Upon gaining access to the actual data sets used in this study, the researcher had the opportunity to

speaking with VDOE officials to find out how they collect information about SES programs in Virginia. Virginia SES officials reported that Virginia uses a School Improvement Implementation Survey (SIIS) which is required for each school division in Title I school improvement. The survey is required at both the school division and local school levels, as part of the school improvement process. At the division level, the survey collects information on school improvement. At the school level, the survey collects information based on where the school is in the improvement process. For year one, data on public school choice are collected. For year two, data on public school choice and SES are collected. For year three, data on public school choice, SES and corrective action are collected. For year four, data on public school choice, SES, corrective action and preparing for alternative governance are collected. For year five, six and seven, data on public school choice, SES, school corrective action, preparing for alternative governance and alternative governance are collected. Within the SES component of the survey specifically, schools must enter the following information: school division; school name; whether eligible students enrolled, did not enroll or enrolled but did not receive SES; date parents were notified of SES; subject area in which tutoring took place; SES provider selected; beginning date of service; end date of service; total number of SES hours completed. The survey is completed online by each division and local school. Once the division and school complete the online survey a signed verification of accuracy is required by the VDOE to ensure all information provided is accurate. From this survey the VDOE merges the SES database with SOL assessment results to create a single

source which houses pertinent information related to SES. The data used in this study originated from the VDOE data base described here.

Before delivering the data, VDOE stripped each year's data of student identifiers and the three years' data did not correlate to each other in terms of students. Therefore, the students were treated as unique subjects from each year. Included variables in the data sets were categorical, independent variables including gender, ethnicity, subject area for tutoring, and SES provider. It is important to mention the VDOE would not provide grade levels of students, as they were concerned having too many demographic identifiers could lead to student identification. As discussed in the limitations section of this study, this was somewhat problematic for this study. It would have been very helpful to know the grade levels of students so that grade level could have been considered when looking at both hours completed and achievement. Also included in the data set were continuous variables. The total number of SES hours completed was a continuous variable that was predominantly used as an independent variable. However, for research question number one, this variable became the dependent variable to determine if different demographic data were related to the total number of SES hours completed. Finally, dependent variables related to student achievement were continuous variables in the form of pre and post Virginia Standards of Learning (SOL) assessment results for reading and math.

## **Preliminary Analysis**

### **Original Data Set**

The initial data set provided by the VDOE included all students enrolled in SES during 2006-2009 school years. Some students did not have adequate information in their files to be included in this study. Although the entire data set was not suitable for analyzing the specific questions asked in this study, it is helpful to gain an understanding of the total data set before addressing specific data used. The total number (N=13,028) of students in the original data set obtained from the VDOE was larger than the sample sets that were used to the run analysis for this study. All students in the data set, and thus those who enrolled in SES, must have attended a Title I school during the 2006-2009 period of time. The school will have failed AYP for two consecutive years. Eligible students within the school were enrolled in free and reduced lunch. NCLB does not require participating students be academically needy, but it is reasonable to assume most schools will focus their SES efforts on students who need the academic assistance. Table 2 describes the original data set for ethnicity and gender by total number of SES hours attended.

Table 1

*Original Data Set Students by Demographic Area*

		n	%
Gender	<i>Male</i>	6724	52%
	<i>Female</i>	6304	48%
Subject Area	<i>Reading</i>	9214	71%
	<i>Math</i>	3814	29%
Ethnicity	<i>White</i>	1394	11%
	<i>Black</i>	8359	64%
	<i>Hispanic</i>	2706	21%
	<i>Asian</i>	366	3%
	<i>Unspecified</i>	162	1%

### **Cleaning the Data**

From the data set described above obtained from the Virginia Department of Education, the data were cleaned, and a final data set was created to address the research questions. Students were eliminated from the data set for three different reasons. First, some students were missing either pre, post or both SOL scores for reading or math. Reasons for missing scores may vary. Some students may have been absent. Some may have been new to Virginia and exempt from assessments. For most missing scores, however, it is likely these students were in grades K-3. In Virginia, students do not begin

taking the SOL assessment until third grade. Therefore, only students in grades four and up would have both pre and post scores present, which provided the information used to determine gain scores. Because grade level was not provided by VDOE, there was no way of identifying why scores were missing. Another reason for eliminating scores was that some students took alternative assessments instead of the Standards of Learning assessments, which is the state's assessment taken by most students. In Virginia, however, some students are eligible to take alternative assessments. Alternative assessments are available to students who are learning disabled or identified as English Language Learners (ELL) and working at a specified level within ELL. Specific requirements for alternative assessments vary from year to year, depending on the students' levels and prior assessment experiences. The alternative assessments are more formative in nature and, therefore, have a different scoring system. Because they are scored differently than the SOL assessments, these scores could not be compared to SOL scores and were stripped from the data set during the cleaning phase. The last reason scores were removed from the data set was the evidence of bad data. For example, SOL scores cannot exceed 600. Some students had entries of 999 for their scores. This score is not possible and a coded entry to represent a missing score. No code book was provided by the VODE; therefore, there was no way to identify why these scores existed.

The cleaning process began by identifying students who had pre and post scores from alternative assessments. Alternative assessment scores were eliminated. The next step involved identifying missing scores from the data set. This step was completed by first listing pre-reading scores in ascending order and identifying missing cells. Wherever

missing pre-reading scores were evident, the corresponding post-reading scores were also eliminated. This process was then repeated for post reading scores. Wherever post reading scores were missing, pre-reading scores were eliminated. Once missing reading scores were cleaned, the entire process was repeated for pre and post math scores. Once these data were eliminated, the new data set contained only students with both pre and post reading or math scores. Next, gain scores were computed using the formula, post-score – pre-score divided by 600 (highest possible score) - post-score.

The data were now ready to be analyzed for outliers and bad data. First, each cell containing scores were listed in ascending order. Scores were examined for scores which did not coincide with possible SOL scores. For example, cells with scores higher than 600 were eliminated and so were any corresponding scores for that student. Once bad data were eliminated, histograms were created to identify the possibility of outliers or extreme scores. It was clear looking at this visual representation of the data that outliers existed and that more detailed information would be necessary to eliminate this data. Frequencies were run to identify outliers. The scores were examined to identify where the outliers existed. Some of this process required trying different cut scores until a normal set of scores resulted. Analysis looking at means, standard deviations, kurtosis and skewness were run for reading and math pre, post and gain scores. Extreme scores were eliminated as they were identified. The process was repeated until the data were normal. Final skewness was .08 for pre-reading scores, .41 for post-reading scores and .33 for reading gains cores. Final kurtosis was -.20 for pre-reading scores, .04 for post-reading, and .87 for reading gain scores. Final skewness was .29 for pre-math scores, .31 for post-



math scores, .30 for math gain scores. Final kurtosis was .05 for pre-math scores, -.43 for post-math scores, and .31 for math gain scores. When the final cleaning was completed, scores had been eliminated to account for alternative assessments, outliers or bad data, and missing scores. It is important to note the term missing scores refers to scores missing because those students do not take the particular state standardized tests at their grade level, not because the data were actually missing or not collected. Table 3 illustrates the scores eliminated to create the final data set, which contained a total of 4819 students.

### **Measures**

The demographic variables used in this study, as described above, included gender, ethnicity, subject area, and SES for research question one. For research question two, the total number of SES hours attended was the independent variable. The dependent measures used in this study included, for question number one, the total number of SES hours attended and for questions two and three the dependent variable was SOL gain scores for reading and mathematics. Total number of SES hours was reported by school systems based on the record keeping within each school's SES program, as reported to the VDOE using the online system described earlier.

Table 2

*Eliminated Scores by Subject and Type*

	Alternative Assessments	Outliers	Missing Values*
Pre-Reading	568	105	8736
Post-Reading	940	80	5606
Pre-Math	280	36	7994
Post-Math	518	42	6075
Gain Scores		645	

\*Missing scores indicate students who were in a grade level that did not take the particular test during that year.

The instruments used to determine academic achievement in this study were the reading and math Standards of Learning (SOL) assessments from 2006-2007, 2007-2008 and 2008-2009 school years. Pre and post assessment data were provided for each student who had taken a SOL assessment prior to the year they participated in SES. To better understand how SOL assessments are scored, in Virginia, SOL reading and math cut scores are determined by number of correct answers divided by the number of total items. Pass rates are determined by the Virginia DOE, as part of its compliance with NCLB. Scores from zero to 399 are termed “Basic” and are considered failing scores. Scores from 400 to 499 are termed “Proficient” and are considered passing scores. Scores from

500-600 are termed “Pass Advanced” and are considered passing scores with 600 being a perfect score. Table 4 illustrates the cut scores for SOL tests used in this study.

Table 3

*Cut scores for SOL Assessments by Grade*

Assessment	Fail/Basic Items Correct/Score	Pass/Proficient-Items Correct/Score	Pass/Advanced-Items Correct/Score
3 <sup>rd</sup> Grade Reading	13/to 399	23/400-499	31-35/500-600
3 <sup>rd</sup> Grade Math	21/to 399	35/400-499	45-50/500-600
4 <sup>th</sup> Grade Reading	14/to 399	23/400-499	31-35/500-600
4 <sup>th</sup> Grade Math	16/400-499	31/400-499	43-50/500-600
5 <sup>th</sup> Grade Reading	17/to 399	27/400-499	37-50/500-600
5 <sup>th</sup> Grade Math	23/to 399	35/400-499	44-50/500-600

SOL scores from the year prior to students receiving SES tutoring services served the baseline or pre-scores and were compared to the post-scores or SOL scores from the test immediately following involvement in SES tutoring. Based on the data provided, this method included scores from 2005-2006, 2006-2007, 2007-2008 and 2008-2009. Gain scores were determined by using the formula: post-scores – pre-scores divided by 600

(highest possible score) – post-scores. New cells were created called reading gain scores and math gain scores to store this information.

## **Participants**

### **Students**

The student data used in this study included students who were enrolled in SES in Virginia from 2006-2009. All students enrolled in SES must attend a Title I school which has failed AYP for two consecutive years, show economic need by qualifying for free and reduced lunch and be selected as academically needy at the school level. All students in the data sets created from the original VDOE data set met these requirements.

Although the data base does not specify grade level, because this study was comparing pre and post SOL test scores, students would have been in grades four through eight during the school year for which data were available. Other demographic data were available about the students, however. Ethnicity, gender, tutoring subject area, number of SES hours attended and SES provider were noted for each student. Table 5 illustrates the participants in terms of ethnicity, gender and subject area.

### **Providers**

SES providers were also important participants in this study. The data set included a total of 60 providers, meaning during the years 2006-2009 Virginia SES students were served by 60 different SES providers. Some providers served as many as 1660 students while others served as few as 2 students. In order to work with a manageable number of providers and to consider providers who served enough students to show real differences, some providers had to be eliminated from the data set. The two

studies, Potter et al. (2007) and Ryan and Fatani (2005), found during the literature review that used providers as the basis of analysis, were used as a benchmark for eliminating providers. Each of those studies included the top 75 percent of providers, based on the number of SES students served. Working within the same parameters, frequencies were run and providers were listed in ascending order based on the number of students they served. Looking at quartiles, the providers in the lower quartile were eliminated. This resulted in a total of 22 providers who serviced a combined total of 4270 students. Table 6 illustrates the providers in terms of students served.

Table 4

*Demographic Breakdown of Students*

		n	%
Ethnicity	White	461	9.60%
	Black	3372	70%
	Hispanic	800	16.60%
	Asian	109	2.30%
	Unspecified	50	1.00%
Gender	Male	2436	50.50%
	Female	2383	49.50%
Subject	Reading	3102	64.40%
	Math	1717	35.60%

Table 5

*SES Providers in Terms of Students Served*

Provider	n	%
1	30	.7%
2	33	.8%
3	39	.9%
4	43	1%
5	54	1.3%
6	59	1.4%
7	87	2%
8	96	2.2%
9	112	2.6%
10	113	2.6%
11	117	2.7%
12	118	2.8%
13	151	3.5%
14	166	3.9%
15	170	4%
16	172	4%
17	259	6.1%
18	283	6.6%
19	424	9.9%
20	453	10.6%
21	528	17.9%
22	763	17.87%

**Analysis of SES Attendance**

This study used a quantitative methodological approach. Creswell (2005) defines quantitative research as a form of research that is useful for describing trends and explaining relationships between groups. This study used data collected ex post facto. According to Kerlinger (1972), in this type of research scenario, the researcher is not involved in data collection and thus does not have complete control over independent

variables because their manifestations have already happened. Conclusions about relationships regarding variables are made without intervention by the researcher.

The following addresses each research question and the step by step analytical process used to answer each question.

1. Are there differences in the total number of SES hours attended and student demographic variables, including gender, ethnicity, subject area and SES provider?

To answer this question a one way analysis of variance (ANOVA) was used to first determine whether there was a statistically significant relationship between the total number of SES hours attended and the independent variables (gender, ethnicity, subject area and SES provider). According to Creswell (2005), analysis of variance is ideal when comparing one or more groups (categorical data) to a single continuous set of data. In this case the independent variables are categorical and the number of SES hours completed is continuous. In addition, a Tukey post hoc test was included to provide more detail about the possible relationships between groups. According to Erford (2008), analysis of variance only finds that differences exist among groups. Exactly what groups are different or to what extent they are different are not known by simply running analysis of variance. Post hoc analysis, such as the Tukey, Erford explains, further identifies particular differences to better inform the research results.

2. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between enrolled SES

students who have virtually no attendance, zero to one hour, and those who have the highest attendance, over 40 hours?

Initially, this research question was written to replicate Heinrich et al.'s (2009) study which compared students attending zero hours with those attending greater than 40 hours. However, the data in the final VDOE data base did not provide enough data on students who attended zero hours to run reliable analysis. Therefore, the question was slightly altered to include zero or one hour. It is reasonable to assume the first hour of tutoring is used for assessment and initial administrative tasks rather than instruction so these student virtually would have received little to no tutoring. This question two compared the academic achievement of students who registered for SES tutoring but did not attend (zero or one hour) with those who registered for SES students who completed over 40 hours of tutoring (the highest category of attendance in the data set). Because this study used an existing data set of students enrolled in SES tutoring, essentially no control group existed for analytical purposes. However, replicating the approach used by Heinrich et al., students who registered but never attended were isolated, and the opportunity to create a control group emerged, allowing for some analysis among these groups. Using gain scores in reading and math scores as the measure of academic achievement, students in the no attendance group were compared with students attending the most SES hours to see if differences existed between the two groups' scores. A one way ANOVA was run to first determine whether there was a statistically significant difference in gain scores between the two groups of students. When analysis for reading gain scores was being run, the data were limited to only include students who were



tutored in reading. When analysis for math gain scores was being run, the data were limited to only include students who were tutored in math.

3. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between SES students who attend 1-15 hours, 15-30 hours, and over 30 hours?

The third research question continues to replicate the Henirch et al. (2009) study at the elementary level. Although grade levels were not identified in the data set provided by VDOE for this study due to possibility of student identification, another data set void of any other student identifiers was obtained to simply look at the grade levels serviced by SES tutoring in Virginia. Virginia provides SES tutoring only to students in Kindergarten through eighth grades. During the process of obtaining the data from the VDOE, the officials at VDOE shared that Virginia has very few Title I secondary schools; therefore, SES predominantly exists at the elementary level and in some middle schools. This research question will extend Heinrich et al.'s approach to analyzing SES attendance as it relates to academic achievement to students in fourth through eighth grades.

To answer question number three, the attendance groups identified earlier were used, and an analysis of variance was used to determine whether there were any significant differences between the different attendance groups and the gain scores in either math or reading. Once the ANOVA was run, the Tukey post hoc test was used to identify between which pairs of the group the specific differences existed and to what extent they existed.

## **Research Procedures**

This research study focused on the analysis of a data set obtained from the Virginia Department of Education. The data included demographic information, attendance information and state standardized test scores for students participating in SES during 2006-2007, 2007-2008 and 2008-2009 school years. HSRB approval for use of data sets was secured. The process for analyzing began with transferring the data from the Excel files provided by the VDOE to SPSS. Once transferred into SPSS, the data were cleaned and renamed to create the final data set used in this study. Then, some of the variables were coded for the purpose of analysis. For example, male students were represented by a 1 and female students by a 2. Those students tutoring in reading were coded 1 and math coded 2. Ethnicity was identified numerically as well. Additionally, providers were then given a numeric code, from 1 to 60. Gain scores were computed based on pre and post SOL assessment scores, using the formula  $\text{post-scores} - \text{pre-scores}$  divided by  $600 - \text{pre-scores}$ . Once the data was prepared thoroughly, the analytical process began and the results were analyzed. Those results are described in the following chapter.

## 4. Results

### **Introduction**

The purpose of this study was to examine the possible relationships between attendance and academic achievement in Supplemental Educational Services tutoring, free tutoring provided to eligible students through the No Child Left Behind Act of 2001 (NCLB). The results for each research question's analysis are discussed in this chapter. This chapter will explain the results of both descriptive and inferential analysis as it related to the research questions.

### **Research Question 1**

Research question one asked whether there were differences in the total number of SES hours attended and student demographic variables, including gender, ethnicity, subject area and SES provider. Before considering inferential analysis, a descriptive analysis provided an overview of the data in terms of the research questions. For research question one, descriptive statistics show the hours attended in terms of three of the different demographic variables: gender, subject area and ethnicity. Provider analysis is discussed in another table due to the nature of that analysis. Table 7 illustrates the results of the descriptive analysis, which at first glance showed no apparent difference between

boys and girls or between those tutored in reading and math. However, the number of hours attended by ethnic group does appear to show some difference.

Table 6

*SES Hours Completed by Demographic Variables*

		n	M/SD	Min/Max
Gender	Male	2436	19.81/11.30	0-72
	Female	2383	19.69/11.58	0-70
Subject	Reading	3102	19.75/11.48	0-72
	Math	1717	19.74/11.37	0-70
Ethnicity	White	461	20.79/11.83	0-70
	Black	3372	18.60/11.53	0-72
	Hispanic	800	22.94/10.03	0-51
	Asian	109	25.57/9.73	2-49
	Unspecified	50	19.37/9.61	0-44

This phase of analysis revealed that virtually equal numbers of boys and girls enroll in SES, and within that enrollment, more than twice the number of students get tutoring in reading. Perhaps more interesting is the disproportionate enrollment of Black students compared to other ethnic groups. Referring back to the general Virginia student demographic data, the number of White students attending Virginia public schools is more than double the number of Black students attending. However, the number of Black students enrolled in SES tutoring is almost ten times that of Black students.

Because of the large number of SES providers, some SES providers were eliminated before analysis to create more equal groups. However, prior to adjusting

providers, an overall analysis of providers showed providers served as few as two students and as many as 763 students with these students completing as few as zero hours and as many as 69 hours. Providers for analytical purposes were limited to those providers who served the top 75 percent of SES enrolled students. Once those serving the lower quartile were eliminated, there were 22 providers in the data set for analytical purposes. Table 8 illustrates the providers in terms of average hours completed per student.

Table 7

*Providers by Average Number of Hours Attended Per Student*

Provider	<i>M</i>	<i>SD</i>	Min-Max
1	27.20	11.14	0-36
2	20.51	10.07	0-36
3	24.69	13.26	0-47
4	24.56	7.35	4-34
5	15.98	5.70	5-36
6	27.83	11.61	0-36
7	13.86	6.66	2-30
8	26.02	12.13	2-42
9	21.42	10.94	0-49
10	17.77	9.76	0-36
11	30.56	9.57	2-41
12	25.85	9.40	1-38
13	22.28	10.60	0-38
14	21.03	9.43	0-36
15	17.37	8.45	0-39
16	18.76	10.08	0-36
17	14.20	7.9	0-37
18	14.01	9.76	0-44
19	24.23	13.54	0-72
20	20.22	10.91	0-69
21	18.66	9.66	2-41
22	17.87	10.29	0-69

Once the descriptive analysis was completed for research question one, the inferential analysis began. To answer this question one way analysis of variance (ANOVA) was first used to determine whether a statistically significant difference existed between the hours attended and particular demographic variable. Males and females attended virtually the same number of hours: males ( $M=19.81, SD=11.31$ ) and females ( $M=19.69, SD=11.58$ ). Based on the ANOVA for gender and hours attended, the results showed no statistically significant difference between boys and girls in terms of the number of hours they attended SES tutoring,  $F(1, 4817) = .129, p=.72$ . For subject area, again, means showed little difference: reading ( $M=19.75, SD=11.48$ ) and math ( $M=19.74/SD=11.38$ ). Again, there was no statistically significant difference in the number of hours attended between students tutored in math or reading,  $F(1,4817)=.002, p=.97$ .

Unlike gender and subject area, the ANOVA showed a statistically significant difference between ethnic groups in terms of the number of SES hours attended. White students had a distribution of  $M=20.79$  and  $SD=11.83$ ; Black students had a distribution of  $M=19.00$  and  $SD=11.53$ ; Hispanic students had a distribution of  $M=22.94$  and  $SD=10.03$ ; Asian students had a distribution of  $M=25.57$  and  $SD=9.73$ ; and Unspecified had a distribution of  $M=19.36$  and  $SD=9.61$ . These variables were used as factors and the total number of hours acted as the dependent variable in the ANOVA. (See Table 7.) Results showed a statistically significant difference between the different groups and the total number of hours attended,  $F(4, 4787) = 32.99, p = .001$ . Furthermore, the Tukey

post hoc test identified that Asian students attended statistically significantly more SES tutoring sessions than White, Black and Unspecified students by at least 8.06 hours and as many as 11.46 hours. Hispanic students out-attended White and Black students by as few as 3.94 hours and as many as 5.54 hours. White students attended more SES sessions than Black students by as few as .66 hours and as many as 3.71 hours. This information suggests only that there are differences between ethnic groups in terms of the number of hours they attend. It does not imply that attendance results in greater academic gains. The overall indication here is that Black students have the lowest attendance rates of any subgroup in Virginia during 2006-2009 school years.

For providers, as mentioned earlier, 38 providers were first eliminated, using similar approaches used by Ryan and Fatani (2005) and Potter et al. (2007). Each of these studies used providers as the basis for analysis of SES. Using the remaining 22 providers, an ANOVA was run with the Tukey post hoc test. Results showed there was a statistically significant difference in the number of SES hours students attended between providers,  $F(21, 4248) = 28.80, p = .001$ . Furthermore, the Tukey post hoc analysis showed many differences between providers. Although statistically significant differences between different providers existed for each provider to some extent, the most significant results were with provider number 2, which showed statistically significant differences between all but five of the other providers. The Tukey post hoc analysis showed these differences were all positive. Provider number 2 provided at least 2.68 but as many as 22 hours more than the other providers with which there were statistically significant differences. On the other end of the spectrum, provider 16 showed statistically

significant differences between 12 of the providers, with all of these differences being negative. These results indicated that provider 16 provided fewer hours than these 12 providers by at least .47 and as many as 22 hours. Overall, the result of this analysis showed there are extreme differences in the average number of tutoring hours students attend based on the specific provider.

### **Research Question 2**

Research question two asked whether there were differences in academic achievement as measure by gains cores on the Virginia Standards of Learning state assessment tests between enrolled SES students who attended virtually no tutoring and those who attended the highest number of hours. First two extreme groups of students were created: those attending virtually no tutoring (zero or one hour only) and those students attending more than 40 hours of tutoring. Table 9 illustrates what these groups of students look like in terms of pre, post and gain reading and math scores.

After the descriptive analysis was complete, inferential analysis was completed for research question two. Initially, this question attempted to replicate the Heinrich et al. (2009) study, which compared students with zero hours of tutoring with those who attended 40 or more sessions. The Virginia data, however, did not have enough students in the zero hours category to run a reliable analysis. Therefore, this question was slightly altered to include students who enrolled but never attended or attended one hour. The initial tutoring session is more likely to include assessment activities than actual instruction, so it was reasonable to include these students in a category that presumed students did not actually receive tutoring. To address this question, students were



assigned to groups. The first group included those students who enrolled in SES but attended no hours or attended only one hour of tutoring. The second group comprised students who attended 40 or more hours of tutoring.

Table 8

*Score Comparison of Lowest Attendance and Highest Attendance by Subject*

	0-1 Hour			40 or More Hours		
	<i>M</i>	<i>SD</i>	Min/Max	<i>M</i>	<i>SD</i>	R
Reading			(n=89)			(n=53)
Pre-Scores	406.78	60.74	287-552	410.23	50.49	286-552
Post-Scores	426.26	65.71	298-600	416.96	46.05	310-519
Gain Scores	.08	.32	-.61-1	.01	.23	-.66-.61
Math			(n=63)			(n=64)
Pre-Scores	375.21	67.46	256-523	392.431	57.37	259-568
Post-Scores	412.95	69.25	258-561	407.72	79.51	277-600
Gain Scores	.15	.26	-.55-.80	.07	.36	-.52-1

For reading gain scores, analysis of variance showed there was no statistically significant difference between students attending zero or one hour, where the distribution was  $M=.08$ , and  $SD=.32$  and those attending more than 40 hours of tutoring, where the distribution was  $M=.01$  and  $SD=.28$ ,  $F(1,140)=1.90$ ,  $p=.17$ . As with reading scores, the ANOVA also showed no statistically significant difference in math gain scores between students who attended zero or one hour, where the distribution was  $M=.15$  and  $SD=.26$ ,

and those attending 40 or more hours of tutoring, where the distribution was  $M=.07$ ,  $SD=.36$ ,  $F(1, 125)=1.28$ ,  $p=.18$ .

### **Research Question 3**

Research question three, asked whether differences existed in academic achievement as measured by Virginia SOL assessments between SES students who attended 1-15 hours, 16-30 hours and those attending over 30 hours. This question analyzed whether statistically significant differences existed in gain scores between these groups of students who attended SES tutoring at different levels. Students attending 1-15 hours were labeled as low attendees. Those attending 16-30 hours were labeled medium, and those with more than 30 hours of tutoring were considered high attendees. Initially, the third research question precisely replicated part of the method Heinrich et al. (2009) used to create control groups within a sample for which there was no intervention. Heinrich et al. grouped students in increments of ten (1-10, 11-20, 21-30 and 31-40). The data set used in this study, however, did not provide even samples when broken into these exact groups. Therefore, the groups were altered slightly, creating three groups: 1-15, 16-30 and 30 or more hours. Because the Virginia data base consisted of students in grades four through eight, this question extended Heinrich et al (which only used secondary students) to elementary students. Table 10 illustrates the reading and math scores by attendance groups.

Once the descriptive analysis was complete, inferential analysis was run using the groups of students illustrated above. For reading gain scores, the ANOVA was run using gain scores as the dependent variable. The factor was SES hours, which was represented

in the three levels of attendance. The low group had a distribution of  $M=.08$  and  $SD=.31$ . The medium group had a distribution of  $M=.10$   $SD=.29$ . The high group had a distribution of  $M=.08$  and  $SD=.29$ . Results showed there was no statistically significant difference in the gain scores and the different attendance groups,  $F(2, 2394)=2.19, p=.12$ . For math, gain scores were again used as the independent variable. The factor was once again the SES hours, which was represented in the three levels of attendance. The low group had a distribution of  $M=.12$  and  $SD=.36$ . The medium group had a distribution of  $M=.12$  and  $SD=.32$ . The high group had a distribution of  $M=.13$  and  $SD=.34$ ). Results for math gains were similar to reading gains, showing no statistically significant difference in math gain scores and the different attendance groups,  $F(2, 1432)=.27, p=.76$ .

Table 9

*Reading and Math Scores by SES Grouped Hours and Subject*

		1-15 Hours			16-30 Hours			30 or More Hours		
		<i>M</i>	<i>SD</i>	Min-Max	<i>M</i>	<i>SD</i>	Min-Max	<i>M</i>	<i>SD</i>	Min-Max
Reading		(n=883)			(n=1081)			(n=433)		
	Pre	413.67	58.79	269-600	406.83	58.70	263-600	410.52	57.50	236-600
	Post	431.02	64.80	297-600	429.54	62.62	297-600	429.35	60.73	298-600
	Gain	.08	.31	-.66-1	.10	.29	-.66-1	.08	.29	-.66-1
Math		(n=502)			(n=619)			(n=506)		
	Pre	400.05	67.70	249-600	399.70	64.96	249-598	413.29	67.66	251-600
	Post	424.69	82.60	258-600	422.94	76.26	258-600	422.71	80.00	258-600
	Gain	.12	.36	-.58-1	.12	.32	-.58-1	.12	.34	-.58-1

The original expectations of this research study were not realized in the results. Based on the literature and professional experience, the researcher believed there would be some relationship between the number of SES hours attended and students' academic achievement. In general this study's conclusions were not statistically significant. There were some positive trends noticed between pre and post assessments. Also, in retrospect, it is plausible different results may have been realized if regression had been used instead of ANOVA. Regression would have allowed the researcher to better account for the differences in the sizes of the groups. Because the data set groups were set in advance, there was no flexibility within the study to adjust the groups to create more similar group sizes.

Although the outcome of the study did not result in statistically significant differences, there are some interesting policy implications that can be made from this study's results. Chapter five discusses these implications in detail.

## 5. Conclusion

### **Discussion**

The purpose of this study was to examine the relationships between attendance and academic achievement in Supplemental Educational Services tutoring, free tutoring provided to eligible students through the No Child Left Behind Act of 2001 (NCLB). Based on research about attendance in general, which shows connections between attendance and higher achievement, the assumption made prior to conducting this study was that the more SES hours a student attended the more improvement they would make on SOL assessments (Allensworth & Easton, 2007; Chang & Romero, 2008; Jacobson, 2008; Sanchez et al., 2009). Furthermore, based on the literature surrounding tutoring and after school programming and their impact on students' academic achievement, the expectations of this study were that differences in SOL gain scores between SES students who attend fewer and more sessions would be statistically significant (Carswell et al., 2009; Chung, 2000; Elbaum et al., 2000; Gordon et al., 2004; Labbo & Teale, 1990; Newman et al., 2000). That was not the outcome of this research. Despite the lack of statistical significance in many of the analyses, there are some important conclusions to consider and several policy implications from the results of the study. In this chapter, the specific conclusions per research question will be discussed. Following the specific

discussion by research question, general policy implications at both the state and federal levels are considered.

1. Is there a relationship between the total number of SES hours attended and student demographic variables: gender, ethnicity, subject area or SES provider?

Results from the analysis for question one had varied outcomes. Some of the variables showed no statistically significant relationship, while others did result in statistical significance. Similar to the state report cards mentioned in the literature review from the Arizona, Maryland and Virginia Departments of Education, there was no statistically significant difference in attendance between boys and girls. There also was no difference between those students being tutored in reading and math who attended roughly the same number of hours. In terms of gender, this is consistent with the research about daily school attendance provided by the states' report cards Arizona Department of Education, 2008, Maryland Department of Education, 2008; Virginia Department of Education, 2008), which showed no differences in the attendance patterns between boys and girls. Virginia's report card (2008) is based on data compiled by the VDOE, which is collected by local education agencies. In 2008, Virginia's report card also showed no noticeable difference between different ethnic groups in terms of attendance. Unlike the information reported in the state's report card, however, the analysis of SES attendance in terms of ethnicity did result in statistically significant differences between the different ethnic groups. In fact, the results were virtually the inverse of what Virginia's report card indicated. Asian students attended the most SES hours. Hispanic students had the second

highest attendance rate. White and Black students attended the fewest hours, respectively. General reports on attendance from three states do not show one racial group with higher absenteeism from regular school than other ethnic groups (Arizona Department of Education, 2008; Maryland Department of Education, 2008; Virginia Department of Education, 2008). It is worth noting, the states' report cards do not indicate attendance patterns for after school programming, like SES, however. These varied types of attendance, although both academic in nature, may not be directly comparable.

In terms of providers and hours attended, perhaps this result was the most telling because it illustrated how different providers give students access to very different experiences. Like Ryan and Fatani (2005) and Potter et al., (2007), there was a statistically significant difference in the number of hours students attended and the SES providers. Looking more closely at particular providers, it became clear that some providers were engaging students in more hours of tutoring time than others. Why this is so is not clear from this research, but based on attendance research in general, one could assume that more time spent learning should result in greater learning outcomes (Allensworth & Easton, 2007; Chang & Romero, 2008; Jacobson, 2008; Sanchez et al., 2009).

2. Are there differences in academic achievement as measured by gain scores on Virginia Standards of Learning state assessments between enrolled SES students who have virtually no attendance, zero to one hour, and those who have the highest attendance, over 40 hours?

3. Are there differences in academic achievement between SES students who attend 1-15 hours, 16-30 hours, and over 30 hours?

The findings of research questions are typically discussed separately and independently; however, because of the similar nature of the results of these research questions, discussion of these results will be done in this section together. The second research question created a control group within the data set by capturing students who qualified for SES tutoring and enrolled in SES tutoring but who attended zero hours or one hour, which was considered virtually no attendance. This analysis then compared these students' SOL gain scores to the SOL gain scores of those students who enrolled in SES and attended the highest number of hours (over 40) based on the data set. Research question three used the method used in the Heinrich et al. (2009) study and expanded on question two, creating attendance groups among those students who enrolled and attended at least one hour of tutoring. Using a similar method to Heinrich (2009) to categorize students by attendance, these groups, 1-15, 16-30 and more than 30 hours, were used as factors in the one way ANOVA with gain scores in reading and math as dependent variables. As discussed in the results section, none of these analyses showed statistically significant differences in gain scores. These results are similar to the findings of Heinrich et al. (2009) and Springer et al. (2009). Within these two studies which considered SES attendance and academic achievement, no statistically significant differences in achievement were discovered, with the exception of Heinrich et al.'s finding that showed a statistically significant effect on middle school students who attended 20 or more hours of SES tutoring. Overall, the findings of this study mirror



those of these two SES students which considered attendance. As discussed in the limitations to this study and the discussion of the data set, the State of Virginia would not release information on grade level. It is possible if those data were available, the effect of SES tutoring on middle school students could have been analyzed and either further confirmed Heinrich et al.'s findings or challenged them.

When reviewing other research related to attendance, the results of the analysis of questions two and three were surprising. Most of the literature reviewed in Chapter 2 of this study showed regular school attendance for students in K-12 is an important piece of academic success (Allensworth & Easton, 2007; Chang & Romero, 2008; Jacobson, 2008; Sanchez et al., 2009), and many SES research studies have shown some positive results in terms of academic achievement (Beese, 2008; Cooper, 2007; Potter et al., 2007). Since, for the most part, they had not accounted for attendance, it was a logical conclusion that once attendance was considered, greater gains would be seen. That was not the case, for these research questions. The conclusions of this research were more in line of the findings of Bonelli (2007), Munoz et al. (2008) and Ross et al. (2008) all of which found SES to have no statistically significant impact on academic achievement. The apparent disconnect between SES tutoring and student test gains is discussed further in the section on policy implications found later in this chapter.

## **Limitations**

### **Initial Limitations of the Study**

Upon beginning this study, the following limitations were identified and acknowledged. Primarily, using a secondary data set created two very distinct limitations in terms of the data itself. First, the data were limited to what the VDOE collected and could provide. Second the data were limited to what the VDOE was willing to release. VDOE did not collect data related to SES in terms of student-tutor ratios, provider programming or tutoring location. This information is not required by the U.S. Department of Education to be collected, and the VDOE does not require this information from its LEAs.

Variables such as grade level, LEP status and LD status were collected by the VDOE, but they were not made available to this researcher. These data could have been helpful in further investigating the effectiveness of SES. For example, prior research showed different results to some extent based on grade levels. Heinrich et al.'s study only showed statistically significant results for middle school students. Because grade level was not provided by VDOE, this study could not consider the grade level of the students. It is plausible having this information could have resulted in different outcomes.

Much of the data that would have helped this study in terms of its ability to deeply analyze the effectiveness of SES tutoring on SOL gain scores, were data the state did not have in its possession. Data that the state does not require, and data that USDOE does not require states collect. Without having details about the specific SES tutoring, such as student-tutor ratios and provider programming, it is difficult to draw conclusions about some of the results of this research study. Knowing student-tutor ratio, for example,

would have provided another level of analysis completely. Perhaps there are relationships between higher student-tutor ratios and higher numbers of hours a provider includes in its program. With more students in a group, more hours are economically viable. But, without knowing the type of tutoring students received, these are only speculations. Knowing more about the provider programming, such as requirements of instructors or curriculum details, would have shed light on the possible impact of varied SES provider programming. These details could have been helpful when considering the impact of SES attendance.

A final limitation of the data provided for this study, was the way in which the VDOE provided the data. Students were listed in the data set each year as a unique subject. The data set consisted of three consecutive years of data; however, students from year to year were not matched. In other words, there was no way to know if a student from 2006-2007 was also listed in years 2007-2008 and/or 2008-2009. Therefore, it is possible the same students were represented in the data but not accounted for in the analysis. If the students had been matched from year to year, it is likely there would be some differences in students who were tutored for all three years consecutively as opposed to students who were only receiving tutoring for the first year.

Finally, it is important to note the researcher conducting this research has been involved in SES as a SES provider in Virginia. The researcher could have been a biased during the process, since her experience with SES might lean her thinking in one direction. As a SES provider managing a program thought to be successful from the

researcher's prospective, it may have been possible for the researcher's experiences within SES to cause the researcher to assume all SES programming to be effective. To address this issue a plan for preventing biased decision making during the research process was created. First, all data used would be collected by a third party (VDOE) and cleaned prior to delivery. Second, using a quantitative approach left little room for the researcher to influence results. In fact, the researcher's initial proposal postulated that the results would show attendance improved SOL scores. The results were quite different from what was expected. However, in considering these results, the researcher's experience was helpful. Exposure to SES helped shape some of the possible explanations of the results and set up some opportunities for future research in SES tutoring. For example, the researcher had the opportunity to observe other SES companies deliver services in very large groups. When more hours did not result in greater gains on SOL testing, it seemed logical that maybe those students in very large groups might be getting more hours but not more quality instruction.

### **Limitations Emerging from the Study**

Not only were there initial limitations that were apparent prior to beginning analysis, but as this study unfolded, more limitations were discovered as results of the analysis were considered. These were limitations that were not clear prior to beginning the research. It is these limitations which may be the most interesting finding in terms of real implications. In general, this study did not result in statistically significant differences in terms of SOL gain scores. Despite the support of the literature within after

school programming, tutoring, and attendance, students attending more SES hours did not show statistically significant gain scores on SOL assessments (Bergeron, 2009). The next logical step would be to try and discover why this might be so. However, the data to draw such conclusions seem to be non-existent. VDOE does not collect information about SES providers, student-tutor ratios, tutor training, curriculum or anything that might help explain why a student attending more SES hours does not make greater gains on SOL assessments. There are some possible explanations. Student-tutor ratios is one of the most concerning. Because this information is not required to be reported at the federal level through NCLB and because Virginia does not take the initiative in collecting such information, research studies lack a key component to the analytical process. If students attending more hours are doing so in very large groups of students and students attending fewer hours are doing so in one on one settings, the comparison loses validity. Perhaps fewer hours of more intensive work are more effective. Because the data are not available, the research is not able to answer such questions.

Another valuable piece of information to know would be whether students enrolled in SES are also enrolled in other after school programs. The Virginia data did not include this information, and USDOE does not require states to collect it. However, when comparing hours attended, it is possible students who have low SES attendance have high attendance in another after school program. Thus, comparing SOL gain scores of these students would not reveal the impact of SES tutoring versus no tutoring; it may simply be comparing two different types of tutoring programs. Findings like those in this

study, which showed no statistically significant difference in performance, might be expected if a student were attending a different after school program.

Another missing piece of data that limited the research potential was about the providers themselves. Knowing that there was a statistically significant difference in hours attended based on the providers was valuable. But, without more detail about the providers, how they trained their tutors or what kind of curriculum they used, the value of this outcome is limited. Perhaps providers giving students access to more hours are doing so with watered down curriculum or with less professionally trained tutors.

Overall, the limitation that emerged from this analysis was the lack of federal regulation to require solid data collection within SES. Beyond basic demographic information related to sub-groups and state standardized assessment scores, NCLB does not mandate the collection of any other information related to SES. For this study, and perhaps for many others, the lack of this data, and thus the lack of policy requiring its collection, is viewed as a major limitation.

## **Policy Implications**

### **Federal Policy Implication.**

As the Elementary and Secondary Act comes up for reauthorization, it is vital to consider what has worked and what has not worked in terms of closing the achievement gap. This research study highlighted how important the research behind NCLB is with regard to knowing whether programs like SES are making a difference in student achievement. Without the data needed to draw such conclusions, the power behind the

research studies attempting to discover more about NCLB and particularly SES is limited. NCLB policy is complex, but it does not amply address the needs of the research community. Requirements at the federal level for states and thus LEAs to collect valuable information are key to gaining the knowledge about the value of SES and thus better inform policy makers on what changes need to be made. Without this information, the few studies that do exist provide little insight into the real impact SES could be having on students.

### **State and Local Policy Implications**

This research study used prior research in the area of tutoring, after school programming and attendance to show how students who attend more SES tutoring time show greater gains on SOL scores than those students who do not attend as many sessions. Many of the results did not align with prior research. The limitations based on available information created difficulty when trying to further analyze the results of this study. Although gain scores could be analyzed, it was not possible to consider explanations for the findings or analyze scores in terms of multiple variables. Federal policy could be changed to address this issue. However, it is reasonable to expect the local and state entities to take the initiative to ensure the ability to analyze the effectiveness of programs like SES. Local school systems do not collect enough valuable data. States, like Virginia's Department of Education, do not require LEAs to collect such information.

More detailed data about students participating in SES would assist researchers in finding more accurate and more detailed results. Variables such as student-teacher ratio, location of tutoring, tutor training or tutor requirements would give a much more rich understanding of the SES process. Additionally, releasing more specific demographic information such as grade level, LEP status and LD status would assist researchers in terms of how they are able to analyze the data.

The systems for collecting these data are already in place. As mentioned earlier, VDOE requires its LEAs to report SES information using an online data reporting method. Putting policy in place which would expand this data base to include more details about SES would not be a huge shift from current policy, but it would result in an extremely significant impact on those researching SES and its effectiveness.

### **Future Research**

This study addressed SES tutoring, attendance within SES tutoring and academic achievement. The need for accurate and complete research about SES tutoring and its impact on student achievement is great. SES costs tax payers billions of dollars each year. If that money is to affect the achievement gap and help provide equality in education for all students, more research is needed to analyze where SES works and where it does not.

This study showed differences exist in attendance between various ethnic groups and between different providers. Finding out more about why these differences exist could help inform the entire SES process. The vital thing to consider is why these results are so. Further research is needed to find out more about the students enrolled in SES,



why they attend or do not attend, and what other exposures they have to after school assistance will all help to better understand the findings of this study.

Perhaps even more important, the findings of this study also raise the question of what is happening during SES tutoring sessions. How many students work with a single tutor? What kinds of resources are being used to foster learning? Is curriculum, in fact, aligned properly with the state's standards? By whom and how is the curriculum being delivered? Is the SES stipend available to students enough to expect similar results to the private-pay tutoring experience?

These questions are important to the overall SES process. Future policy decisions could hinge on knowing the answers to these questions. As students, teachers, schools, school districts and states continue to face the reality of high stakes testing, SES tutoring will continue to be one of the possible means of meeting that challenge and delivering results in the way of increases on state standardized test results. Low income, minority students continue to be the neediest population in terms of academic performance and the results of not being successful in school, as stated early in this paper, can be devastating economically, socially and personally. SES may have the potential to bridge that gap, but without more information it is very difficult to draw solid conclusions. Future research relies on having access to more data regarding SES providers and enrolled SES students.

Education policy in the United States intended to promote equality in education goes back over forty years. Research shows that academic achievement is linked to overall quality of life: economically, physically, and sociologically. Research on

attendance seems to indicate that attendance plays a strong role in the overall success of students. Many research studies also illustrate the benefits of after school programming helping students to improve overall academically in terms of standardized test scores, grades and attendance. NCLB's purpose is to ensure all children in the U.S. who attend public schools are successful. It was sweeping legislation which impacted education in many different ways. SES is one component of NCLB that attempts to provide students in sub-groups the extra attention they need to be successful in school. Although this study did not link attendance and academic achievement, it did highlight some of the possible missing policies in SES that could help research better identify where SES is working and where it is not.

Some studies have shown SES to be successful, but NCLB demands all students be successful by 2014. There is work to be done. Based on the literature surrounding the effectiveness of tutoring, it is reasonable to assume SES has potential to make a significant difference for some students. As NCLB and, thus, SES come up for reauthorization, a new administration has the opportunity to make changes that will bring higher quality learning experiences to all children.

This study has shed light on the importance of data collection within SES. Without ample information, drawing conclusions about SES's effectiveness is difficult. Knowing more about what is going on during SES tutoring sessions will help inform researchers, policy makers, and ultimately educators so that they may do their best to truly leave no child behind.



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## CURRICULUM VITAE

Deborah L. Bergeron has been working in education for over 20 years. She holds a Master's Degree in Education Administration from George Mason University and a Bachelor's of Science in Education with a K-12 certification in theater arts and speech communication from Southwest Texas State University (now the University of Southwest Texas). Ms Bergeron began her education career as a private tutor as an undergraduate student in Texas. She then spent six years as a middle and high school classroom teacher. After leaving the classroom to start a family, Ms Bergeron started TutorFind, an educational services company providing tutoring services to students from kindergarten through college. In 2009, Ms Bergeron returned to public education and now works as an elementary school assistant principal.