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Evaluating the Effectiveness of Supplemental Educational Services in Large Texas School Districts

Carlos Lee
carlos.lee@student.shu.edu

EVALUATING THE EFFECTIVENESS OF SUPPLEMENTAL EDUCATIONAL SERVICES IN LARGE TEXAS SCHOOL DISTRICTS

Carlos G. Lee

Dissertation Committee

Elaine Walker, Ph.D., Mentor
Daniel Gutmore, Ph.D.
Beverly Burr, Ed.D.
Harold Smith, Ed.D.

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ABSTRACT

With the need for greater education reform, President George W. Bush and Congress enacted No Child Left Behind (U. S. Department of Education, 2001). The enactment of NCLB was accompanied by additional requirements concerning accountability for student achievement. The search for methods that provide educational enhancements continues through the work of schools and local community members (Hock, Pulvers, Deshler, & Schumaker, 2001). Supplemental Educational Services (SES) are defined as supplementary academic instructional services intended to raise the level of academic achievement of Title I students in schools that have failed to meet federal mandated AYP standards for three consecutive years.

This study examined the effectiveness of the SES programs in large Texas Title I urban district schools (Dallas, Fort Worth, Houston, San Antonio, and Austin) that were required to offer this program during the 2010 and 2011 school years. To determine if participation in Supplemental Educational Services affected student achievement, measurements of Texas Assessment of Knowledge and Skills (TAKS) scores were collected and analyzed from over 24,000 eligible students who participated in supplemental reading or math programs from the previous year. Students were coded according to their grade level and participation status. The outcomes of this study established that while there were various increases in the academic achievement of students taking part in this program, the growth was limited to a comparatively low number of participants. The increases were evident mostly along grade levels. Middle school students (Grades 6-8) that participated in SES programs fared worse than high school students (Grades 9-12) in all four research questions.

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DEDICATION

This is dedicated to my wife Alysia and my two children, Carlos, Jr. and Carlie. You all sacrificed and supported me throughout this entire exhausting process and never flinched. You all were there through all of the hard work, bumps, and challenges. Thank you for believing in me and for not letting me give up. To my beautiful children, I pray that I am able to instill in you the belief and desire that with hard work and perseverance you can achieve anything in life that you put your mind to. I will always be there for you in everything that you do.

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CHAPTER I

INTRODUCTION

With the need for education reform looming, President George W. Bush enacted No Child Left Behind (U. S. Department of Education, 2001). President Bush was adamant that this legislation would not only improve accountability but also reinforce educational opportunities for public schools while placing emphasis on elementary and secondary education. This endeavor was the result of national data that detailed a wide-range of student failings under the current educational system. With no other relevant political options available, the president decided, along with his advisers, that a total reform of low-performing schools was in order.

The Elementary and Secondary Education Act (ESEA) is the primary mode of allocating federal support to local education agencies (LEAs). Reauthorized in 2001, The No Child Left Behind (NCLB) Act is the current label for the ESEA law. The enactment of NCLB was accompanied by additional requirements concerning accountability for student achievement. Within these new requirements, schools with insufficient adequate yearly progress (AYP) must offer parents of children extra academic assistance. Supplemental Educational Services (SES) are defined as supplementary academic instructional services intended to raise the level of academic achievement of Title I students in schools that have failed to meet federal mandated AYP standards for three consecutive years. This additional tutoring can sometimes be described as consequential or corrective in nature for those schools that do not meet AYP requirements for disadvantaged students. These services may be offered through outside public or private agencies but must be state approved.

American College Testing (ACT, 2009) reports that of the 1.4 million plus students that took the ACT in 2009, only 23% were considered college-ready based on minimum score requirements. The Scholastic Aptitude Test (SAT) is considered to be the quintessential educational measure in the United States (Loveless, 1997) and was created to forecast a student's potential success at the post-secondary or college level. Although the average SAT score in 1972 was 1039, the average score in 2005 was 1028 (College Board, 2011). From 2006 to 2012, when writing was added to the core set of tests, average SAT scores went from 1518 to 1503, respectively.

Where does Texas fall with regard to the 2001 federal standards? Seventy-eight percent of Texas school districts and 85% of schools met the Adequate Yearly Progress (AYP) standards required by the annual federal evaluation system, the Texas Education Agency announced on August 5, 2010. Of the 1,265 school districts in 2010, 78%, or 962 districts, met AYP standards compared to 81%, or 1,000 districts, the previous year. The cause for this decline was apparently due to the substantial increase in AYP standards. The 2010 ratings placed a 73% passing standard on total students and student groups for reading on the Texas Assessment of Knowledge and Skills (TAKS). A 67% passing standard was placed on the mathematics TAKS in order to receive the meets-AYP rating. The 2008-2009 academic year was assigned a passing standard of 58% for mathematics and 67% for reading.

Despite the fact that education has principally been effective as a state and local obligation, the federal government is now progressing to a more diligent role in satisfying or imposing performance-based penalties on schools that underachieve (U.S. Department of Education, 2005; Phillips, 2009; Holbrook, Schluckbier, Pavlawk, & Howington, 2009). Although states possessed the power to oversee education, the responsibility of

making sure that it was adequate also fell on their shoulders (Alexander & Alexander, 2001). As per the United States Department of Education (2005), NCLB wanted to accomplish three things. First, the federal government wanted to impact student performance on local and state assessments. Second, they sought to improve teaching and learning by way of current research-based programs; and third, these mandates gave parents options when their state and local schools underachieved and failed to meet standards. Supplemental Education Services was one such option. Schools received funding for SES from district Title I budgets and could count for up to 20% of the Title I budget.

In accordance with NCLB, Texas, along with many other states, continues to shoulder the burden to meet accountability standards due to the need for increased student performance. The search for methods that provide educational enhancements continues through the work of schools and local community members (Hock, Pulvers, Deshler, & Schumaker, 2001). Several districts and local education agencies (LEAs) are becoming supporters of after-school tutoring programs that will help increase academic performance for students who are labeled at-risk. With less than 100,000 students attending after-school tutoring programs between 2002-2003, those numbers increased two-fold for the 2003-2004 academic school year (Peterson, 2005). Historically, these programs were not the best intervention for addressing the academic needs of the at-risk students (Lauer et al., 2006). Nevertheless, with the help of No Child Left Behind, structural changes are taking place in after-schools programs, thus allowing schools to offer more valuable instruction.

The heightened focus and attention on school effectiveness may have stemmed from the relapse of public assurance in America's school system. The general public's

approval of the current public school system declined considerably. (Rose, 2006). These opinions noted that demographic change, along with low standardized test scores, discontent with current government oversight and practices, and the pessimistic depiction of schools by the media, as the chief causes for the decline (Loveless, 1997; Thompson, 2003).

Supplemental educational services have been affected by the growth of school accountability and the deterioration of buoyancy in the school system. In 2003, over 2,000 private tutoring services were available as options for parents of struggling students (Peterson, 2005). In today's viable market, supplemental education service companies are developing at a fast rate to meet the demand for teaching in the post-school-day setting. With so many companies joining the fray, these service providers must make sure that they are educationally sound to survive. Similarly, states allow only accepted supplemental service providers with a documented history of success in increasing the academic capacity of students (Cohen, 2003). Tutoring is unlike cooperative learning and mentoring for the reason that it stresses content mastery of the curriculum (Topping, 1998).

Because the quality of the service provider is generally unknown, school leaders are faced with limitations due to increasing accountability and the growing number of supplemental services. Smith, Roderick, and Degener (2005) remarked that the choice of whether or not to offer supplemental services to students is left to school leaders. It may be advantageous to schools to maintain worthwhile supplemental services in the district if these services are not offered to their students by the district. Schools that execute these types of programs or parents looking for additional services must understand the learning and pedagogical variables involved that can impact student improvement. Service

providers must be knowledgeable of effective curriculum interventions that are to be implemented in such programs and understand that they are a significant aspect of supplemental instruction.

Another significant element is the amount of time needed to accomplish the projected academic goals. In most instances, students who are in need of supplemental services are most often far behind in their learning. The research tells us that the amount of time spent on task is a significant aspect of remedial instruction, and when compared to the traditional education setting, students should be educated more proficiently (Baker, Young, & Martin, 1990; Lauer et al., 2006; Edwards, Mumford, & Serra-Roldan, 2007). The time that students spend outside the regular school day can be used to move academically closer to their classmates. Smith (2001) suggested that the quantity of time students apply to task could be forecasters of student performance. Additionally, Kubitschek, Hallinan, Arnett, and Galipeau (2005) specified that increased instructional time would lead to higher student performance and academic achievement. Subsequently, the quantity of time prearranged for learning is an important influence in remedial instruction; it is significant to gauge how much time should be expended on remedial instruction during post-day tutorials. The time spent on learning and scheduling are important elements that can have an effect on student achievement. These suggestions could be put into operation in supplemental instruction if we had clearer knowledge of how time assigned to learning increased student performance. Subsequently, fewer academic holes connecting students and achievement would occur. Due to time inconsistencies, Mayhall and Jenkins (2001) posited that not all educational programs work and that increasing student achievement is not equally effective with all service providers.

Statement of the Problem

The purpose of this research is to assess the effectiveness of the SES programs in Large Texas Title I urban district schools (Dallas, Fort Worth, Houston, San Antonio, and Austin) that were required to offer this program during the 2010 and 2011 school years. The research base on how SES may affect student performance shows that there is very little evidence available on the success of different organizations and treatments supplied by SES providers, outside that of in-house performance evaluations of some LEAs and larger national providers (Burch, Steinberg, & Donovan, 2007; Potter et al., 2007; Viadero, 2007). Consequently, states and LEAs must confront the substantial challenges in evaluating the treatments offered by SES to student academic results not only prior to entering contracts with SES providers but afterwards as well. This has significant repercussions for the effective execution of SES and for the evaluation objectives of NCLB and overall student achievement. Participation in SES among students that qualify has also been low, escalating anxieties among state and school district leadership onthe value of SES and confounding the capability to gauge the effectiveness (Government Accountability Office, 2006). Since current research leaves many questions about SES unanswered, we are unable to shed light on how SES might affect academic achievement. Similarly, current research provides moderate information about environments that sustain progressive results (Metz, 2007). Policy makers will need further observed confirmation to make well-informed conclusions in the future.

Research Plan

A quasi-experimental design was used to analyze the TAKS scale scores; the scores were divided into two groups of Title I students. Group 1 was composed of students who received SES in the 2009-2010 and 2010-2011 school years and completed

the TAKS in math and reading in both. Group 2 was a control group composed of students who were enrolled in Title I schools, completed the TAKS in reading and math in 2010 and 2011, and were eligible for SES but did not participate in the program. An analysis of variance was used to analyze the TAKS data. The analysis was completed using the Statistical Package for Social Sciences (SPSS), Version 20.

Research Questions

To assess the effectiveness of SES, the following research questions were addressed:

1. To what extent do students who participate in Supplemental Educational Services in reading and math demonstrate a higher level of achievement as compared to students in a control group who do not participate as determined by the 2010 and 2011 TAKS scale scores?
2. To what extent are student demographic characteristics (i.e., gender and socio-economic status) related to differences in the academic achievement between the two groups of students in 2010 and 2011?
3. To what extent are differences in the academic growth of students associated with grade levels?
4. To what extent does student attendance produce a higher level of academic achievement in students as determined by the 2010 and 2011 TAKS scale scores?

Hypotheses

The following hypotheses were made concerning this research study:

Null Hypothesis 1. There is no statistically significant difference in 2010 and 2011

TAKS scale scores between those students who participate in Supplemental Educational Services in reading and math and those who do not.

Null Hypothesis 2. There is no statistically significant difference in student achievement based on demographic groups.

Null Hypothesis 3. There is no statistically significant difference in student achievement based on grade level.

Null Hypothesis 4. There is no statistically significant difference in student achievement based on student attendance.

Significance of the Study

The significance of Supplemental Education Services can be established with different instructional treatments. If the treatments yield evidence of enhanced student learning, then the treatments and strategies incorporated would be endorsed to renew any particular program that uses it and possibly employed into normal school hours. School districts have been given significant funding to support and maintain these after-school programs. Brought on by the enactment of No Child Left Behind, schools and LEAs employing Supplemental Education Services are monitoring the following questions: Are we in line with AYP requirements? If not, what changes are needed and how do we facilitate them? While Supplemental Education Services are accessible in every public school that meets the prerequisites, an ample amount of the research assessing the effectiveness of SES has taken place in rural school districts. According to Viadero (2007), half a decade after the enactment of NCLB, there is still a shortage of research data to indicate whether these federal measures have an influence on student achievement.

Limitations

The data for this study were collected from the responses to an open records request submitted to the Texas Education Agency (TEA). This study was limited to two years of assessment data for each student. Academic improvement is difficult to recognize over short periods of time. Nevertheless, this period of study revealed more than an annual appraisal. The following variables positively or negatively impacted the learner progression through the tutoring sessions: student attendance, teacher attendance, and instructional strategies. Student attendance was supervised thoroughly during the treatment times. Notwithstanding the secure supervising, some students were not present for all tutorial periods. Granting that this was a state assessment, the collected data made it hard to classify after-school program treatment for math and reading during the allotted times for academic support. The total time spent tutoring in math or reading was not reported. The curriculums for math and reading offered assistance using multiple delivery methods such as group tutoring, on-line software, one-on-one time, and group facilitated math activities.

While this evaluation had not planned to study involvement past the general program parameters, this information could have delivered a purer representation in the analyses of data. The oversight or nonexistence of systemic inspection of data can compromise the validity of the research (Lane et al, 2008). In addition, the delivery method and fidelity to the collection of instructional material, as well as curriculum congruence, can impact the success of the treatment. All providers require tutors to do instructional plans, but it is not necessary for plans to be turned in to school officials. Similarly, there was no supervising of instruction by school officials. Hence, program fidelity was nonexistent.

Definition of Terms

The following definitions will be used throughout this study:

Adequate Yearly Progress (AYP): the measure by which schools, districts, and states are held accountable for student performance under Title I of the No Child Left Behind Act of 2001 (NCLB), the current version of the Elementary and Secondary Education Act.

Low-income Students: students who qualify for free- or reduced-lunch status.

No Child Left Behind: federal legislation that enacts the theories of standards-based education reform. NCLB ensures that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging state academic achievement standards and state academic assessments. It is based on the belief that setting high standards and establishing measurable goals can improve individual outcomes in education.

Provider: a public or private agency approved by a state to provide after-school tutoring services to low-income students according to state guidelines under the Supplemental Educational Services option of Title I.

Supplemental Educational Services (SES): tutoring and other supplemental academic enrichment services that are in addition to instruction provided during the school day, and are of high quality, research-based, and specifically designed to increase a student's academic achievement on the state's academic assessments and attain proficiency in meeting the state's learning standards.

Texas Assessment of Knowledge and Skills (TAKS): measures a student's mastery of the state-mandated curriculum, the Texas Essential Knowledge and Skills (TEKS)

Title I: provides funding for high-poverty schools to help students who are behind academically or at risk of falling behind.

Tutor: a person employed to instruct another in some branch or branches of learning, especially a private instructor.

Tutee: a person who is being tutored; the pupil of a tutor; participant receiving services in a SES program.

CHAPTER II

REVIEW OF THE LITERATURE

A comprehensive literature search and analysis was employed in an attempt to locate resources and theoretical support that (1) offers a historical background for SES, (2) locates my research of SES within its connected and present background, (3) advises of applicable theories and models supporting my research, (4) demonstrates how my research tests, increases, or discovers holes in existing bodies of associated works, and (5) emphasizes the importance of bodies of associated works as they relate to the complications offered (Ridley, 2008). This chapter provides a rationale for the present research on Supplemental Educational Services (SES). The review of the research literature related to the topic of investigation was organized into fourteen sections: (1) A Brief History of Tutoring; (2) Education Restructuring; (3) SES Appraisals, Impediments, and Recommendations; (4) Developments in Achievement Gaps; (5) Poverty's Impact on Student Achievement; (6) Alternatives to Learning Outside The Traditional School Day; (7) Tutoring Intervention Defined; (8) Organization and Structure; (9) Configuration and Alignment; (10) Constructive Tutor-Student Connections; (11) Evaluation and Appraisal Defined; (12) The Principle of Appraisal; (13) Appraisal as a Development Instrument; and (14) Conclusion.

A Brief History of Tutoring

The federal government spends millions of dollars on Supplemental Educational Services (SES) programs each year. Execution and programmatic assessments ensue at state and local levels. Support in performing these program assessments, nevertheless, has been low at the state level because of a lack of funding or inconsistent and vague rules or guidelines. Accordingly, state program evaluations have been few and far

between. The bulk of current SES program evaluations attempt to quantify student growth using a pre-post model, but individual provider evaluations have also been the focus as to how they impact student achievement. There have been no studies that seek to ascertain the characteristics which distinguish effective providers from others in spite of the nature of testing and the high stakes that are in play.

Society is not alien to the notion of tutoring. Ancient Greeks and Romans used private tutoring as did people of the Middle Ages (Gordon, 1989). Royal families all over Europe utilized the services of tutors to supplement the education of their offspring. In time, the utilization of tutors shifted from the aristocracy and high-ranking officials to the middle class. Since the 1980s in America, it has been common for teachers to provide individual instruction to students (Gordon, 1989).

Tutoring in the late twentieth century was comprised mostly of homework assistance and test preparation. Conversely, Davies (2004) conveyed that franchising was becoming the norm for tutoring and that learning centers were becoming more prevalent. These new learning centers had diagnostic assessment tools on hand, current researched-based curriculums, and routine and systematic evaluative materials. Most of the successful learning centers were designed to improve grades and develop cognitive skills needed for continued growth in student achievement.

American education is built on the contributions of the long record of tutoring programs. Even with the wide range of literature on tutoring, a systematic review reveals that nearly all effective tutoring programs include some common qualities. Essentially, the literature now comprises an abundance of research committed to delineating the strategies and practices which have resulted in thriving tutoring programs (Fashola, 1998; Wasik, 1998; Gordon, 2003; Sanderson, 2003). Even though there is no consistent model

of efficiency for every tutoring program and there are some characteristics on which researchers differ, the literature frequently includes more than a few of these recommended practices (Cohen, Kulik, & Kulik, 1982; Juel, 1996; Burns, Senesac, & Symington, 2004; Lauer et al., 2006).

One attribute of a well-functioning tutoring program centers on the preparation and staff development of its tutors. Although researchers do not at all times agree on the skill level of tutors, generally it is accepted that tutors, regardless of background or setting, should have at their disposal rich and intensive preparation before the tutoring program's inception (Fashola, 1998; Wasik, 1998; Sanderson, 2003). There is consistent agreement that tutor preparation and development should naturally progress during the course of the program to assist tutors with improving the individualized instruction and to maintain best practices in resultant subjects (Wasik, 1998; Topping, 2000).

Education Restructuring

Preceding No Child Left Behind were additional educational reform acts that required schools to become more responsible for student success. Seeing the need for disadvantaged students to attain their maximum potential, the United States Congress legislated the Elementary and Secondary Education Act (ESEA) in 1965. This law would not only alter the landscape of American education as we know it but also become the foremost federal school assistance initiative of its day. As an integral component of President Lyndon Johnson's aspiration to improve conditions for the poor and downtrodden, the ESEA is well known as the basis for the current federal education system. For more than fifty years this act has included a collection of programs from early childhood education to special education (Vanecko & Ames, 1979).

Without a doubt, the most influential of these programs formed under this determined new lawmaking enterprise was an agenda initially named Title I: Better Schooling for Educationally Deprived Children. The purpose was to offer fiscal support to school systems in regions with high numbers of children from underprivileged households and to develop and advance their educational offerings with a variety of resources which in the long term aides in addressing the unique educational needs of educationally challenged children.

From the beginning, Title I's goal has been to concentrate solely on mitigating the force of poverty and, currently, to guide local, state, and federal agencies in the direction of methodical standards-based restructuring. At present, appropriation levels top $8 billion, Title I controls the $16 billion budget for federal elementary and secondary education. This platform finances over 90% of the country's school districts yearly (U.S. Department of Education, 1999). Even at this funding level, the needs of countless underprivileged children who could benefit from assistance are still not being met by Title I.

Congress enacted Goals 2000 to assist each state with the development of standards for the sole purpose of impacting student performance (McDonnell, McLaughlin, & Morison, 1997). Superfine (2005) stated that Goals 2000 helped states that systematically and deliberately established their own accountability systems, testing protocols, and standards. The objectives of Goals 2000 and Title I of ESEA were to encourage and assist the development of a general standards-based improvement plan of action to encompass the entire country. According to McDonnell, McLaughlin, & Morison (1997), the expectations of states were to develop achievement growth plans that showed how student growth in achievement and observable reinforcement of the quality

of teaching could be effective. After-school tutoring programs were recommended to these at-risk students with the hopes that they could gain better mastery of the state content standards.

Contributors to the structure of NCLB were ESEA, Title I, and Goals 2000. The NCLB Act of 2001 provided the federal government with the means to assert itself at a higher level in education (Bloomfield & Cooper, 2003). This act would make certain that schools and states were held accountable for educating their students (Turnbull, 2005). Hanson, Burton, and Guam (2006) went on to say that the underlying goal of NCLB is to ensure that every student achieve at the proficient level on standardized assessments by 2014. Schools, districts, and states are now required to make provisions that execute detailed actions to work toward this objective. Most school systems now utilize standardized assessments along with quality teaching and rigorous standards as required by new legislation.

The No Child Left Behind Act of 2001 spread accountability throughout the entire learning community. Teachers were charged with the responsibility of becoming highly qualified in the subjects they taught as outlined by the federal government and were mandated to employ scientifically based instructional practices in the classroom in addition to administrators being held responsible for the achievement of their students. The premise was that additional and improved teacher development and the use of research based curriculums and strategies would garner a progressive effect on academic achievement in schools. Similarly, this act was projected to narrow the achievement gaps and give a fair chance of success to disadvantaged students who were suffering under the current system.

Bloomfield and Cooper (2003) stated that under new No Child Left Behind requirements, those students in the third through eighth grades had to be assessed by their respective state in mathematics and reading. Student scores were to be released to the federal government by appropriate population driven subgroups with the caveat that they must show adequate growth. This progress in student performance, or adequate yearly progress (AYP), was to show whether schools were successfully teaching content standards as dictated by each state. Each state was responsible for setting a standard or baseline for student improvement that the schools had to follow for two consecutive years. This gave schools the needed target for continuous growth. Parents, as well as the public, are made aware of the schools that fall below the state AYP requirements for successive years (Bloomfield & Cooper, 2003). As stated by the U.S. Department of Education, schools that do not demonstrate adequate progress at the end of a three-year period are responsible for providing Title I funds to qualifying students to attend schools that have met standards or be responsible for providing supplemental services.

Many people were impacted by NCLB within the at-large educational community. Cohen (2003) claimed that NCLB placed many responsibilities in the care of school administrators. In 2003, cumulative state data showed that more than 5,000 schools were required to provide supplemental services because of inadequate student assessment scores. These new mandates and referendums, according to the U.S. Department of Education, influenced the teaching profession. Full state certification was a prerequisite along with licensing exam requirements for all teachers. Elementary teachers were required to pass rigorous state aptitude tests that confirmed subject matter proficiency. Middle and high school teachers were required to have bachelor degrees or show aptitude in the area they were scheduled to teach. Adjustments were made for pre-

existing teacher certification and licensures in order to be in compliance with the new conditions of No Child Left Behind.

The No Child Left Behind Act had a major influence on parents and students as reported by the U.S. Department of Education. The contents of each school's report card were accessible to parents to keep them informed of their school's effectiveness. Subsequently, the school report card permitted parents to construct well-informed decisions regarding schools. Moreover, student achievement potential was projected at its highest. Parents also had the option for their children to receive supplemental education services to assist in addressing any gaps in achievement that may have developed (U.S. Department of Education, 2001). McIntyre et al. (2005) explained that students who somehow fell behind their fellow students and needed small-group instruction, individualized attention, or remediation benefited from No Child Left Behind.

SES Appraisals: Impediments and Recommendations

Established to stimulate academic growth of K-12 school systems, the NCLB 2001 mandated that 100% of students reach acceptable levels of proficiency as determined by each state in the areas of reading and math by the year 2014. In addition, NCLB reauthorized the current nation-wide Title I program. The Title I program provided extra funding for schools with large populations that were measured at or below the poverty level (USGAO, 2006). Requirements to provide additional alternatives to low-income students were placed upon Title I schools which were recognized as being in need of improvement. This was intended to increase academic performance to acceptable levels. Supplemental Educational Services (SES) was one such option. Schools received funding for SES from district Title I budgets and could count on up to 20% of the Title I

budget. In 2007, $12.8 billion was accounted for in the nation's Title I budget. The SES funds totaled close to $2.5 billion (U.S. Department of Education, 2007).

A great deal of the liability for these SES programs falls under the responsibilities of each state department of education. The individual state agencies are responsible for determining the standards for approving and managing these SES providers. Furthermore, states bear the responsibility for evaluating SES providers, despite the fact that federal rules for evaluation of providers are non-existent (Peterson, 2005). As a result, states that require provider evaluations are low in number. Even with the current high stakes testing environment and the mandated use of SES programs, systematic evaluations of individual SES provider effectiveness indicators are few in numbers. There have been only a few that actually help recognize the key components that set ineffective providers apart from others that lead to more success in increasing overall achievement levels in the students served. Even with the additional requirements by the federal government to evaluate SES providers, only a small number of states have been in compliance and actually implemented these evaluations. Furthermore, a great number of these evaluations that have been implemented have been open to doubt and deemed unsubstantial because of insufficient or inadequate data sources.

States quote more than a few reasons for not implementing these evaluations. The chief reasons why evaluations are not taking place are rooted in financial issues; there are no federal funds allocated for provider evaluations (Sunderman & Kim, 2004). With limited personnel, state departments of education cannot satisfactorily keep an eye on SES providers. With approximately 14% of the nation's schools not meeting AYP (U.S. Department of Education, 2007), many times one sees states assigning low priority status for performing program evaluations which are time consuming and labor intensive.

Some state attempts to perform evaluations have encountered difficulties at the provider level. Inadequate performance and attendance data kept by providers have hindered evaluations in Michigan (Public Policy Assoc. Inc, 2008) and Tennessee (Potter, Ross, Paek, McKay, & Sanders, 2007). The Tennessee Department of Education reported that of the 33 accepted agencies which had provided services, only two had adequate data for researchers to study the program's effects on student progress (Potter et al., 2007). The Michigan Department of Education brought in an external evaluation agency to perform SES evaluations, using an advanced statistical analysis design. Nevertheless, the agency was unable to perform a thorough analysis because the data provided by the SES providers and the state were not sufficient (Public Policy Assoc. Inc., 2008).

Developments in Achievement Gaps

Barton (2004) reported that many causes were connected to gaps in academic progress. Primarily, the rigor of the curriculum was different from school to school and also in different parts of the country. In addition, years of experience, attendance, and teacher quality were factors that influenced student progress. Last, technology integration, class size, and the overall learning environment with regard to safety were factors that impacted student progress.

Many dispute that the use of high-stakes assessments lessens genuine learning for students. McTighe et al. (2004) reported that the weight of standardized assessments inclined schools to adopt policies that led to teaching to the test. Many teachers replaced teaching depth and knowledge with skimming the surfaces of multiple topics. The development of test-taking skills was high priority along with recitation of facts to develop proficiency on standardized assessments. Thus, depth and knowledge suffers, as the significance of new ideas is not fully comprehended. Assessment preparation was

deemed unnecessary outside the school setting (Gentry, 2006). Gentry also proposed that content standards provided educators with the necessary framework of what should be taught and assessed. When teachers were tackled with drawn out lists of content standards and congested textbooks, they felt obligated to cover large amounts of information. Nevertheless, no research was discovered to sustain the view that widespread coverage led to improved student achievement.

Teachers' awareness or perceptions of students may also influence student achievement as much as high-stakes testing. The differences in female and male academic progress can be attributed in cooperation with genetic and sociological characteristics (Klein, 2004). Trends found outside the school setting also had an impact on students. Single parent and non-traditional families have increased within the last twenty-five years (Barton, 2004). In 2000, 62% of African American children lived in non-traditional homes. In Hispanic households, 35% of children experienced non-traditional homes while only 25% of Caucasian children lived in non-traditional homes. Finding time to help students at home with schoolwork was a struggle for many single parents and working parents. As a result, many of these caregivers invested their children's time into these after-school programs to support the academic achievement of their children.

Students in non-traditional homes were not the only ones to benefit from supplemental services. Moore (2005) affirmed that high achieving students still needed to acquire additional skills to advance to skills that were above their current grade-level. It was imperative that teachers pay attention to the needs of gifted learners to make certain that they were receiving suitable instruction. Nevertheless, contrary to students who were leading their peers, Brown (1999) stated that underprivileged students were still behind

many of their equals in school. Students with disabilities often underperformed at a high rate and needed supplementary educational chances that were prescripted outside the regular school day. Additionally, Brown (1999) found the socioeconomic status of the family oftentimes affected academic achievement.

These gaps in learning may start before the student starts kindergarten. For instance, Davison, Seo, Davenport, Butterbaugh, and Davison (2004) reported that the amount of contact children had to literacy before they entered kindergarten significantly exaggerated their preparedness for school. Conversely, students who entered kindergarten with less contact had a much more difficult time catching up with their peers. Children whose parents took time to read to them at early stages of their lives had a powerful foundation in literacy development (Barton, 2004). Furthermore, this group had more impressive achievement scores in reading comprehension and language attainment skills than those with little or no literacy contact.

Poverty's Impact on Student Achievement

Even during the extended phase of economic growth, close to one-quarter of children below the age of six are considered poor in the United States, a poverty rate that doubles that of adults (U.S. Department of Health and Human Services, 1999). Historical research shows that the effects of poverty harshly decrease contact with the instructive resources and understanding that is required for students to meet standards (Natriello, McDill, & Pallas, 1987). Poverty, regardless of level, is robustly linked to reduced academic achievement. Underprivileged students perform at a subordinate level, are more likely to repeat a grade, and have less likelihood of attending post-secondary school than their more privileged peers (Children's Defense Fund, 1998). Minority students have an even bleaker outlook. Figures from the National Assessment of Educational Progress

(NAEP) show that in the fourth-grade, almost 70% of African-American and Hispanic students are not reading at satisfactory grade level (U.S. Department of Education, 1998a).

There is a similarly portentous disparity in success among participants who go to elevated and low poverty schools. Researchers find that this is equivalent to three to four grade levels in elementary schools (Bryk & Raudenbush, 1992; Hart & Risley, 1995; National Assessment of Educational Progress, 1995, 1997; U.S. Department of Education, 1998a; White, 1982). Additional figures sustain the foundation that school-level poverty has more of an impact in forecasting school success than a student's current or prolonged fiscal situation (Puma, Jones, Rock, & Fernandez, 1993). The success rate of all students within a school, not just poor students, is directly proportional to the number of underprivileged students that it has enrolled (Kennedy, Birman, & Demaline, 1986).

Obviously then, there are powerful educational and communal procedural foundations for spotlighting assets on underprivileged students in addition to students around low SES settings (Puma & Drury, 2000). This has been the dominant principle of Title I policy for almost half a century. Primarily, the system was put in place to deliver educational services to the underprivileged by directing grants and monetary resources to school districts. The bulk of the money is allocated to financially-strapped districts that are required to meet the educational necessities of large quantities of underprivileged students. In addition, these grant opportunities seek to promote financial equity within the system of districts with differing levels of needs and challenges, putting a focus on districts and schools with significant concentrations of underprivileged children under the current version of the law notwithstanding their present educational success level.

Secondarily, Title I has an educational equity objective by directing authentic educational services designed specifically for low-achieving children in Title I schools, notwithstanding household income. Not surprisingly, these children are excessively underprivileged, and additional funds being directed to higher-poverty schools implies that additional underprivileged students obtain these much needed resources.

An additional significant characteristic of Title I is the fact that it is able to offer funding sources where flexibility within local conditions is allowed at a high degree. Notwithstanding wide-ranging policies and guidelines, school districts and schools are given vast levels of flexibility to make decisions as to how and where to place emphasis on the resources they are granted (Puma & Drury, 2000). More specifically, these schools and districts decide, within regulated boundaries, which schools and grades are targeted for additional funding, the amount of money that each will receive, which categories of provisions are offered to children, the content focus and domains to be focused on by supplemental services, and all staff considerations. Subsequently, the definitive realization of Title I will always be predicated upon the capacity of school administrators, district and local, to regulate how best to use limited program funds to ensure that the needs of struggling students are being met so that they have a realistic chance of achieving academic success (Puma & Drury, 2000).

Alternatives to Learning Outside The Traditional School Day

Not yet equivalent in access to every child, after-school programs still have varied characteristics as the providers (faith, community, and school based). These opportunities for students to get involved in well-rounded activities that incorporate the arts and sciences through private and community organizations continue to grow year after year.

The distance-learning opportunities have surged for the individuals that have access to technology (Quinn, 1999).

Program names and descriptors for before, after, and Saturday school hours and within the field are abundant: out-of-school-time (National Institute on Out-of-School-Time, 2007), extended-learning opportunities (Council of Chief State School Officers, (1999), extended-time (Farbman & Kaplan, 2005), and after-school programs (Durlak & Weissberg, 2007). In a Massachusetts case study of designated charter and public schools, Farbman & Kaplan (2005) address the issue of more time for learning and define extended-time schools. They also reference the efforts of Carroll (1963) who suggested that with sufficient additional learning time at an individual level, the achievement gap could be understood and possibly closed.

There are strong discussions between the facilitators of these outside of the regular school day programs over what constitutes or defines these programs and whether school-age care programs even fit into this category. Certain facilitators contend that school-age care is meager day-care that does not include the necessary components that impact student achievement. They also suggest that oftentimes after-school programs for elementary students can easily become day-care if not designed properly (Posner & Vandell, 1999). The distinction between day-care and after-school programs is that school-age programs have a rationale that goes beyond simple supervision (Posner & Vandell, 1999).

Even though many programs require fees to participate and at times have limitations on participation for some of the underprivileged students that reside in certain inaccessible locations, the need for these academic support and enrichment opportunities is still prevalent. Extra periods for knowledge building can be as simple as individualized

instruction with a focus on learning styles, a trip to the museum for a more comprehensive learning experience possibly connected to a class lesson, or a virtual technology excursion or lab experiment.

These conception and life-maturing skills are provided by these additional learning experiences and achieved through dedicated incorporation of social and financial means. When we have access to a multifaceted multidirectional partnership, we develop and have the benefit of lasting resources and associations (Sanders, 2006). This affords us a productive tier of future learning resources, grounded in financial, human, and social capital. When programs reflect the comprehension of the worth of such capital, they are afforded the ability to build additional aptitude by growing the resources and contacts into community education programs throughout the entire K-12 system (Elder, 2009). This mutual exchange of mixing of resources, social investment, and exclusive offerings are a positive and essential use of time and resources.

The playing fields can ultimately be leveled for children in need of additional learning time with these after-school programs. The benefit of school-based programs is that with the use of well-organized established structures of staff, family, student, curriculum, security, partnership, and transportation, they provide direct contact to academic supports and community trusts. Quality after-school programs within systems that have effective practices offer students a learning opportunity comparable to formal learning (Pittman, Irby, Yohlem, & Wilson-Ahlstrom, 2004).

Tutoring Intervention Defined

Tutoring is defined as a premeditated academic intrusion. Best practice suggests that programs initiate the most effective research-based interventions for their participants. Experimental studies and additional research make a case for three essential

elements fundamental to fruitful tutoring interventions: individualization, consistency, and structure.

Calculated academic interventions for students should be personalized and individualized for maximum progress. This progress is easily gauged with assessments. The use of tutoring can be a valuable tool if personalized to individual needs when assessments are used initially and consistently throughout the program (National Governors Association Center for Best Practices, 2001). Edward Gordon suggests that tutoring programs should be able to track progress from meeting to meeting to allow for a systematic change in the intervention strategies and rely on each student's academic potency to surmount their individual weaknesses (The Association for the Tutoring Profession, 2004). The use of certain scaffolding techniques was shown to be a successful intervention in a research study using first-grade students in a tutoring program (Juel, 1996). Student progress was monitored to gauge the shift from dependent support to independent effort.

Organization and Structure

There is consensus among researchers that tutoring must be recurrent and regularly scheduled. Nevertheless, there is additional research that proposes an array of explicit time requirements for interventions. In 1998, Barbara Wasik found that when students engaged in a minimum of 1.5 to 2 hours per week of tutoring, they were enabled with productive academic intervention and in part promoted time for relationship building. Greater reading improvement is evident when students attend three tutoring classes per week (Abt Associates, Inc., 2001). Additional studies by the Harvard Family Research Project disclose that the level of student success in these programs is impacted by the frequency of attendance. Those students that participated for longer periods of

time were the recipients of greater academic and non-academic achievement gains. The gains included higher academic performance on standardized tests, improved long-term educational potential, and higher levels of measurable self-confidence (Harvard Family Research Project, 2004). Lois Bader, a proponent of educational consistency, accentuates the fact that the same tutor should work with the same set of children for no less than one and a half to two hours per week for at least twelve weeks (Capital Area Literacy Coalition, 1997).

Configuration and Alignment

Research points to the fact that if tutoring is going to be successful, then sessions must be well thought out and properly designed for learning. In a research study by Cohen, Kulik, and Kulik (1982), the meta-analysis found that planned tutoring programs exhibit superior achievement gains than uncontrolled programs. Comparable outcomes were reported by Wasik and Slavin (1993) when they examined the effects of five successful tutoring programs. McArthur, Stasz, and Zmuidzinas (1990) found in an analysis of scripted lesson plan usage that successful tutoring programs have well prepared plans for reacting to student deficiencies. Furthermore, tutoring programs that support and align with the pre-existing school curriculum impact student achievement at greater measurable levels. When tutoring programs facilitate coordinated lessons that tie into current classroom instructional practices, students' achievement performance is greater than that of classroom instruction not related to current classroom objectives (Corporation for National and Community Service, 1998). Nevertheless, this additional instruction provided by tutors should not be a reiteration of the previous day's lesson; the educational intrusions should complement classroom learning. The tutoring programs that show the most potential are engulfed in efforts to facilitate students in learning how to

learn, as tutoring should always be in balance with in-school learning and development and not just a simple replication (Harvard Family Research Project, 2009).

Constructive Tutor-Student Connections

The individual concentration students obtain from a tutor "amplifies the commitment of the student in cooperation with the resources and the learning progression for more extended periods of time than that which takes place in a typical crowded class setting."(Juel, 1996). Pre/Post school time studies confirm that commitment stimulates the learning process; students that are heavily engaged experience greater academic results in the long run (National Institute on Out-of-School-Time, 2008). Students remain more engaged with low student-tutor ratios and personal attention. Consensus among researchers suggests that individual and small group interventions are successful ways to increase student achievement. However, irrefutable confirmation on which of these ratios produces the most achievement or improvement is not available. In 1993, researchers Wasik and Slavin reported that individualized tutoring has a larger impact on student achievement than larger group instruction. Conversely, meta-analysis studies of tutorial intervention research find that small group tutoring (less than five) can be just as successful as individual tutoring (Elbaum, Vaughn, Tejero, Hughes, & Moody, 2000). Individual concentration and relationship building continue to be significant aspects in both situations, regardless of any ratio (Juel, 1996).

When it comes to achieving the social and academic competencies that are essential for successful school involvement, various adolescents and children encounter challenges due to an assortment of multifaceted instructional, individual, and societal causes. Consequently, they are looking at the prospect of having a limited education, limited employment opportunities, and being ill-prepared to contribute productively in

the next century (Blackorby & Wagner, 1996; Farr, 1998; Heinrich & Burch, 2012; Mack & Wiltrout, 1998; Murry, Goldstein, & Edgar, 1997; Puma et al., 1997; Sitlington & Frank, 1990). The breakdown in society to tackle the needs of these students funnels several of them to connect with those teenagers "who unconsciously meander through life and live brazenly off other people" (Sizer, 1996).

To combat this grave obstacle, the entire learning community of policymakers, educators, and parents are exploring options that impact the social and academic aptitude of students. Progressively more, these popular assemblies are pushing and funding these after-school tutoring programs where trained teachers, paraprofessionals, or additional mentor type adults supply individualized support as an option to decrease the distance between what is expected and what is actually known to be successful in the 21st century (e.g., Adler, 1998; Farr, 1998; Hancock, 1994; Heinrich & Burch, 2012; Hock, Schumaker, & Deshler, 1998: Kaufmann & Adema. 1998; Pressley & McCormick, 1995; Puma et al., 1997; Tollefson, 1997).

However, we may be considered overly optimistic if we assume that all after-school tutoring programs will end in the escalation of capable and self-sufficient learners. Without a doubt, there may be the occasional instance of tutoring that may be more damaging than beneficial. It was suggested by Carlson (1985) that some types of subject-matter tutoring directed at special education students may be unprincipled because students seldom obtain the ability required to develop into independent learners through such tutoring. Furthermore, in certain instances a number of students become reliant on their tutors for success and exhibit modest skill growth. (Ceprano, 1995; Keim, McWhirter, & Bernstein, 1996). There have been mixed results reported by other researchers. Some reports have found that under certain conditions tutoring can work.

(Bloom, 1984; Cohen, Kulik, & Kulik, 1982; Heinrich & Burch, 2012; Lepper, Drake, & O'Donnell-Johnson, 1997; McArthur, Lewis, & Bishay, 1996: Merrill, Reiser, Merrill, & Landes, 1995; Tucker et al., 1995). Additional studies show that individualized tutoring has been a tremendously successful intervention (Bloom, 1984; Farr, 1998; Graesser, Bowers, & Hacker. 1997: Slavin, 1990). In short, the viewpoints concerning the effectiveness of tutoring are varied.

The effectiveness of tutoring in pre/post school programs is directly related to the debate pertaining to the effectiveness of tutoring. It is unfortunate that a great amount of literature and research on tutoring programs is in a descriptive format (Cunningham, 1997; Farr, 1998; Hancock, 1994: Hock, Schumaker, & Deshler, 1998; Kaufman & Adema, 1998: Kirk, 1997; Presley & McCormick, 1995). Control conditions frequently were not used in the available research studies where data was detailed, (Farr. 1998; Tollefson, 1997). In additional research studies, it was stated that achievement growth was nominal or nonexistent (Tucker et al., 1995). It was found that students enrolled in and tutored in physical science classes had no significant changes in grades after receiving tutoring after school (Farr, 1998). Specifically, there was no significant difference found between grades received prior to tutoring and grades received following tutoring. All told, the research on the effectiveness of tutoring and the effectiveness of pre/post school tutoring is inconclusive.

An additional problem conceivably associated with the debate over the success of tutoring is linked to chief variances in targeted student products. Within certain tutoring models, tutors anticipate the obtainment of new information, the development of proficiency in un-mastered tasks, and the absorption of new skills (Farr. 1998; Hock, Schumaker, & Deshler, 1995; Madden, Slavin, Karweit, Dolan, &. Wasik, 1993;

Simmons, Fuchs, Fuchs, Mathes, & Hodge, 1995). Hence, the projected product of individual instructional tutoring is skills and knowledge development. The assignment assistance model, unlike traditional tutoring, places emphasis on the current assignment. Namely, in this model, instructors deliver assistance with homework and place emphasis on supporting the student in accomplishing individual assignments that meet the academic requirements of the class (Carlson, 1985). With the model found in strategic tutoring, instructors require students to acquire strategies and skills that scaffold independent learning and employ those strategies and skills to existing classroom assignments (Farr, 1998; Hock, Schumaker, & Deshler, 1995).

The variances within the different models of tutoring make it problematic to control the relative effectiveness of tutoring programs. For example, if meeting the objectives of finishing homework or studying subject matter for assessments and examinations is an appreciated product, then tutoring that falls under assignment assistance that yields these results may perhaps be measured as successful. If the assessed products of tutoring escalate knowledge skills and content literacy, then instructional tutoring that provides a foundation for the realization of these results could be measured as successful. If the projected objectives of tutoring augmented application of acquired strategies to realistic tasks, present tasks completion, and strategy understanding, then strategic tutoring that yields these effects could be measured as successful. Therefore, additional influence that supports the tutoring efficiency controversy is connected to the products measured in current tutoring research (Farr, 1998; Hock, Pulvers, Deshler, & Schumaker, 2001).

Purposely, Title I legislation mainly aids students that attend schools with high disadvantaged populaces and pursues the neediest underachieving students. Hence, it is

difficult to correctly equate or compare the advancement of students within Title I programs with other underprivileged nonmembers using conventional, non-investigational research devices. Likely evaluation groups are inclined to be comparatively advantaged since school districts are required to assist the neediest students. While high-level statistical methods can be used to generate an artificial control group, these methods seem to be only as good as the aptitude for measuring the attributes that make the two student groups dissimilar (Puma et al., 1997). Accordingly, Title I evaluative findings are, by their very nature, questionable. Assessing the influence of Title I on student achievement is reliably impossible short of experimentation in which contributors and non-contributors are arbitrarily assigned.

These stipulations, for thirty plus years, have been a constant upsurge of Title I assessments. These comprise the following: (1) an autonomous duplication of the SES (Gabriel et al., 1985); (2) the Prospects study (Puma, et al., 1997), which examined the growth of a nationwide sample of various students in first, third, and seventh grades for four consecutive years; (3) studies of additional present domestic figures by Kennedy, Birman, and Demaline (1986); (4) an examination of Title I performance statistics (Anderson & Stonehill, 1986); (5) the Sustaining Effects Study (SES), grounded in data gathered from over 100,000 students registered in more than 300 elementary schools (Carter, 1984); (6) an advanced reexamination of SES figures (Frontera, 1985); and, not long ago, (7) the nationwide evaluation of the post-1994 database (U.S. Department of Education, 1999).

Given the overwhelming organizational impediments that investigators confronted, the results from these studies are varied and, understandably, questionable. The SES studies discovered that the increases in math and reading achievement for Title I

members surpassed those for underprivileged nonmembers (in first, second, and third grades only), although the findings of the Prospects study, which examined the same group of students about 10 years later, found no significant differences among the two groups of students. In additional fields, both studies generated consistencies among student groups. The two studies report signs of a continued learning gap among Title I pupils and their more privileged fellow students. The two studies offer indication that the degree of academic development is about the same. This might imply that even if Title I has not counteracted for the primary influences of poverty, it may be responsible for underprivileged students not dropping farther behind their advanced peers (Puma & Drury, 2000). However, with the lack of accurate experimentation, any conclusion, optimistic or otherwise, must be regarded as unreliable.

The present program varies considerably from earlier years mainly because of the organizational deviations that were mandated by the reauthorization in 1994 that consisted of a greater focus on standards-based accountability and reform, greater local decision-making authority, and school-wide programs (Puma & Drury, 2000). Regrettably, there have been relatively few studies focused on programs that appeared after 1994, mainly as it relates to the effects on student achievement. There is no account of any comparable statistics concerning improvements in student assessment results throughout this time since the Improving America's Schools Act of 1994 requiring conversion to new state specific assessment system was implemented. The National Assessment of Title I (U.S. Department of Education, 1999) recognizes this. Nevertheless, they contend that there are indications that propose an encouraging movement in the achievement of underprivileged students and high-poverty schools. Specifically, the study questions a current National Assessment of Educational Progress

(NAEP) data report which monitors fluctuations in academic achievement for local, state, and national samples of students in particular grades. The findings exhibit substantial increases in reading and math compared to the national average from 1992 to 1996 of elementary students in high-poverty schools, the primary targets of Title I (Puma & Drury, 2000). Additionally, even though the high and low poverty gap among schools is smaller, variances among the groups persist.

When the report was initially released, three years of consistent test-score data from new accountability systems was available from only six states. High-poverty school scores in five of the states detailed increases in reading, and similar schools in four additional states reported increases in math (Puma & Drury, 2000). Likewise, 76% of districts that were considered large urban districts reported data for three years that presented progress in at least one subject, while 46% reported growth in two subjects. Last, enthusiasts of the existing structure call attention to individual states that accepted standards-based reforms first; most notably, North Carolina and Texas have documented the highest NAEP increases.

While certain researchers and studies construe these results as convincing indication of the progressive impact of the reauthorization of the 1994 Title I program, an additional guarded methodology is considered. Chiefly, Title I participants are unable to be identified; and, even if this were conceivable, evaluations to nonmembers would undergo similar procedural complications that have overwhelmed previous research studies. Subsequently, various influences other than Title I impact NAEP achievement increases. This makes it very problematic to determine if any fluctuations in assessment scores are owed exclusively to state or federal attempts to improve education. Therefore, although the NAEP advances are associated with an encouraging assessment of Title I's

influence on student achievement caused by the reauthorization of 1994, straightforward support for this explanation is still not provided (Puma & Drury, 2000).

Accountability for Supplemental Educational Service programs and their specific effects are particularly underprovided in several school districts and states. Certain districts and states trust only the statistics that are reported by service providers or from comparatively meager data collecting efforts such as voluntary satisfaction surveys completed by parents. These surveys generally have little to no participation and are usually selective in nature. Additional districts struggle to interpret and apply the data they gather on student SES provider invoices and attendance for functioning SES to assess its usefulness. Nevertheless, merely a few of the bigger districts have the internal capacity to direct additional methods that provide justification for the selection of students and additional appraisal issues (Heinrich & Burch, 2012).

In fact, studies have shown that some of the more advanced district evaluation efforts have found some consistency. From 2003 to 2008, a Chicago Public Schools (CPS) assessment of SES providers reported greater increases in reading and mathematics for students obtaining a minimum of 40 hours of individual tutoring and for non-ELL fourth through eighth grade students who participated in a minimum of 30 hours of SES instruction (Chicago Public Schools, 2009).

Resembling other Chicago Public Schools outcomes, somewhat insignificant program effects in the midst of students with the greatest levels of SES attendance were discovered within the Los Angeles Unified School District. The improved performance effects were credited primarily to elementary students (Rickles & Barnhart, 2007). Furthermore, Minneapolis and Milwaukee Public Schools (MPS) studies, where the number of hours of SES attendance are for the most part low, were unable to acquire

statistically significant conclusive effects of participation in SES (Heistad, 2005; Heinrich, Meyer, & Whitten, 2010).

There are very few studies that meticulously adjust for differences in student characteristics that choose to take part in SES (Springer, Pepper, & Ghosh-Dastidar, 2009). Springer et al. recognize only four studies besides the individual study done by them (Zimmer et al., 2006; Zimmer et al., 2007; Heinrich, Meyer and Whitten, 2010; Heistad, 2005). It is important to compare similarities and equate students with comparable characteristics so that we are able to ascertain reliable conclusions about the efficiency of SES grounded on focused assessments of student SES participants with those students that chose not to attend SES. Furthermore, the broader literature offers more significant understanding of after-school tutoring programs, and is coincidently statistically more comparable with current SES evaluation. By attaining a certain marginal threshold of the number of hours, tutoring seems to be essential to generating quantifiable validities on student achievement.

Synthesized research was conducted on tutoring programs, explicitly as a response to NCLB requests to offer SES, and reported that larger effect sizes were found in programs where 45 instructional hours was the norm (Lauer et al., 2006). Lauer and co-authors' research assessing the outcomes of SES found that 40 hours was a critical threshold. Programs that were short of 40 hours reported no statistically noteworthy influences on SES student gains in math or reading. Additional findings saw effects in math and reading success for elementary students with 40 or more hours of SES but increases in math only at the middle school level. Springer (2009) and Zimmer (2007), in their SES research of large urban school districts, also found more reliable, encouraging effects of SES on students' mathematics improvement.

Additional collective results of SES research indicate that younger children have a greater likelihood of attending SES, specifically elementary students. These elementary school students have a greater likelihood of attending significantly more hours than middle and high school students (Burch et al., 2011; Springer, Pepper, & Ghosh-Dastidar, 2009). Regrettably, certain research studies, counting the individual ones that looked at the SES effects throughout various school systems (Baltimore, Chicago, Long Beach, Los Angeles, Palm Beach, Philadelphia, San Diego, and Washington, DC), selected not to evaluate the effects of SES by grade level (Zimmer et al., 2007).

Nevertheless, the prospective collective SES effects for students who attended for one year or more were explored in these studies. Significantly larger effects were acquired on math and reading assessment increases related to one or more years of SES attendance. This leads us to believe that additional time in SES is required to generate larger program effects although they may need to occur in more than a year's time. This indication, taken with additional validating results in the studies discoursed previously, points to the critical role that SES time plays in producing effects on student math and reading improvements (Heinrich & Burch, 2012).

We can now effectively take a glimpse at effect sizes since they are unvarying and can consequently be equated across other research studies. An effect size, which is calculated in standard deviations, is the variation in a normal student's result that can be anticipated if the student takes part in SES interventions. Even though there are variances in projected SES effect sizes, there is similarly equivalence in results, especially in math and reading and throughout research studies that have diverse samples, treatment measures, and methods for approximating outcomes. The normal gains in math exam data show increases of 0.09 standard deviations detailed by Zimmer et al. (2007), which is

roughly identical to that found in middle grade students who were present for 40 or more hours of SES in the multiple district study. Springer et al. (2009) additionally found gains in exam data increases of 0.09 standard deviations in mathematics. He also found gains of 0.076 standard deviations in reading, which were consistent with Zimmer's findings. In contrast, in other conditions that accounted for those who signed up for but were not present in SES, their results did not achieve any statistically significant effects in reading. This was comparable to the multiple district study results. The multiple district study distinctly assessed SES effects for elementary level students and found similar sized effects in reading and math (approximate effect sizes of 0.06 standard deviations with a range of 0.054 to 0.076) that were marginally lower than those of middle grade students. Furthermore, Zimmer et al. (2007) found higher, aggregate effects of SES within students that were registered for more than two years, equal to 0.15 and 0.17 standard deviations in reading and mathematics, respectively, though the collective effect approximations from Springer's (2009) research show much greater gains at a projected 0.38-0.49 standard deviations.

When putting into perspective these regular school effect size achievements, on average we estimate that district costs equal close to 15% of the district's average yearly per-pupil costs on SES, excluding administrative costs (i.e., the invoiced time submitted by SES providers). If we take SES participation and apply 0.06 standard deviations as the average increase, this would be equivalent to approximately 11-16% of the annual average increases in reading (0.38) and math (0.54) by Grades 3-5 on nationally-normed tests. Therefore, SES is, for students in elementary schools, almost as cost effective as the expenditures used on traditional everyday school activities. Put another way, the increases from SES contributions comparative to traditional school day increases in

reading and math are, at best, almost the same or a tad smaller than the achievement with the same proportional spending by schools and districts on traditional everyday school activities (Heinrich & Burch, 2012).

Reviews of the similar success of educational involvements that were directed at elementary and middle grades that intended to complement regular school-day instruction propose small SES effect sizes. The randomized studies of Hill et al. (2008) of meta-analyses, which were grounded on the effect sizes of comparable supplemental educational interventions, projected that the one-year effect sizes of 0.06 standard deviations is between one-fourth and one-fifth the size of the mean effect size estimates from educational interventions intended for elementary students (Heinrich & Burch, 2012). Randomized studies of middle school student interventions found mean-effect sizes ranging from one-fourth to one-half, which suggests that the normal SES-effect sizes of comparable educational interventions range from one-tenth to one-third the size of the effect sizes of these students.

Altogether, the data on SES effects are in line with that reported for mediations normally found under NCLB that depend on standardized assessments used for accountability for districts and states. A study by the National Academy of Sciences determined that effect sizes, on average under NCLB school-based testing programs, are approximately 0.04 to 0.08 standard deviations, with quantifiable effects up to the present time that are focused on elementary mathematics and are insignificant relative to anticipated advances (National Academy of Sciences, 2011).

In addition to some of the problems specified earlier, another significant challenge in getting additional time for SES participants is the cost charged by service providers, which when combined with per-student district maximum allotments of SES funding,

restricts the maximum amount of tutoring time students may be given. Educational agencies, both state and local, have very limited power to prohibit or regulate the hourly rates that SES providers charge, while the range may be specified. Reasonably, one would assume that higher-quality tutoring services would be provided by providers charging higher hourly rates (Heinrich & Burch, 2012).

In present and previous studies (Burch et al., 2011; Heinrich, Myer, & Whitten, 2010), nevertheless, other than whether a program is taken on-line, there is very little association linking provider individualities such as curriculum design, total hours tutored, student-teacher ratios, attendance, and charges per hour. Similarly, in the continuing research, the findings showed that even when on-line vendors regulated student selection and the time students attended SES, there was a negative correlation among on-line SES delivery and student math and reading improvements with respect to traditional provider delivery. Researchers felt that this conclusion was alarming given that in the sample, vendors of on-line programs charged considerably more than traditional providers (Heinrich & Burch, 2012).

Evaluation and Appraisal Defined

Michael Scriven and other noted authorities in evaluation make the point that "Evaluation is an important instrument in the service of justice" (Fitzpatrick, Sanders, & Worthen, 2004). Students in every setting deserve superior academic backing in the form of tutoring programs that are able to ensure that they are most efficiently attending to the needs of their students by steering effective evaluations. Research on the AmeriCorps tutoring programs shows that consistent and regular program evaluation is acknowledged as an extremely successful practice connected to significant student academic gains in reading (Abt Associates, 2001). With the effective use of evaluation, tutoring programs

have the ability to gauge the success of their interventions and the influence on students. The U.S. Department of Health and Human Services Administration for Children and Families (2010) defines evaluation as "a methodical system for gathering, investigating, and applying findings to respond to rudimentary inquiries about a program." Evaluation is made up of three elements: needs assessment, process evaluation, and outcome evaluation. All three have the ability to make available to tutoring programs the facts and figures on how to advance precise programmatic components at different phases of progress (Fitzpatrick, Sanders, & Worthen, 2004).

The Principle of Appraisal

School districts have the capacity to develop organizations that have the ability to appreciate and promote continuous improvement by structuring a philosophy conducive to evaluation. Organizations have the ability to stimulate learning and expand organizational efficiency when core evaluation structures are in place that afford a path for substantial use of the findings (Owen, 2003). This culture can be built when staff is involved in the process of evaluation. This strengthens the chance that instructional staff will implement the necessary changes with the use of the results. Furthermore, this type of advanced evaluation culture permits an organization to be transparent and accountable to all parties involved. They then have the ability to show their funding sources and public that there is a meaningful investment in a program by answering important questions about its influences on student achievement. The U.S. Department of Health and Human Services Administration for Children and Families asserts in its brief that "If you want to draw in collaborative partners, recruit volunteers and participants, and develop trust with families and community members, then it is considered a good outreach tool when you share findings within the community" (Metz, 2007).

Last, an evaluation culture comprehends how programs are able to shape knowledge for the tutoring discipline altogether. Even with the popularity of tutoring programs, thorough evidence-based studies involving the effects of tutoring continues to be inadequate to gauge the overall effectiveness (Saint Paul Public Schools Foundation, 2011). When we examine the effects of tutoring on achievement and advanced student learning, evaluation can provide suggestions of best practices and effective instructional methods. Adding to the knowledge base of evidence-based research that involves best practices in academic support systems "advances the entire learning community aiming to change the lives of the students that involve themselves in these tutoring programs" (Metz, 2007).

Appraisal as a Development Instrument

Evaluation is a methodical instrument for strengthening programs throughout the initial development and growth cycles. Evaluation gives tutoring programs the ability to recognize what works best, ultimately allowing staff to be able to focus resources on the most important components of the program. When programs are oblivious of their instructional assets and flaws, they may be squandering important resources and valuable time. When weak areas are identified in program delivery, programs are shown through evaluation what is needed and how to improve (Metz, 2007). Program evaluation allows us to determine in what areas staff and volunteers need support and training and additionally serves as a useful tool to enhance staff and tutor performance. Similarly, evaluation gives staff members the chance to talk over the challenges within the program as well as contribute to the development of conceivable solutions.

Conclusion

Aligned with the present emphasis being placed on school accountability, NCLB (2001) unambiguously supported scientifically-based research at high levels for establishing which educational programs would fit the need for increasing student performance (Eisenhart & Towne, 2003; Feuer, Towne, & Shavelson, 2002). The main focus of this study, consequently, was to evaluate the overall general effectiveness of SES and of specific large school districts in increasing student performance in Texas.

With the multitude of federal and state dollars being allocated to SES programs nationwide annually, it is clear that there is a need for adequate and competent evaluation of the impact of SES on student performance and growth. Present literature offers evidence that Supplemental Educational Services has been operational across the country for several years with insignificant and contradictory evaluations of its usefulness on raising student achievement regardless of the evaluation requirement mandated by NCLB (Peterson, 2005). Even with the additional requirements by the federal government to evaluate SES providers, only a small number of states have been in compliance and actually implemented these evaluations. Furthermore, a great number of these evaluations that have been implemented have been open to doubt and unsubstantial because of insufficient or inadequate data sources (Heistad, 2005; Heinrich, Meyer, & Whitten, 2010). Additionally, research studies indicate varied results on the perception of the general significance of supplemental educational services. While most LEAs show voids in any benefit from the additional tutoring services, a few LEAs, such as Chicago public schools, are able to show that SES provisions and resources have improved student academic achievement. The state level is also not immune to these varied perceptions. Only a small number of officials were able to confirm an increase in student academic

achievement from the result of supplemental educational services interventions and many more were cynical about the overall effectiveness (CEP, 2006). Similar results were also conveyed within the school choice conditions also (Brown, 2004). Unquestionably, nonetheless, the discussion on high-level achievement opportunities for students will deepen in the immediate future when the spotlight shines on NCLB when it reaches the Congress floor.

If LEAs had access to clear and succinct policy for program execution, maintenance, and appraisal, conceivably they could place emphasis on attaining the services of proven providers. The current body of literature indicates that NCLB provisions for Supplemental Educational Services, which has been in effect nationwide for several years, has had insignificant and contradictory assessments of its success on increasing student achievement even with current requirement that are placed on evaluation. The research resonates an unquestionable ultimatum to thoroughly assess the effectiveness of SES to ascertain the degree of achievement advancements of Title I students within these program parameters. With the amount of federal funding earmarked for SES programs across the nation, it is vital that they be thoroughly evaluated for effectiveness.

CHAPTER III

METHODOLOGY

This chapter on research methods discusses the subjects, data collection procedures, and the instrumentation that was used in the quantitative study. The study was conducted within the state of Texas. The principal function of the study at hand was to add to the prior research base that would comprise a second school year and provide a more complete assessment of specific Supplemental Education Services (SES) provider influences. The chief research questions speak to the extent to which the condition of SES in Texas had an academic effect on the populations that participated. This question was addressed by a quantitative analysis of the Texas Assessment of Knowledge and Skills (TAKS) exam in reading and mathematics on students in Grades 6 through 11.

TAKS data requested from the Texas Education Agency (TEA) for the five largest Texas school districts (Houston ISD, Dallas ISD, Fort Worth ISD, San Antonio ISD and Austin ISD) was used in a quasi-experimental design for this study. For each of the five districts, the data were separated into two groups of Title I students in Grades 6 through 11. Each group had TAKS scores for 2010 and 2011 for reading and math and enrolled in schools that offered Supplemental Education Services.

Upon submitting the requested data, TEA was asked to include district data that included TAKS scale scores, as well as TAKS achievement levels. Furthermore, demographic information was requested including gender, grade, and socioeconomic status, as well as the total hours of tutoring in reading and math.

Included in the methodology is the use of scale scores from the 2010 and 2011 TAKS spring administrations. These scale scores are being used as the unit of measure

because they can effectively track the performance of students throughout grade levels. As students pass from grade to grade or school to school, their scores and progress can be followed and compared to the progress of other similarly grouped students. The reporting of scale scores enables the yearly growth of individual students to be calculated and tracked.

Sample

This study is comprised of students from the state of Texas who obtained supplemental education services in reading and math. Supplemental instruction was provided to these students from comparable providers from various parts of the state. This research study organized students into two groups of Title I students. Group 1 (Participants) were composed of students who received Supplemental Educational Services in the 2010 and 2011 school years and completed the TAKS in math and reading in Spring 2010 and Spring 2011. Group 2 (Non-Participants) were a control group composed of students who were enrolled in Title I schools, completed the TAKS in math and reading in Spring 2010 and Spring 2011, and were eligible for SES but did not participate in the program. Existing standardized achievement test scores were collected and analyzed to determine each group's academic growth.

Research Subjects

Nonprobability sampling was employed in this research study due to its nature. Data collection took place within a sample of students across the state of Texas who received supplemental education services from the same organization within the years 2010 and 2011. The students' grade levels ranged between six and eleventh grades and were concentrated among those students who receive supplemental education services in

the areas of reading and math. The sample included a varied collection of students that varied in terms of socioeconomic status and gender.

Research Questions

This study utilized a quasi-experimental design. All pre-existing district data were collected, and consent was obtained through the Texas Education Agency at the beginning of the project. Assessment results measured by the spring 2010 and 2011 TAKS reading and mathematics scale scores for students in Grades 6 through 11 were used to govern student eligibility for the study and were used to produce evaluation groups. To assess the effectiveness of SES, the following research questions were addressed:

1. To what extent do students who participate in Supplemental Educational Services in reading and math demonstrate a higher level of achievement as compared to students in a control group who do not participate as determined by the 2010 and 2011 TAKS scale scores?
2. To what extent are student demographic characteristics (i.e., gender and socio-economic status) related to differences in the academic achievement between the two group of students in 2010 and 2011?
3. To what extent are differences in the academic growth of students associated with grade levels?
4. To what extent does student attendance produce a higher level of academic achievement in students as determined by the 2010 and 2011 TAKS scale scores?

Procedures

To determine if participation in Supplemental Educational Services affect student achievement, measurements of Texas Assessment of Knowledge and Skills (TAKS) scores were collected and analyzed from students who participated in supplemental reading or math programs from the previous year. Students were coded according to their grade level and participation status. Students were coded as follows: Tier 1 (less than 20 hours of participation in Supplemental Educational Services) and Tier 2 (20 or more hours of participation in Supplemental Educational Services). The data were collected from participating districts during the months of January and February of 2012.

Treatment

Under No Child Left Behind (NCLB), when a Title I, Part A campus is identified for Stage 2, 3, 4, or 5 of the School Improvement Program (SIP), the LEA is required to arrange for the provision of SES for students from low-income families. For purposes of the School Improvement Program (SIP), supplemental educational services are defined as tutoring and other supplemental academic enrichment services that are in addition to instruction provided during the school day are provided and are of high quality, research-based, and specifically designed to increase the academic achievement of eligible children on the state assessment and to assist them in attaining proficiency in meeting the state's academic achievement standards.

Instrumentation

The Texas Assessment of Knowledge and Skills (TAKS) was used in the research project. According to the Texas Education Agency, TAKS measures a student's mastery of the state-mandated curriculum, the Texas Essential Knowledge and Skills (TEKS). Test items are organized by categories of subject matter that denote the educational

objectives commonly found in state and district curriculum guides and in major instructional programs. This standardized test provides norm-referenced scores. The norm-referenced scores contain state percentiles.

Contributing District Statistics

Houston Independent School District has a total student enrollment of 203,066. The number of students who receive free- or reduced-price lunch is 163,199, or 80.4% of the student population. The Title I population consists of 191,346 students, or 94.2% of the total population. Of the 85 secondary campuses in the district, 18% (n = 15) are Title I schools that are required to offer Supplementary Education Services. The ethnic makeup of the student population districtwide is comprised of 62.4% Hispanic, 25.1% African-American, 8.1% White, 3.3% Asian, and 1.1% Other, which includes Native American and all other multiracial subgroups. The four-year graduation rate in this district for 2010 was 74.3% (73.7% African-American, 90.5% Asian, 70.7% Hispanic, and 87.9% White). Houston ISD employs 15,789 full time employees, including administrators, teachers, and support staff.

Dallas Independent School District has a total student enrollment of 157,575. The number of students who receive free- or reduced-price lunch is 136,501, or 87.1% of the student population. Of the 72 secondary campuses in the district, 35% (n = 25) are Title I schools that are required to offer Supplementary Education Services. The Title I population of these 25 schools consists of 38,730 students. The ethnic makeup of the student population districtwide is comprised of 68.8% Hispanic, 24.5% African-American, 4.6% White, 1.1% Asian, and 1.0% Other, which includes Native American and all other multiracial subgroups. The four-year graduation rate in this district for 2010 was 74.6% (71.6% African-American, n/a% Asian, 75.7% Hispanic, and 80.0% White).

Dallas ISD employs 13,369 full time employees, including administrators, teachers, and support staff.

Austin Independent School District has a total student enrollment of 86,697. The number of students who receive free- or reduced-price lunch is 55,226, or 63.7% of the student population. The Title I population consists of 84,675 students, or 53% of the total population. Of the 34 secondary campuses in the district, 2% (n = 3) are Title I schools that are required to offer Supplementary Education Services. The ethnic makeup of the student population district wide is comprised of 60.5% Hispanic, 9.1% African-American, 24.4% White, 3.3% Asian, and 2.7% Other, which includes Native American and all other multiracial subgroups. The four-year graduation rate in this district for 2010 was 78.6% (71.5% African-American, n/a% Asian, 72.9% Hispanic, and 89.8% White). Austin ISD employs 11,151 full time employees, including administrators, teachers, and support staff.

Fort Worth Independent School District has a total student enrollment of 81,511. The number of students who receive free- or reduced-price lunch is 61,642, or 75.6% of the student population. Of the 41 secondary campuses in the district, 39% (n = 16) are Title I schools that are required to offer Supplementary Education Services. The Title I population of these 16 schools consists of 37,641 students. The ethnic makeup of the student population districtwide is comprised of 59.2% Hispanic, 24.5% African-American, 14.3% White, 1.9% Asian, and 0.1% Other, which includes Native American and all other multiracial subgroups. The four-year graduation rate in this district for 2010 was 79.4% (72.3% African-American, n/a% Asian, 80.0% Hispanic, and 88.8% White). Dallas ISD employs 10,129 full time employees, including administrators, teachers, and support staff.

San Antonio Independent School District has a total student enrollment of 54,406. The number of students who receive free- or reduced-price lunch is 50,489, or 92.8% of the student population. The Title I population consists of 24,578 students, or 45% of the total population. Of the 22 secondary campuses in the district, 23% (n = 5) are Title I schools that are required to offer Supplementary Education Services. The ethnic makeup of the student population districtwide is comprised of 91% Hispanic, 6.5% African-American, 1.9% White, 0.2% Asian, and 0.4% Other, which includes Native American and all other multiracial subgroups. The four-year graduation rate in this district for 2010 was 68.6% (63% African-American, n/a% Asian, 69% Hispanic, and 72.2% White). Austin ISD employs 7,631 full time employees, including administrators, teachers, and support staff.

Data Analysis

The scale score from the 2010 and 2011state administered TAKS assessment were used. The quasi-experimental design was utilized to document Supplemental Education Service participation and non-participation of the experimental group and control group, respectively.

Students who were not serviced by SES providers in consecutive years, both in 2010 and 2011, were not included in the study. Students who had received SES were placed in the experimental group and were tiered into two subgroups. Tier 1 consisted of students with less than 20 hours of participation in Supplemental Educational Services. Tier 2 consisted of students with 20 or more hours of participation in Supplemental Educational Services. The control group was coordinated and linked by grade with cohorted students from the experimental group. The control group consisted of students who were qualified to receive Supplemental Education Services but chose not to enroll.

The tiered experimental and control groups were separated into five categories: reading, math, demographics relating to reading and math, grade level as related to reading and math, and attendance as related to reading and math for each researched year. To determine whether the variable comparison groups were comparable, a Pearson chi-square was conducted. This statistical method is regarded as an ideal statistical method to use since frequency data exist for reading and math group membership, gender, grade level, and economically disadvantaged status. As such, chi-squares are the statistical procedure of choice when both variables are categorical (Cohen, 1988). Furthermore, while having a large sample size, the existing sample size for each cell is larger than five. As a result, the assumptions for employing a chi-square have been met.

The ANOVA test of means was then used to test the null hypothesis in this study to determine if there were statistically significant differences in TAKS scale scores in 2010 and 2011. SPSS software was used for computations and tested at a .05 level of significance. The effectiveness of SES was reported in five areas: reading participation, math participation, demographics as related to reading and math, grade level as related to reading and math, and attendance as related to reading and math for each researched year.

Summary

Chapter III presented an overview of the methods used in this research study and discoursed the conditions used to select the five Texas urban school districts included in this study. The selection protocol used to structure the control and experimental groups was also discussed. Last, a discussion of the measures was offered and the development of categories in the experimental and control group was accounted for as a prologue to the recording of data in the next chapter.

CHAPTER IV

RESEARCH FINDINGS

The purpose of this study was to determine the impact of the Supplemental Education Service programs in large Texas school districts that were required by the federal government to provide academic interventions from 2009 through 2011. The effectiveness of these programs was determined by TAKS data obtained from Texas Education Agency for these five large Texas school districts. These school districts were San Antonio Independent School District, Dallas Independent School District, Houston Independent School District, Fort Worth Independent School District, and Austin Independent School District.

This study employed a quasi-experimental design with TAKS data from these districts. TAKS scale scores for spring 2010 and 2011 were used in this study. In all districts, TAKS scale scores from each Title I school that was eligible for SES was separated into two groups receiving free or reduced lunch in Grades 6-11. Each group was required to have TAKS scale scores from the spring 2010 and 2011 administration for reading and math. The first group, the experimental group, consisted of students that received tutoring during the researched years. The second group, the control group, consisted of students who were eligible for SES but did not participate in the program during the researched years.

The null hypotheses in this study were tested using a one-way and factorial analysis of variance design to determine if there was a significant difference between participants and non-participants of SES in TAKS scale scores in the 2010 and 2011 spring administration for students who were eligible. All statistical analysis was executed using SPSS Version 20 software testing at a .05 level of significance. The

results were reported in five areas: reading, math, demographics relating to reading and math, grade level as related to reading and math, and attendance as related to reading and math for each researched year.

Research Questions

The following research questions were addressed in the study:

1. To what extent do students who participate in Supplemental Educational Services in reading and math demonstrate a higher level of achievement as compared to students in a control group who do not participate as determined by the 2010 and 2011 TAKS scale scores?
2. To what extent are student demographic characteristics (i.e., gender and socio-economic status) related to differences in the academic achievement between the two group of students in 2010 and 2011?
3. To what extent are differences in the academic growth of students associated with grade levels?
4. To what extent does student attendance produce a higher level of academic achievement in students as determined by the 2010 and 2011 TAKS scale scores?

Research Hypotheses

The study was directed by the following research hypotheses:

Null Hypothesis 1. There is no statistically significant difference in 2010 and 2011 TAKS scale scores between those students who participated in Supplemental Educational Services in reading and math and those who do not.

Null Hypothesis 2. There is no statistically significant difference in student achievement based on demographic groups.

Null Hypothesis 3. There is no statistically significant difference in student achievement based on grade level.

Null Hypothesis 4. There is no statistically significant difference in student achievement based on student attendance.

Pre-Analysis of Data

As stated in Chapter III, a chi-square test was conducted to determine whether the variable comparison groups are comparable, or specifically to determine if there is a significant relationship between them. A chi-square test was performed for years 2010 and 2011 for reading and math group membership (participant_status), gender (sex), economically disadvantaged status (disadv), and grade level (grade). Each of the results found a statistically significant relationship with a p value less than .05.

2010

	participant_status	sex	disadv	grade
Chi-Square	1149.02	69.964	27634.707	7338.347
df	1	1	1	5
Asymp. Sig.	0.000	0.000	0.000	0.000
N	40397	40389	40385	40397

2011

	participant_status	sex	disadv	grade
Chi-Square	2480.634	106.654	26088.701	4295.47
df	1	1	1	5
Asymp. Sig.	0.000	0.000	0.000	0.000
N	41908	41902	41884	41908

Analysis and Quantitative Results

TAKS scale scores from the five districts contributing to this study were collectively used to assess the effectiveness of the SES program in increasing student achievement. The TAKS data used in this study contained comprehensive data by grade level for the 40,413 students that took the reading TAKS and 39,674 students who took the math TAKS in the 2010 school year and the 41,857 students that took the reading TAKS and 41,356 students who took the math TAKS in 2011 school year. Table 1 reports the number of students represented at each grade level.

Table 1

Grade Level SES Student Count

2010

Grade	Number of Students	
	Reading	Mathematics
6	3516	3561
7	4686	4670
8	4528	4508
9	11881	11466
10	8497	8293
11	7305	7176
Total	40413	39674

2011

Grade	Number of Students	
	Reading	Mathematics
6	4263	4270

7	5450	5430
8	5329	5311
9	10707	10448
10	8957	8856
11	7151	7041
Total	41857	41356

Table 2 reports the combined breakdown of reading and math students by grade level and school district.

Table 2

District Total Number of SES Students Taking TAKS for 2010 and 2011

2010

Grade	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6	98	98	1908	1916	140	140	1093	1086	277	276
7	110	104	2338	2331	124	129	1870	1861	244	245
8	97	91	2397	2390	145	145	1665	1659	224	223
9	188	180	5505	5391	3436	3220	2084	2027	668	648
10	190	171	4192	4063	2279	2270	1466	1433	370	356
11	154	149	3450	3387	2067	2050	1306	1268	328	322
Total	837	793	19790	19478	8191	7954	9484	9334	2111	2070

2011

Grade	San Antonio ISD	Dallas ISD	Houston ISD	Fort Worth ISD	Austin ISD

	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6	492	484	1946	1960	112	112	1434	1434	259	258
7	455	453	2811	2815	152	147	1777	1765	255	250
8	449	437	2566	2561	115	114	1931	1930	268	269
9	380	352	4684	4566	3276	3218	2101	2061	266	251
10	220	197	4292	4267	2561	2534	1722	1694	162	164
11	168	182	3327	3258	2158	2127	1359	1343	139	131
Total	2164	2105	19626	19427	8374	8252	10324	10227	1349	1323

When processing TAKS results for students, data from Grades K-5 were not included because it was sporadic and inconsistent. It was also established that they did not sufficiently distinguish themselves within the student population. Grade 12 was eliminated because of the small number of students represented in these grades and there was no test associated with that grade. Twelfth grade students taking the TAKS were in fact students who had not passed the eleventh grade TAKS.

Research Question One

To address the research question "To what extent do students who participate in Supplemental Educational Services in reading and math demonstrate a higher level of achievement as compared to students in a control group who do not participate as determined by the 2010 and 2011 TAKS scale scores?", a one-way analysis of variance was computed on the 2010 and 2011 TAKS scores. The analysis was done for Grades 6–11 with all five school districts. For each grade level, descriptive statistics were used to identify the data collected from the students in this research.

Reading Analysis

6th Grade Analysis

Table 3 shows the Grade 6 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years by district. As Table 3 shows, in 2010, students who participated in SES programs scored lower than non-participants in all five districts. Overall (ALL DISTRICTS), students (N=3516) that participated (M=663.96) scored lower than non-participants (M=684.60). This difference was statistically significant, as Table 4 shows. In 2011, students who participated in SES programs scored higher than non-participants in only 1 (Houston ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=4263) that participated (M=688.25) scored lower than non-participants (M=690.45). This difference was shown not to be statistically significant, as Table 4 shows.

Differences among these means were tested with a one-way analysis of variance. Table 4 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 2 of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 22.924, p=0.000) and Fort Worth ISD (F = 6.979, p=0.008). There was also a statistically significant difference among the means in Overall (ALL DISTRICT) students (F = 39.412, p=0.000). In all three cases, the participant mean was lower than the non-participant mean. In 2011, the difference among the means was statistically significant in 3 of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 21.442, p=0.000), Houston ISD (F = 7.263, p=0.008) and Fort Worth ISD (F = 5.347, p=0.021). Of these three cases, only Houston

ISD had a participant mean that was higher than the non-participant mean. Collectively, the null hypothesis was rejected in 6 of the 12 cases for Grade 6.

Table 3

Grade 6 Reading Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	21	645.62	89.503	106	668.89	110.553
	Participant	77	644.52	78.123	386	666.30	95.055
Dallas ISD	Non-Participant	1191	690.33	101.069	1445	692.63	98.510
	Participant	717	667.50	100.488	501	668.72	102.704
Houston ISD	Non-Participant	75	667.35	109.418	50	636.64	101.718
	Participant	65	649.12	86.347	62	684.94	87.856
Fort Worth ISD	Non-Participant	536	682.57	93.039	844	695.57	102.276
	Participant	557	668.33	85.143	590	683.22	95.396
Austin ISD	Non-Participant	128	656.34	108.147	83	660.43	96.934
	Participant	149	647.11	88.703	176	640.40	101.604
ALL DISTRICTS	Non-Participant	1951	684.60	100.041	2528	690.45	100.827
	Participant	1565	663.96	92.809	1735	688.25	189.214

Table 4

Grade 6 Reading Analysis of Variance of Participants and Non-Participants

District	Source	2010				2011			
		df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	19.949	0.003	0.956	1	556.259	0.057	0.811
Dallas ISD	Between Groups	1	233161.1	22.924	0.000	1	212735.86	21.442	0.000
Houston ISD	Between Groups	1	11564.17	1.171	0.281	1	64558.988	7.263	0.008
Fort Worth ISD	Between Groups	1	55406.26	6.979	0.008	1	52945.554	5.347	0.021
Austin ISD	Between Groups	1	5865.263	0.609	0.436	1	22629.087	2.257	0.134
ALL DISTRICT	Between Groups	1	369979.6	39.412	0.000	1	4977.502	0.242	0.623

7th Grade Analysis

Table 5 shows the Grade 7 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 5 shows, in 2010, students who participated in SES programs scored higher than non-participants in only 1 (Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=4686) that participated (M=696.02) scored lower than non-participants (M=712.93). This difference was statistically significant, as Table 6 shows. In 2011, students who participated in SES programs scored higher than non-participants

in none of the 5 districts. Overall (ALL DISTRICTS), students (N=5450) that participated (M=699.44) scored lower than non-participants (M=715.87). This difference was statistically significant, as Table 6 shows.

Differences among these means were tested with a one-way analysis of variance. Table 6 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 3 of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 9.741, p=0.002), Houston ISD (F = 4.862, p=0.029) and Fort Worth ISD (F = 17.404, p=0.000). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 34.334, p=0.000). In all four cases, the participant mean was lower than the non-participant mean. In 2011, the difference among the means was statistically significant in 2 of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 12.426, p=0.000) and Fort Worth ISD (F = 8.684, p=0.003). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 37.13, p=0.000). Of these three cases, none had a participant mean higher than the non-participant mean. Collectively, the null hypothesis was rejected in only 7 of the 12 cases for Grade 7.

Table 5

Grade 7 Reading Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio	Non-Participant	27	708.81	112.824	91	709.51	113.431

ISD	Participant	83	681.17	81.672	364	699.40	93.134
Dallas ISD	Non-Participant	1490	712.6	108.307	2191	716.55	90.094
	Participant	848	698.58	97.379	620	702.12	89.496
Houston ISD	Non-Participant	58	714.74	104.961	65	692.05	93.592
	Participant	66	673.32	103.859	87	690.92	73.161
Fort Worth ISD	Non-Participant	1056	718.09	90.431	1218	718.79	98.391
	Participant	814	700.94	85.085	559	704.53	86.255
Austin ISD	Non-Participant	107	666.58	100.316	83	680.65	139.996
	Participant	137	670.8	72.979	172	677.68	104.407
ALL DISTRICTS	Non-Participant	2738	712.93	101.826	3648	715.87	95.179
	Participant	1948	696.02	90.806	1802	699.44	90.311

Table 6

Grade 7 Reading Analysis of Variance of Participants and Non-Participants

		2010				2011			
District	Source	df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	15571.06	1.916	0.169	1	7428.752	0.781	0.377
Dallas ISD	Between Groups	1	106330.8	9.741	0.002	1	100570.03	12.426	0.000
Houston ISD	Between Groups	1	52970.92	4.862	0.029	1	47.221	0.007	0.934
Fort Worth ISD	Between Groups	1	135218.5	17.404	0.000	1	77946.575	8.684	0.003
Austin ISD	Between Groups	1	1071.656	0.145	0.704	1	493.955	0.036	0.850
ALL DISTRICTS	Between Groups	1	325695.8	34.334	0.000	1	325275.13	37.13	0.000

8th Grade Analysis

Table 7 shows the Grade 8 mean and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 7 shows, in 2010, students who participated in SES programs scored higher than non-participants in 1 (San Antonio ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=4528) that participated (M=744.23) scored lower than non-participants (M=762.04). This difference was statistically significant, as Table 8 shows. In 2011, students who participated in SES programs scored higher than non-participants in 2 (San Antonio ISD and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=5329) that participated (M=746.1) scored lower than non-participants (M=762.89). This difference was statistically significant, as Table 8 shows.

Differences among these means were tested with a one-way analysis of variance. Table 8 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 2 of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 4.951, p=0.028) and Dallas ISD (F = 18.781, p=0.000). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 21.172, p=0.000). Of the three cases, 1 (San Antonio ISD) had a participant mean higher than the non-participant mean. In 2011, the difference among the means was statistically significant in 2 of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 13.629, p=0.000) and Fort Worth ISD (F = 12.188, p=0.000). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 24.177, p=0.000). Of these three cases, none had a participant mean higher than the non-

participant mean. Collectively, the null hypothesis was rejected in only 6 of the 12 cases for Grade 8.

Table 7

Grade 8 Reading Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	21	674.81	222.471	95	728.08	156.299
	Participant	76	751.71	108.142	354	749.56	104.750
Dallas ISD	Non-Participant	1570	761.68	126.377	1969	759.85	112.215
	Participant	827	737.34	138.614	597	740.33	116.306
Houston ISD	Non-Participant	68	763.71	84.137	57	759.32	106.894
	Participant	77	737.45	134.547	58	759.07	102.801
Fort Worth ISD	Non-Participant	1010	768.01	119.381	1285	774.58	125.302
	Participant	655	757.16	124.734	646	753.79	119.719
Austin ISD	Non-Participant	101	725.00	126.74	97	705.87	137.800
	Participant	123	721.31	114.937	171	725.60	116.592
ALL DISTRICTS	Non-Participant	2770	762.04	124.39	3503	762.89	119.877
	Participant	1758	744.23	130.956	1826	746.10	115.242

Table 8

Grade 8 Reading Analysis of Variance of Participants and Non-Participants

		2010				2011			
District	Source	df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	97302.76	4.951	0.028	1	34560.488	2.504	0.114

Dallas ISD	Between Groups	1	320952.4	18.781	0.000	1	174582	13.629	0.000
Houston ISD	Between Groups	1	24884.82	1.923	0.168	1	1.751	0.000	0.990
Fort Worth ISD	Between Groups	1	46839.91	3.172	0.075	1	185784.84	12.188	0.000
Austin ISD	Between Groups	1	755.579	0.052	0.820	1	24108.332	1.551	0.214
ALL DISTRICTS	Between Groups	1	341371.7	21.172	0.000	1	338401.3	24.177	0.000

9th Grade Analysis

Table 9 shows the Grade 9 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 9 shows, in 2010, students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Houston ISD, and Fort Worth ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=11881) that participated (M=2130.99) scored higher than non-participants (M=2115.46). This difference was statistically significant, as Table 10 shows. In 2011, students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Houston ISD, and Fort Worth ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=10707) that participated (M=2130.23) scored lower than non-participants (M=2133.07). This difference was shown not to be statistically significant, as Table 10 shows.

Differences among these means were tested with a one-way analysis of variance. Table 10 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically

significant in 3 of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 19.056, p=0.000), Houston ISD (F = 4.108, p=0.043), and Fort Worth ISD (F = 6.119, p=0.013). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 7.878, p=0.005). Of the four cases, all had a participant mean higher than the non-participant mean. In 2011, the difference among the means was statistically significant in one of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 33.687, p=0.000). There was no statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 0.259, p=0.611). Within this 1 (San Antonio ISD) statistically significant case, the participant mean was higher than the non-participant mean. Collectively, the null hypothesis was rejected in only 5 of the 12 cases for Grade 9.

Table 9

Grade 9 Reading Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	34	1933.5	421.193	171	1988.54	351.368
	Participant	154	2169.68	246.671	209	2164.25	236.102
Dallas ISD	Non-Participant	3584	2127.04	298.639	3144	2151.97	264.263
	Participant	1921	2142.98	272.457	1540	2162.28	245.233
Houston ISD	Non-Participant	1810	2060.99	348.699	1700	2085.69	323.366
	Participant	1626	2084.13	316.968	1576	2087.65	298.589
Fort Worth ISD	Non-Participant	1184	2157.42	241.415	1652	2161.96	240.719
	Participant	900	2183.12	226.237	449	2164.48	254.933
Austin ISD	Non-Participant	434	2146.83	276.464	122	2117.76	330.082

	Participant	234	2132.19	274.171	144	2097.22	341.520
ALL DISTRICTS	Non-Participant	7046	2115.46	305.356	6789	2133.07	281.241
	Participant	4835	2130.99	282.268	3918	2130.23	274.771

Table 10

Grade 9 Reading Analysis of Variance of Participants and Non-Participants

		2010				2011			
District	Source	df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	1553584	19.056	0.000	1	2903726.3	33.687	0.000
Dallas ISD	Between Groups	1	317723.9	3.784	0.052	1	109852.07	1.648	0.199
Houston ISD	Between Groups	1	458446.7	4.108	0.043	1	3133.263	0.032	0.857
Fort Worth ISD	Between Groups	1	337862.9	6.119	0.013	1	2247.374	0.038	0.846
Austin ISD	Between Groups	1	32601.27	0.429	0.513	1	27882.92	0.247	0.620
ALL DISTRICTS	Between Groups	1	691069.6	7.878	0.005	1	20140.393	0.259	0.611

10th Grade Analysis

Table 11 shows the Grade 10 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 11 shows, in 2010, students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Fort Worth ISD, and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=8497) that participated (M=2174.69) scored higher than non-participants (M=2162.34). This

difference was statistically significant, as Table 11 shows. In 2011, students who participated in SES programs scored higher than non-participants in all 5 districts. Overall (ALL DISTRICTS), students (N=8957) that participated (M=2187.70) scored lower than non-participants (M=2188.19). This difference was shown not to be statistically significant, as Table 12 shows.

Differences among these means were tested with a one-way analysis of variance. Table 12 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 3 of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 14.957, p=0.000), Fort Worth ISD (F = 4.193, p=0.041), and Austin ISD (F = 4.183, p=0.042). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 9.794, p=0.002). Of the four cases, all had a participant mean higher than the non-participant mean. In 2011, the difference among the means was statistically significant in 2 of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 13.779, p=0.000) and Austin ISD (F = 12.695, p=0.000). There was no statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 0.020, p=0.887). Of these two cases, both had a participant mean higher than the non-participant mean. Collectively, the null hypothesis was rejected in only 6 of the 12 cases for Grade 10.

Table 11

Grade 10 Reading Mean Performance Scores of Participants and Non-Participants

District	Status	2010			2011		
		N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	47	2135.36	181.065	85	2108.6	210.232
	Participant	143	2185.92	187.319	135	2193.33	128.493
Dallas ISD	Non-Participant	2606	2162.24	194.98	2716	2192.68	165.309
	Participant	1586	2184.84	162.928	1576	2194.25	145.254
Houston ISD	Non-Participant	1136	2154.84	193.698	1163	2170.64	205.343
	Participant	1143	2147.73	188.948	1398	2172.05	168.305
Fort Worth ISD	Non-Participant	883	2172.47	157.74	1220	2204.42	134.896
	Participant	583	2188.92	138.97	502	2206.52	132.972
Austin ISD	Non-Participant	195	2168.13	182.102	70	2119.57	188.562
	Participant	175	2202.27	131.82	92	2202.22	103.186
ALL DISTRICTS	Non-Participant	4867	2162.34	187.845	5254	2188.19	170.742
	Participant	3630	2174.69	168.762	3703	2187.7	151.932

Table 12

Grade 10 Reading Analysis of Variance of Participants and Non-Participants

District	Source	2010				2011			
		df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	90406.14	2.619	0.107	1	374488.6	13.779	0.000
Dallas ISD	Between Groups	1	503718.2	14.957	0.000	1	2461.127	0.098	0.754
Houston ISD	Between Groups	1	28802.67	0.787	0.375	1	1253.575	0.036	0.849

Fort Worth ISD	Between Groups	1	95048.92	4.193	0.041	1	1570.567	0.087	0.768
Austin ISD	Between Groups	1	107503.4	4.183	0.042	1	271527.7	12.695	0.000
ALL DISTRICTS	Between Groups	1	317103.6	9.794	0.002	1	538.229	0.02	0.887

11th Grade Analysis

Table 13 shows the Grade 11 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 13 shows, in 2010, students who participated in SES programs scored higher than non-participants in 3 (San Antonio ISD, Dallas ISD, and Fort Worth ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=7305) that participated (M=2195.82) scored lower than non-participants (M=2200.27). This difference was shown not to be statistically significant, as Table 14 shows. In 2011, students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Fort Worth ISD, and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=7151) that participated (M=2209.03) scored lower than non-participants (M=2211.61). This difference was shown not to be statistically significant, as Table 14 shows.

Differences among these means were tested with a one-way analysis of variance. Table 14 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in one of the 5 districts. Statistically significant differences between groups were found in Houston ISD (F = 9.440, p=0.002). There was no statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 0.816,

p=0.366). Within this 1 (Houston ISD) statistically significant case, the participant mean was lower than the non-participant mean. In 2011, the difference among the means was statistically significant in one of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 6.524, *p*=0.012). There was no statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 0.325, *p*=0.569). Within this one (San Antonio ISD) statistically significant case, the participant mean was higher than the non-participant mean. Collectively, the null hypothesis was rejected in only 2 of the 12 cases for Grade 11.

Table 13

Grade 11 Reading Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	31	2147.29	249.048	38	2092.29	311.945
	Participant	123	2183.49	182.683	130	2199.92	198.163
Dallas ISD	Non-Participant	2131	2196.39	216.88	2060	2217.53	188.278
	Participant	1319	2204.65	188.725	1267	2217.9	177.229
Houston ISD	Non-Participant	1116	2206.14	214.39	1047	2207.46	198.297
	Participant	951	2176.32	226.202	1111	2200.18	190.797
Fort Worth ISD	Non-Participant	796	2206.58	205.908	1092	2210.13	179.08
	Participant	510	2217.65	169.101	267	2214.73	168.431
Austin ISD	Non-Participant	169	2190.44	205.7	64	2185.16	198.368
	Participant	159	2178.6	196.361	75	2185.73	197.289
ALL DISTRICTS	Non-Participant	4243	2200.27	214.029	4301	2211.61	190.388
	Participant	3062	2195.82	198.857	2850	2209.03	183.481

Table 14

Grade 11 Reading Analysis of Variance of Participants and Non-Participants

District	Source	2010				2011			
		df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	32441.64	0.831	0.363	1	340605.26	6.524	0.012
Dallas ISD	Between Groups	1	55707.94	1.306	0.253	1	109.221	0.003	0.955
Houston ISD	Between Groups	1	456485.10	9.440	0.002	1	28583.894	0.756	0.385
Fort Worth ISD	Between Groups	1	38087.47	1.029	0.311	1	4529.322	0.145	0.704
Austin ISD	Between Groups	1	11496.77	0.284	0.595	1	11.500	0.000	0.986
ALL DISTRICTS	Between Groups	1	35249.03	0.816	0.366	1	11440.227	0.325	0.569

Mathematics Analysis

6th Grade Analysis

Table 15 shows the Grade 6 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 15 shows, in 2010, students who participated in SES programs scored higher than non-participants in 1 (Houston ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=3516) that participated (M=657.59) scored lower that non-participants (M=671.09). This difference was shown not to be statistically significant, as Table 16 shows. In 2011, students who participated in SES programs scored higher than non-participants in 2 (Houston ISD and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=4270) that participated (M=686.69) scored higher than non-

participants (M=678.42). This difference was shown not to be statistically significant, as Table 16 shows.

Differences among these means were tested with a one-way analysis of variance. Table 16 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 1 (Dallas ISD) of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 19.93, p=0.000). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 20.009, p=0.000). In both cases, the participant mean was lower than the non-participant mean. In 2011, the difference among the means was statistically significant in 1 (Dallas ISD) of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 7.138, p=0.008). There was no statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 3.41, p=0.065). Within this one (Dallas ISD) statistically significant case, the participant mean was lower than the non-participant mean. Collectively, the null hypothesis was rejected in only 3 of the 12 cases for Grade 6.

Table 15

Grade 6 Mathematics Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	21	677.33	95.373	105	660.87	103.296
	Participant	77	652.60	85.792	379	657.59	82.540
Dallas ISD	Non-Participant	1195	674.31	93.453	1456	680.64	101.494

	Participant	721	655.32	84.416	504	666.80	96.587
Houston ISD	Non-Participant	75	655.07	83.772	50	658.56	104.294
	Participant	65	664.68	107.081	62	677.77	95.412
Fort Worth ISD	Non-Participant	536	665.24	88.225	844	679.15	98.859
	Participant	550	656.89	83.252	590	671.30	85.488
Austin ISD	Non-Participant	127	673.94	94.674	83	666.14	83.193
	Participant	149	670.64	83.573	175	675.62	82.595
ALL DISTRICTS	Non-Participant	1954	671.09	91.844	2538	678.42	100.274
	Participant	1562	657.59	85.071	1732	686.69	190.319

Table 16

Grade 6 Mathematics Analysis of Variance of Participants and Non-Participants

		2010				2011			
District	Source	df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	10095.79	1.307	0.256	1	880.795	0.115	0.734
Dallas ISD	Between Groups	1	162009.6	19.93	0.000	1	71746.817	7.138	0.008
Houston ISD	Between Groups	1	3216.004	0.354	0.553	1	10218.52	1.033	0.312
Fort Worth ISD	Between Groups	1	18908.96	2.572	0.109	1	21381.772	2.441	0.118
Austin ISD	Between Groups	1	749.942	0.095	0.758	1	5057.727	0.738	0.391
ALL DISTRICTS	Between Groups	1	158129.8	20.009	0.000	1	70480.867	3.41	0.065

7th Grade Analysis

Table 17 shows the Grade 7 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 17 shows, in 2010, students who participated in SES programs scored higher than non-participants in 1 (Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=4670) that participated (M=687.08) scored lower that non-participants (M=696.32). This difference was statistically significant, as Table 18 shows. In 2011, students who participated in SES programs scored higher than non-participants in 3 (San Antonio ISD, Houston ISD, and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=5430) that participated (M=691.92) scored lower than non-participants (M=699.5). This difference was statistically significant, as Table 18 shows.

Differences among these means were tested with a one-way analysis of variance. Table 18 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 2 (Houston ISD and Fort Worth ISD) of the 5 districts. Statistically significant differences between groups were found in Houston ISD (F = 7.046, p=0.009) and Fort Worth ISD (F = 7.484, p=0.006). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 13.603, p=0.000). In each of the three cases, the participant mean was lower than the non-participant mean. In 2011, the difference among the means was statistically significant in 1 (Fort Worth ISD) of the 5 districts. Statistically significant differences between groups were found in Fort Worth ISD (F = 4.386, p=0.036). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 10.007, p=0.002). Of these two cases, both had a participant mean lower than the non-

participant mean. Collectively, the null hypothesis was rejected in only 5 of the 12 cases for Grade 7.

Table 17

Grade 7 Mathematics Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	27	694.48	102.812	90	685.18	84.123
	Participant	77	683.71	69.884	363	687.97	77.042
Dallas ISD	Non-Participant	1483	695.15	90.672	2196	700.49	86.226
	Participant	848	688.37	77.590	619	694.22	76.514
Houston ISD	Non-Participant	58	708.12	96.794	60	674.02	72.019
	Participant	71	667.44	77.310	87	684.77	78.285
Fort Worth ISD	Non-Participant	1052	698.95	84.644	1209	700.89	85.544
	Participant	809	688.47	78.184	556	691.87	80.864
Austin ISD	Non-Participant	108	680.96	100.022	80	686.83	83.792
	Participant	137	682.99	74.092	170	695.82	69.900
ALL DISTRICTS	Non-Participant	2728	696.32	89.074	3635	699.50	85.756
	Participant	1942	687.08	77.333	1795	691.92	77.462

Table 18

Grade 7 Mathematics Analysis of Variance of Participants and Non-Participants

		2010				2011			
District	Source	df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	2317.535	0.366	0.547	1	561.047	0.091	0.763

Dallas ISD	Between Groups	1	24825.45	3.345	0.068	1	18958.979	2.675	0.102
Houston ISD	Between Groups	1	52837.88	7.046	0.009	1	4106.281	0.715	0.399
Fort Worth ISD	Between Groups	1	50196.39	7.484	0.006	1	31019.845	4.386	0.036
Austin ISD	Between Groups	1	248.804	0.033	0.855	1	4404.96	0.791	0.375
ALL DISTRICTS	Between Groups	1	96878.65	13.603	0.000	1	69117.681	10.007	0.002

8th Grade Analysis

Table 19 shows the Grade 8 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 19 shows, in 2010 students who participated in SES programs scored higher than non-participants in 1 (San Antonio ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=4508) that participated (M=700.63) scored lower than non-participants (M=710.68). This difference was statistically significant, as Table 20 shows. In 2011, students who participated in SES programs scored higher than non-participants in 3 (San Antonio ISD, Houston ISD, and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=5311) that participated (M=706.27) scored lower than non-participants (M=718.30). This difference was statistically significant, as Yable 20 shows.

Differences among these means were tested with a one-way analysis of variance. Table 20 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 1 (Dallas ISD) of the 5 districts. Statistically significant differences between groups were found in Dallas ISD (F = 10.873, p=0.001). There was also a

statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 10.456, p=0.001). In each of the two cases, the participant mean was lower than the non-participant mean. In 2011, the difference among the means was statistically significant in 3 (San Antonio ISD, Dallas ISD, and Fort Worth ISD) of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 12.120, p=0.001), Dallas ISD (F = 5.040, p=0.025), and Fort Worth ISD (F = 13.176, p=0.000). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 18.386, p=0.000). Of these four cases, 1 (San Antonio ISD) had a participant mean higher than the non-participant mean. Collectively, the null hypothesis was rejected in only 6 of the 12 cases for Grade 8.

Table 19

Grade 8 Mathematics Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	21	634.43	171.899	94	664.86	109.008
	Participant	70	688.87	92.153	343	699.74	78.676
Dallas ISD	Non-Participant	1564	711.90	101.649	1964	717.19	91.486
	Participant	826	696.91	112.916	597	707.55	93.113
Houston ISD	Non-Participant	68	710.31	74.461	56	717.21	69.537
	Participant	77	691.49	97.153	58	718.05	86.557
Fort Worth ISD	Non-Participant	1006	712.43	95.203	1286	727.03	106.595
	Participant	653	710.13	99.472	644	708.84	98.073
Austin ISD	Non-Participant	101	690.50	87.263	97	677.31	120.11
	Participant	122	687.50	93.208	172	701.30	96.712

ALL DISTRICTS	Non-Participant	2760	710.68	99.202	3497	718.30	99.078
	Participant	1748	700.63	105.466	1814	706.27	92.544

Table 20

Grade 8 Mathematics Analysis of Variance of Participants and Non-Participants

		2010				2011			
District	Source	df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	47880.4	3.621	0.060	1	89771.146	12.120	0.001
Dallas ISD	Between Groups	1	121425.5	10.873	0.001	1	42532.633	5.040	0.025
Houston ISD	Between Groups	1	12783.65	1.679	0.197	1	19.981	0.003	0.955
Fort Worth ISD	Between Groups	1	2099.75	0.224	0.636	1	142047.29	13.176	0.000
Austin ISD	Between Groups	1	495.661	0.060	0.806	1	35686.85	3.193	0.075
ALL DISTRICTS	Between Groups	1	108095.3	10.456	0.001	1	172626.59	18.386	0.000

9th Grade Analysis

Table 21 shows the Grade 9 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 21 shows, in 2010, students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Fort Worth ISD, and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=11466) that participated (M=2013.68) scored lower than non-participants (M=2020.75). This difference was shown not to be statistically significant, as Table 22 shows. In 2011,

students who participated in SES programs scored higher than non-participants in 2 (San Antonio ISD and Dallas ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=10448) that participated (M=2040.79) scored lower than non-participants (M=2041.01). This difference was shown not to be statistically significant, as Table 22 shows.

Differences among these means were tested with a one-way analysis of variance. Table 22 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 4 (San Antonio ISD, Dallas ISD, Houston ISD, and Fort Worth ISD) of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 7.563, p=0.007), Dallas ISD (F = 7.369, p=0.007), Houston ISD (F = 4.745, p=0.029), and Fort Worth ISD (F = 7.229, p=0.007). There was no statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 2.999, p=0.083). In each of the two cases, the participant mean was lower than the non-participant mean. In 2011, the difference among the means was statistically significant in 3 (San Antonio ISD, Dallas ISD, and Fort Worth ISD) of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 12.120, p=0.001), Dallas ISD (F = 5.040, p=0.025), and Fort Worth ISD (F = 13.176, p=0.000). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 18.386, p=0.000). Of these four cases, 3 (San Antonio ISD, Dallas ISD, and Fort Worth ISD) had a participant mean higher than the non-participant mean. Collectively, the null hypothesis was rejected in 6 of the 12 cases for Grade 9.

Table 21

Grade 9 Mathematics Mean Performance Scores of Participants and Non-Participants

District	Status	2010			2011		
		N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	29	1826.86	396.143	153	1678.86	403.370
	Participant	151	1987.09	262.115	199	2013.4	265.853
Dallas ISD	Non-Participant	3480	2013.02	342.350	3067	2055.26	288.635
	Participant	1911	2039.31	336.215	1499	2083.88	280.727
Houston ISD	Non-Participant	1666	2015.16	345.114	1697	2001.64	411.584
	Participant	1554	1988.43	351.139	1521	1996.51	367.766
Fort Worth ISD	Non-Participant	1148	2061.41	295.379	1620	2093.94	275.604
	Participant	879	2095.63	268.398	441	2084.43	309.064
Austin ISD	Non-Participant	421	2009.2	327.413	114	1977.25	357.701
	Participant	227	2045.61	317.821	137	1960.17	363.229
ALL DISTRICTS	Non-Participant	6744	2020.75	335.469	6651	2041.01	332.052
	Participant	4722	2031.68	328.911	3797	2040.79	326.736

Table 22

Grade 9 Mathematics Analysis of Variance of Participants and Non-Participants

District	Source	2010				2011			
		df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	624588	7.563	0.007	1	9680170.2	87.489	0.000
Dallas ISD	Between Groups	1	852803	7.369	0.007	1	824730.31	10.078	0.002
Houston ISD	Between Groups	1	574731.8	4.745	0.029	1	21131.473	0.138	0.710

Fort Worth ISD	Between Groups	1	583025.5	7.229	0.007	1	31347.958	0.391	0.532
Austin ISD	Between Groups	1	195542.6	1.862	0.173	1	18165.948	0.14	0.709
ALL DISTRICTS	Between Groups	1	332158.6	2.999	0.083	1	114.578	0.001	0.974

10th Grade Analysis

Table 23 shows the Grade 10 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 23 shows, in 2010, students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Fort Worth ISD, and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=8293) that participated (M=2102.97) scored higher than non-participants (M=2091.03). This difference was statistically significant, as Table 24 shows. In 2011, students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Fort Worth ISD, and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=8856) that participated (M=2110.86) scored higher than non-participants (M=2097.57). This difference was statistically significant, as Table 24 shows.

Differences among these means were tested with a one-way analysis of variance. Table 24 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 3 (San Antonio ISD, Dallas ISD, and Fort Worth ISD) of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 9.951, p=0.002), Dallas ISD (F = 11.939, p=0.001), and Fort Worth ISD (F = 8.482,

p=0.004). There was a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 6.808, p=0.009). In each of the four cases, the participant mean was higher than the non-participant mean. In 2011, the difference among the means was statistically significant in 5 (San Antonio ISD, Dallas ISD, Houston ISD, Fort Worth ISD, and Austin ISD) of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD (F = 14.787, p=0.000), Dallas ISD (F = 17.943, p=0.000), Houston ISD (F = 5.789, p=0.016), Fort Worth ISD (F = 4.496, p=0.034), and Austin ISD (F = 8.434, p=0.004). There was also a statistically significant difference among the means in Overall (ALL DISTRICTS) students (F = 9.46, p=0.002). Of these six statistically significant cases, 1 (Houston ISD) had a participant mean lower than the non-participant mean. Collectively, the null hypothesis was rejected in 10 of the 12 cases for Grade 10.

Table 23

Grade 10 Mathematics Mean Performance Scores of Participants and Non-Participants

		2010			2011		
District	Status	N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	38	1947.63	275.004	75	1940.25	253.006
	Participant	133	2072.96	196.305	122	2059.84	182.339
Dallas ISD	Non-Participant	2489	2093.26	224.465	2697	2090.26	215.133
	Participant	1574	2117.02	194.930	1570	2118.38	198.295
Houston ISD	Non-Participant	1140	2088.12	214.443	1169	2116.09	198.188
	Participant	1130	2072.71	203.198	1365	2097.53	189.644
Fort Worth ISD	Non-Participant	863	2093.13	177.210	1204	2108.14	183.113
	Participant	570	2121.5	185.201	490	2128.37	164.696
Austin ISD	Non-Participant	186	2098.68	197.669	69	2055.65	259.223

	Participant	170	2135.37	161.427	95	2153.43	171.695
ALL DISTRICTS	Non-Participant	4716	2091.03	213.862	5214	2097.57	206.806
	Participant	3577	2102.97	195.898	3642	2110.86	190.246

Table 24

Grade 10 Mathematics Analysis of Variance of Participants and Non-Participants

		2010				2011			
District	Source	df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	464253.2	9.951	0.002	1	664280.26	14.787	0.000
Dallas ISD	Between Groups	1	544254.1	11.939	0.001	1	784507.99	17.943	0.000
Houston ISD	Between Groups	1	134676.1	3.086	0.079	1	217036.21	5.789	0.016
Fort Worth ISD	Between Groups	1	276131.2	8.482	0.004	1	142421.86	4.496	0.034
Austin ISD	Between Groups	1	119586.5	3.639	0.057	1	382140.99	8.434	0.004
ALL DISTRICTS	Between Groups	1	289742.9	6.808	0.009	1	378998.88	9.46	0.002

11th Grade Analysis

Table 25 shows the Grade 11 means and standard deviations of TAKS scale scores of non-participants and participants during the 2009-2010 and 2010-2011 academic years. As Table 25 shows, in 2010 students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Houston ISD, and Fort Worth ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=7176) that

participated (M=2185.58) scored higher than non-participants (M=2175.38). This difference was statistically significant, as Table 26 shows. In 2011, students who participated in SES programs scored higher than non-participants in 4 (San Antonio ISD, Dallas ISD, Fort Worth ISD, and Austin ISD) of the 5 districts. Overall (ALL DISTRICTS), students (N=7041) that participated (M=2206.06) scored higher than non-participants (M=2200.22). This difference was shown not to be statistically significant, as Table 26 shows.

Differences among these means were tested with a one-way analysis of variance. Table 26 shows the results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 3 (San Antonio ISD, Dallas ISD, and Fort Worth ISD) of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD ($F = 4.402$, $p=0.038$), Dallas ISD ($F = 7.601$, $p=0.006$), and Fort Worth ISD ($F = 4.809$, $p=0.028$). There was a statistically significant difference among the means in Overall (ALL DISTRICTS) students ($F = 4.615$, $p=0.032$). In each of the four cases, the participant mean was higher than the non-participant mean. In 2011, the difference among the means was statistically significant in 2 (San Antonio and Fort Worth ISD) of the 5 districts. Statistically significant differences between groups were found in San Antonio ISD ($F = 11.411$, $p=0.001$) and Fort Worth ISD ($F = 5.565$, $p=0.018$). There was no statistically significant difference among the means in Overall (ALL DISTRICTS) students ($F = 1.397$, $p=0.237$). Of these two statistically significance cases, both had a participant mean higher than the non-participant mean. Collectively, the null hypothesis was rejected in 6 of the 12 cases for Grade 11.

Table 25

Grade 11 Mathematics Mean Performance Scores of Participants and Non-Participants

District	Status	2010			2011		
		N	Mean	SD	N	Mean	SD
San Antonio ISD	Non-Participant	27	2044.48	290.569	47	2038.85	306.875
	Participant	122	2128.30	157.242	135	2168.48	191.407
Dallas ISD	Non-Participant	2078	2176.36	216.872	2022	2208.49	202.151
	Participant	1309	2196.04	176.616	1236	2221.57	205.870
Houston ISD	Non-Participant	1120	2173.94	223.824	1030	2202.42	222.823
	Participant	930	2175.51	192.789	1097	2188.87	202.728
Fort Worth ISD	Non-Participant	769	2178.32	175.618	1077	2190.21	177.984
	Participant	499	2199.96	165.255	266	2219.46	193.334
Austin ISD	Non-Participant	165	2180.40	195.081	59	2189.97	156.533
	Participant	157	2156.89	159.600	72	2222.69	153.966
ALL DISTRICTS	Non-Participant	4159	2175.38	211.700	4235	2200.22	203.302
	Participant	3017	2185.58	179.120	2806	2206.06	202.272

Table 26

Grade 11 Mathematics Analysis of Variance of Participants and Non-Participants

District	Source	2010				2011			
		df	Sum of Squares	F	Sig.	df	Sum of Squares	F	Sig.
San Antonio ISD	Between Groups	1	155328.5	4.402	0.038	1	585833.33	11.411	0.001
Dallas ISD	Between Groups	1	310987.1	7.601	0.006	1	131213.39	3.166	0.075
Houston ISD	Between Groups	1	1249.345	0.028	0.867	1	97500.831	2.155	0.142

Fort Worth ISD	Between Groups	1	141640	4.809	0.028	1	182571.05	5.565	0.018
Austin ISD	Between Groups	1	44484.09	1.394	0.239	1	34734.515	1.443	0.232
ALL DISTRICTS	Between Groups	1	182140.7	4.615	0.032	1	57506.257	1.397	0.237

Research Question Two

To address the research question "To what extent are student demographic characteristics (i.e., gender and socio-economic status) related to differences in the academic achievement between the two group of students in 2010 and 2011?", a factorial analysis of variance was computed on the 2010 and 2011 TAKS scores. The assumptions for the factorial ANOVA are that the observations are independent, the variances of the groups are equal, and the dependent variable is normally distributed for each group. The analysis was done for Grades 6-11 with all five school districts. For each district, descriptive statistics were used to identify the data collected from the students in this research. This two-way ANOVA estimates the impact of the main effects of participant status, gender, and socio-economic status and the interaction effect of participant status, gender, and socioeconomic status on students' achievement in reading and mathematics. Prior to Spring 2009, all TAKS scale scores ranged from 1399 to 2630 (Old Scale Score) with 2100 being the standard or passing level. In the spring of 2009, the Texas Education Agency introduced a new scale score for Grades 8 and below. This new scale score ranged from 194 to 935 with 644 being the standard or passing level. For this reason, the data were separated into two grade groups: Grades 6-8 and Grades 9-11.

Austin ISD Analysis

2010 – Gender

Grades 6-8

Table 27 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=336) was 680.24 (SD=115.303). This was compared to the computed total mean of reading Participants (M=677.36, N=409, and SD=97.522) and the computed total reading mean (M=678.66, N=745, and SD=105.848).

The computed total mean of mathematics Non-Participants (N=335) was 681.20 (SD=94.404). This was compared to the computed total mean of mathematics Participants (M=679.81, N=407, and SD=83.821) and computed total mathematics mean (M=680.44, N=742, and SD=88.697).

Table 27

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status	gender	Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	687.02	111.950	158	675.47	88.090	156
	Male	674.22	118.189	178	686.19	99.558	179
	Total	680.24	115.303	336	681.20	94.404	335
Participant	Female	681.70	96.619	205	677.14	83.874	204
	Male	673.00	98.464	204	682.49	83.890	203
	Total	677.36	97.522	409	679.81	83.821	407

Total	Female	684.02	103.456	363	676.42	85.609	360
	Male	673.57	107.960	382	684.22	91.462	382
	Total	678.66	105.848	745	680.44	88.697	742

In Table 28, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we observe no significant difference in participant_status (p=0.356) and gender (p=0.120). In mathematics, we can also see that there was no significant difference in participant_status (p=0.769) and gender (p=0.205). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 28

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Table 4-28. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	339500583.1	1	15962.4	0.005	339311327.9	1	28707.786	0.004
	Error	21268.757	1			11819.488	1		
participant	Hypothesis	1969.346	1	2.556	0.356	189.647	1	0.144	0.769
_status	Error	770.607	1			1321.312	1		
sex	Hypothesis	21268.757	1	27.6	0.12	11819.488	1	8.945	0.205
	Error	770.607	1			1321.312	1		
participant	Hypothesis	770.607	1	0.069	0.793	1321.312	1	0.168	0.682
_status *	Error	8312600.803	741			5816738.036	738		

Grades 9-11

Table 29 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive

statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the Total groups for the two measurements.

The computed total mean of reading Non-Participants (N=798) was 2161.27 (SD=242.531). This was compared to the computed total mean of reading Participants (M=2166.77, N=568, and SD=218.835) and the computed total reading mean (M=2163.56, N=1366, and SD=232.904).

The computed total mean of mathematics Non-Participants (N=755) was 2072.24 (SD=279.984). This was compared to the computed total mean of mathematics Participants (M=2105.70, N=546, and SD=241.453) and computed total mathematics mean (M=2086.28, N=1301, and SD=264.916).

Table 29

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2169.55	226.672	385	2094.72	243.983	367
	Male	2153.56	256.468	413	2050.98	309.031	388
	Total	2161.27	242.531	798	2072.24	279.984	755
Participant	Female	2163.23	240.967	252	2095.37	255.717	245
	Male	2169.59	199.785	316	2114.11	229.276	301
	Total	2166.77	218.835	568	2105.70	241.453	546
Total	Female	2167.05	232.265	637	2094.98	248.540	612
	Male	2160.51	233.578	729	2078.56	278.609	689
	Total	2163.56	232.904	1366	2086.28	264.916	1301

In Table 30, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that only one interaction, mathematics (participant_status * gender), has a

statistically significant interaction at the $p < 0.05$ level (F = 4.405, p=0.036). In reading, we see that there was no significant difference in participant_status (p=0.739) and gender (p=0.741). In mathematics, we can also see that there was no significant difference in participant_status (p=0.493) and gender (p=0.758). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 30

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participant Status and Gender

Table 4-30. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	6165913910	1	809125.7	0.001	5494176234	1	111685.41	0.002
	Error	7620.464	1			49193.321	1		
participant	Hypothesis	7778.012	1	0.189	0.739	320237.424	1	1.042	0.493
_status	Error	41087.664	1			307276.631	1		
sex	Hypothesis	7620.464	1	0.185	0.741	49193.321	1	0.16	0.758
	Error	41087.664	1			307276.631	1		
participant	Hypothesis	41087.664	1	0.756	0.385	307276.631	1	4.405	0.036
_status *	Error	73976922.47	1362			90471594.24	1297		

2011 – Gender

Grades 6-8

Table 31 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=263) was 683.57 (SD=128.019). This was compared to the computed total mean of Reading Participants

(M=681.77, N=518, and SD=111.055) and the computed total Reading mean (M=682.38, N=781, and SD=116.963).

The computed total mean of mathematics Non-Participants (N=260) was 676.67 (SD=98.730). This was compared to the computed total mean of mathematics Participants (M=690.79, N=516, and SD=84.481) and computed total mathematics mean (M=686.06, N=776, and SD=89.693).

Table 31

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	697.33	128.053	132	679.85	92.906	131
	Male	669.70	126.964	131	673.45	104.577	129
	Total	683.57	128.019	263	676.67	98.730	260
Participant	Female	688.51	106.957	235	686.65	72.658	233
	Male	676.17	114.232	283	694.19	93.087	283
	Total	681.77	111.055	518	690.79	84.481	516
Total	Female	691.68	114.896	367	684.20	80.473	364
	Male	674.13	118.292	414	687.70	97.181	412
	Total	682.38	116.963	781	686.06	89.693	776

In Table 32, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.903) and gender (p=0.233). In mathematics, we can also see that there was no significant difference in participant_status (p=0.298) and gender (p=0.948). Therefore, in Grades 6-8, the null hypothesis "There is no statistically

significant difference in student achievement based on demographic groups" is fully accepted.

Table 32

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participant Status and Gender

Table 4-32. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	324471342.3	1	4672.258	0.009	322069740.8	1	5709337.1	0
	Error	69446.368	1			56.411	1		
Participant_status	Hypothesis	241.374	1	0.024	0.903	32699.65	1	3.906	0.298
	Error	10175.688	1			8371.711	1		
sex	Hypothesis	69446.368	1	6.825	0.233	56.411	1	0.007	0.948
	Error	10175.688	1			8371.711	1		
Participant_status *	Hypothesis	10175.688	1	0.746	0.388	8371.711	1	1.044	0.307
	Error	10600371.98	777			6190302.021	772		

Grades 9-11

Table 33 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=256) was 2135.11 (SD=268.107). This was compared to the computed total mean of reading Participants (M=2149.62, N=311, and SD=261.977) and the computed total Reading mean (M=2143.07, N=567, and SD=264.626).

The computed total mean of mathematics Non-Participants (N=224) was 2077.19 (SD=271.084). This was compared to the computed total mean of mathematics

Participants (M=2086.56, N=290, and SD=289.076) and computed total mathematics mean (M=2082.48, N=514, and SD=281.145).

Table 33

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2127.41	283.745	120	2068.10	276.902	105
	Male	2141.90	254.377	136	2085.21	266.759	119
	Total	2135.11	268.107	256	2077.19	271.084	224
Participant	Female	2150.94	254.281	129	2086.82	297.693	124
	Male	2148.69	267.990	182	2086.36	283.377	166
	Total	2149.62	261.977	311	2086.56	289.076	290
Total	Female	2139.60	268.595	249	2078.24	287.873	229
	Male	2145.79	261.868	318	2085.88	276.083	285
	Total	2143.07	264.626	567	2082.48	281.145	514

In Table 34, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.321) and gender (p=0.598). In mathematics, we can also see that there was no significant difference in participant_status (p=0.461) and gender (p=0.517). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 34

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-34. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	2537841719	1	489863	0.001	2165512636	1	250264.74	0.001
	Error	5180.718	1			8652.887	1		
Participant_	Hypothesis	31784.071	1	3.284	0.321	12330.928	1	1.279	0.461
	Error	9679.015	1			9638.384	1		
sex	Hypothesis	5180.718	1	0.535	0.598	8652.887	1	0.898	0.517
	Error	9679.015	1			9638.384	1		
Participant_	Hypothesis	9679.015	1	0.138	0.711	9638.384	1	0.121	0.728
	Error	39591821.82	563			40521440.01	510		

2010 – Economic Status

Grades 6-8

Table 35 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=336) was 680.24 (SD=115.303). This was compared to the computed total mean of reading Participants (M=677.36, N=409, and SD=97.522) and the computed total reading mean (M=678.66, N=745, and SD=105.848).

The computed total mean of mathematics Non-Participants (N=335) was 681.20 (SD=94.404). This was compared to the computed total mean of mathematics Participants (M=679.81, N=407, and SD=83.821) and computed total mathematics mean (M=680.44, N=742, and SD=88.697).

Table 35

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	680.24	115.303	336	681.20	94.404	335
	Total	680.24	115.303	336	681.20	94.404	335
Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	677.36	97.522	409	679.81	83.821	407
	Total	677.36	97.522	409	679.81	83.821	407
Total	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	678.66	105.848	745	680.44	88.697	742
	Total	678.66	105.848	745	680.44	88.697	742

In Table 36, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Due to the fact that there were zero non-economically disadvantaged students that participated in Grades 6-8, we were not able to calculate the analysis of variance. Thus, the hypothesis cannot be tested within this group.

Table 36

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-36. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	339978807	1			340374403.1	1		
	Error								
participant_	Hypothesis	1529.164	1			355.871	1		
	Error								
disadv	Hypothesis	0	0			0	0		
	Error								
participant_	Hypothesis	0	0			0	0		
	Error								

Grades 9-11

Table 37 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=798) was 2161.27 (SD=242.531). This was compared to the computed total mean of reading Participants (M=2166.77, N=568, and SD=218.835) and the computed total reading mean (M=2163.56, N=1366, and SD=232.904).

The computed total mean of mathematics Non-Participants (N=755) was 2072.24 (SD=279.984). This was compared to the computed total mean of mathematics Participants (M=2105.70, N=546, and SD=241.453) and computed total mathematics mean (M=2086.28, N=1301, and SD=264.916).

Table 37

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	2096.07	302.100	30	1854.44	417.903	27
	EconDis	2163.82	239.788	768	2080.32	270.609	728
	Total	2161.27	242.531	798	2072.24	279.984	755
Participant	Non-EconDis	1298.00	0.000	2	0.00	0.000	0
	EconDis	2169.84	213.019	566	2105.70	241.453	546
	Total	2166.77	218.835	568	2105.70	241.453	546
Total	Non-EconDis	2046.19	351.994	32	1854.44	417.903	27
	EconDis	2166.38	228.750	1334	2091.20	258.724	1274
	Total	2163.56	232.904	1366	2086.28	264.916	1301

In Table 38, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that only one interaction, reading (participant_status * economic status), has a statistically significant interaction at the $p < 0.05$ level ($F = 22.68$, $p=0.000$). In reading, we also see that there was no significant difference in participant_status ($p=0.970$ and gender ($p=0.451$). In mathematics, we were not able to calculate the analysis of variance due to the fact that there were zero non-economically disadvantaged students that participated in Grades 9-11. Therefore, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 2 of the 3 cases in reading.

Table 38

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-38. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	111330279.3	1	67.643	0.077	637638958	1		
	Error	1645857.151	1						
participant_	Hypothesis	1169521.769	1	0.97	0.505	201067.913	1		
	Error	1205362.871	1						
disadv	Hypothesis	1645857.151	1	1.365	0.451	1328239.239	1		
	Error	1205362.871	1						
participant_	Hypothesis	1205362.871	1	22.68	0	0	0		
	Error	72386094.08	1362						

2011 – Economic Status

Grades 6-8

Table 39 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=263) was 683.57 (SD=128.019). This was compared to the computed total mean of reading Participants (M=681.77, N=518, and SD=111.055) and the computed total reading mean (M=682.38, N=781, and SD=116.963).

The computed total mean of mathematics Non-Participants (N=260) was 676.67 (SD=98.730). This was compared to the computed total mean of mathematics Participants (M=690.79, N=516, and SD=84.481) and computed total mathematics mean (M=686.06, N=776, and SD=89.693).

Table 39

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	683.57	128.019	263	676.67	98.730	260
	Total	683.57	128.019	263	676.67	98.730	260
Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	681.77	111.055	518	690.79	84.481	516
	Total	681.77	111.055	518	690.79	84.481	516
Total	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	682.38	116.963	781	686.06	89.693	776
	Total	682.38	116.963	781	686.06	89.693	776

In Table 40, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Due to the fact that there were zero non-economically disadvantaged students that participated in Grades 6-8, we were not able to calculate the analysis of variance. Thus the hypothesis cannot be tested within this group.

Table 40

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-40. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	325173588.3	1			323289617.9	1		
	Error								
Participant_	Hypothesis	566.429	1			34448.087	1		
	Error								
disadv	Hypothesis	0	0			0	0		
	Error								
Participant_	Hypothesis	0	0			0	0		
	Error								

Grades 9-11

Table 41 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=256) was 2135.11 (SD=268.107). This was compared to the computed total mean of reading Participants (M=2149.62, N=311, and SD=261.977) and the computed total reading mean (M=2143.07, N=567, and SD=264.626).

The computed total mean of mathematics Non-Participants (N=224) was 2077.19 (SD=271.084). This was compared to the computed total mean of mathematics Participants (M=2086.56, N=290, and SD=289.076) and computed total mathematics mean (M=2082.48, N=514, and SD=281.145).

Table 41

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 41. Grades 9-11 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	2128.63	279.384	27	2110.17	249.496	24
	EconDis	2135.87	267.370	229	2073.24	273.875	200
	Total	2135.11	268.107	256	2077.19	271.084	224
Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	2149.62	261.977	311	2086.56	289.076	290
	Total	2149.62	261.977	311	2086.56	289.076	290
Total	Non-EconDis	2128.63	279.384	27	2110.17	249.496	24
	EconDis	2143.79	264.118	540	2081.12	282.763	490
	Total	2143.07	264.626	567	2082.48	281.145	514

In Table 42, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Due to the fact that there were zero non-economically disadvantaged students that participated in Grades 9-11, we were not able to calculate the analysis of variance. Thus the hypothesis cannot be tested within this group.

Table 42

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-42. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	691312037.6	1			590702268.5	1		
	Error								
Participant_	Hypothesis	24952.3	1			21012.437	1		
	Error								
disadv	Hypothesis	1265.786	1			29227.457	1		
	Error								
Participant_	Hypothesis	0	0			0	0		
	Error								

Dallas ISD Analysis

2010 – Gender

Grades 6-8

Table 43 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=4237) was 726.58 (SD=123.085). This was compared to the computed total mean of reading Participants (M=705.56, N=2387, and SD=127.967) and the computed total reading mean (M=719, N=6624, and SD=125.264).

The computed total mean of mathematics Non-Participants (N=4228) was 697.58 (SD=106.69). This was compared to the computed total mean of mathematics

Participants (M=682.5, N=2384, and SD=98.18) and computed total mathematics mean (M=692.14, N=6612, and SD=103.949).

Table 43

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Table 43. Grades 6-8 Mean performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	737.82	113.597	2082	701.34	111.330	2078
	Male	715.72	130.714	2155	693.94	101.905	2150
	Total	726.58	123.085	4237	697.58	106.693	4228
Participant	Female	713.86	133.064	1145	682.28	92.119	1142
	Male	697.90	122.639	1242	682.70	103.476	1242
	Total	705.56	127.967	2387	682.50	98.180	2384
Total	Female	729.32	121.386	3227	694.58	105.301	3220
	Male	709.20	128.090	3397	689.83	102.611	3392
	Total	719.00	125.264	6624	692.14	103.949	6612

In Table 44, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.093) and gender (p=0.102). In mathematics, we can also see that there was no significant difference in participant_status (p=0.161) and gender (p=0.536). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 44

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-44. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	3130154937	1	5666.23	0.008	2900128640	1	156359.11	0.002
	Error	552422.291	1			18547.871	1		
participant_	Hypothesis	665575.747	1	46.187	0.093	349369.765	1	15.02	0.161
	Error	14410.573	1			23260.22	1		
sex	Hypothesis	552422.291	1	38.335	0.102	18547.871	1	0.797	0.536
	Error	14410.573	1			23260.22	1		
participant_	Hypothesis	14410.573	1	0.93	0.335	23260.22	1	2.164	0.141
	Error	102577945.3	6620			71029771.82	6608		

Grades 9-11

Table 45 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=8319) was 2156.01 (SD=251.023). This was compared to the computed total mean of reading Participants (M=2173.78, N=4825, and SD=220.266) and the computed total reading mean (M=2162.53, N=13144, and SD=240.334).

The computed total mean of mathematics Non-Participants (N=7873) was 2085.77 (SD=282.474). This was compared to the computed total mean of mathematics Participants (M=2112.31, N=4683, and SD=260.344) and computed total mathematics mean (M=2095.67, N=12556, and SD=274.719).

Table 45

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Table 45. Grades 9-11 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2172.29	248.540	3812	2091.52	271.667	3627
	Male	2142.24	252.312	4507	2080.86	291.331	4246
	Total	2156.01	251.023	8319	2085.77	282.474	7873
Participant	Female	2185.97	219.526	2423	2112.33	255.022	2363
	Male	2161.48	220.372	2402	2112.28	265.711	2320
	Total	2173.78	220.266	4825	2112.31	260.344	4683
Total	Female	2177.61	237.761	6235	2099.73	265.399	5990
	Male	2148.93	241.844	6909	2091.96	282.923	6566
	Total	2162.53	240.334	13144	2095.67	274.719	12556

In Table 46, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.107) and gender (p=0.065). In mathematics, we can also see that there was no significant difference in participant_status (p=0.128) and gender (p=0.497). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 46

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-46. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	57133448546	1	25220.95	0.004	51638272839	1	614210.33	0.001
	Error	2265317.208	1			84072.622	1		
participant	Hypothesis	824907.62	1	34.965	0.107	1997721.577	1	24.25	0.128
_status	Error	23592.52	1			82380.927	1		
sex	Hypothesis	2265317.208	1	96.018	0.065	84072.622	1	1.021	0.497
	Error	23592.52	1			82380.927	1		
participant	Hypothesis	23592.52	1	0.41	0.522	82380.927	1	1.094	0.296
_status *	Error	755593751	13140			945240502.3	12552		

2011 – Gender

Grades 6-8

Table 47 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=5614) was 728.27 (SD=121.258). This was compared to the computed total mean of reading Participants (M=709.32, N=1721, and SD=130.079) and the computed total reading mean (M=723.82, N=7335, and SD=123.636).

The computed total mean of mathematics Non-Participants (N=5604) was 703.95 (SD=111.191). This was compared to the computed total mean of mathematics

Participants (M=691.41, N=1711, and SD=89.470) and computed total mathematics mean (M=701.01, N=7315, and SD=106.63).

Table 47

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Table 47. Grades 6-8 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	738.22	104.533	2700	705.98	94.534	2698
	Male	719.05	134.279	2914	702.06	124.666	2906
	Total	728.27	121.258	5614	703.95	111.191	5604
Participant	Female	713.81	106.795	846	689.50	90.357	844
	Male	704.98	149.110	875	693.27	88.610	867
	Total	709.32	130.079	1721	691.41	89.470	1711
Total	Female	732.40	105.576	3546	702.06	93.806	3542
	Male	715.80	137.953	3789	700.04	117.412	3773
	Total	723.82	123.636	7335	701.01	106.634	7315

In Table 48, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.167) and gender (p=0.225). In mathematics, we can also see that there was no significant difference in participant_status (p=0.188) and gender (p=0.986). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 48

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Table 4-48. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	2722370719	1	10547.22	0.006	2551139923	1	283827199	0
	Error	258112.747	1			8.988	1		
Participant	Hypothesis	487259.905	1	13.868	0.167	209169.612	1	10.808	0.188
_status	Error	35135.61	1			19353.437	1		
sex	Hypothesis	258112.747	1	7.346	0.225	8.988	1	0	0.986
	Error	35135.61	1			19353.437	1		
Participant	Hypothesis	35135.61	1	2.319	0.128	19353.437	1	1.706	0.192
_status *	Error	111085773.1	7331			82932486.73	7311		

Grades 9-11

Table 49 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=7918) was 2183.20 (SD=216.462). This was compared to the computed total mean of reading Participants (M=2189.86, N=4383, and SD=195.656) and the computed total reading mean (M=2185.57, N=12301, and SD=209.302).

The computed total mean of mathematics Non-Participants (N=7583) was 2113.49 (SD=245.313). This was compared to the computed total mean of mathematics Participants (M=2142.09, N=4203, and SD=233.244) and computed total mathematics mean (M=2123.69, N=11786, and SD=241.45).

Table 49

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Table 49. Grades 9-11 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2211.34	198.758	3666	2121.89	229.177	3548
	Male	2158.94	227.887	4252	2106.10	258.474	4035
	Total	2183.20	216.462	7918	2113.49	245.313	7583
Participant	Female	2208.05	185.531	2172	2143.42	223.592	2114
	Male	2171.99	203.580	2211	2140.75	242.667	2089
	Total	2189.86	195.656	4383	2142.09	233.244	4203
Total	Female	2210.12	193.933	5838	2129.93	227.327	5662
	Male	2163.40	219.946	6463	2117.92	253.705	6124
	Total	2185.57	209.302	12301	2123.69	241.457	11786

In Table 50, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that that only one interaction, reading (participant_status * gender), has a statistically significant interaction at the $p < 0.05$ level ($F = 4.345$, $p=0.037$). In reading, we see that there was no significant difference in participant_status ($p=0.657$) and gender ($p=0.116$). In mathematics, we can also see that there was no significant difference in participant_status ($p=0.146$) and gender ($p=0.393$). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 50

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-50. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	53896463904	1	9783.796	0.006	48910597125	1	212443.03	0.001
	Error	5508747.614	1			230229.235	1		
Participant_status	Hypothesis	66986.781	1	0.356	0.657	2130458.879	1	18.336	0.146
	Error	187938.027	1			116187.302	1		
sex	Hypothesis	5508747.614	1	29.312	0.116	230229.235	1	1.982	0.393
	Error	187938.027	1			116187.302	1		
Participant_status *	Hypothesis	187938.027	1	4.345	0.037	116187.302	1	2	0.157
	Error	531873631.8	12297			684394417	11782		

2010 – Economic Status

Grades 6-8

Table 51 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=4238) was 726.46 (SD=123.310). This was compared to the computed total mean of reading Participants (M=705.56, N=2387, and SD=127.967) and the computed total reading mean (M=718.93, N=6625, and SD=125.401).

The computed total mean of mathematics Non-Participants (N=4228) was 697.58 (SD=106.693). This was compared to the computed total mean of mathematics

Participants (M=682.50, N=2384, and SD=98.180) and computed total mathematics mean (M=692.14, N=6612, and SD=103.949)

Table 51

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Table 51. Grades 6-8 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	767.88	114.826	638	729.03	103.392	638
	EconDis	719.12	123.326	3600	691.99	106.313	3590
	Total	726.46	123.310	4238	697.58	106.693	4228
Participant	Non-EconDis	763.20	96.181	5	724.60	43.009	5
	EconDis	705.43	128.014	2382	682.41	98.248	2379
	Total	705.56	127.967	2387	682.50	98.180	2384
Total	Non-EconDis	767.85	114.630	643	729.00	103.046	643
	EconDis	713.67	125.382	5982	688.17	103.272	5969
	Total	718.93	125.401	6625	692.14	103.949	6612

In Table 52, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.290) and economic status (p=0.054). In mathematics, we see that there was no significant difference in participant_status (p=0.224) and there is a significant difference in economic status (p=0.041). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 52

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-52. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	43189895.24	1	769.831	0.023	39540876.47	1	1274.061	0.018
	Error	56103.122	1			31035.303	1		
participant_status	Hypothesis	1668.292	1	4.162	0.29	970.09	1	7.421	0.224
	Error	400.872	1			130.715	1		
disadv	Hypothesis	56103.122	1	139.953	0.054	31035.303	1	237.428	0.041
	Error	400.872	1			130.715	1		
participant_status * disadv	Hypothesis	400.872	1	0.026	0.872	130.715	1	0.012	0.912
	Error	102192491.9	6621			70335452.23	6608		

Grades 9-11

Table 53 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=8317 was 2156.20 (SD=250.760). This was compared to the computed total mean of reading Participants (M=2173.59, N=4826, and SD=220.606) and the computed total reading mean (M=2162.58, N=13143, and SD=240.266).

The computed total mean of mathematics Non-Participants (N=7871) was 2085.97 (SD=282.229). This was compared to the computed total mean of mathematics Participants (M=2112.31, N=4683, and SD=260.344) and computed total mathematics mean (M=2095.80, N=12554, and SD=274.555).

Table 53

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 53. Grades 9-11 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	2163.80	260.861	2083	2093.94	281.706	1974
	EconDis	2153.66	247.263	6234	2083.31	282.377	5897
	Total	2156.20	250.760	8317	2085.97	282.229	7871
Participant	Non-EconDis	2102.07	331.963	14	1975.86	433.415	14
	EconDis	2173.80	220.218	4812	2112.72	259.621	4669
	Total	2173.59	220.606	4826	2112.31	260.344	4683
Total	Non-EconDis	2163.39	261.348	2097	2093.11	283.065	1988
	EconDis	2162.43	236.064	11046	2096.30	272.934	10566
	Total	2162.58	240.266	13143	2095.80	274.555	12554

In Table 54, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that only one interaction, mathematics (participant_status * economic status), has a statistically significant interaction at the $p < 0.05$ level ($F = 4.000$, $p=0.046$). In reading, we also see that there was no significant difference in participant_status ($p=0.701$ and gender ($p=0.589$). In mathematics, we see that there was no significant difference in participant_status ($p=0.655$) and economic status ($p=0.549$). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 54

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-54. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	1021700303	1	19469.98	0.005	944756807.5	1	4288.357	0.01
	Error	52475.677	1			220307.385	1		
participant_status	Hypothesis	23924.433	1	0.258	0.701	108731.096	1	0.361	0.655
	Error	92746.073	1			300808.471	1		
disadv	Hypothesis	52475.677	1	0.566	0.589	220307.385	1	0.732	0.549
	Error	92746.073	1			300808.471	1		
participant_status * disadv	Hypothesis	92746.073	1	1.609	0.205	300808.471	1	4	0.046
	Error	757501638.9	13139			943783035.3	12550		

2011 – Economic Status

Grades 6-8

Table 55 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=5614) was 728.27 (SD=121.258). This was compared to the computed total mean of reading Participants (M=709.32, N=1721, and SD=130.079) and the computed total reading mean (M=723.82, N=7335, and SD=123.636).

The computed total mean of mathematics Non-Participants (N=5604) was 703.95 (SD=111.191). This was compared to the computed total mean of mathematics

Participants (M=691.41, N=1711, and SD=89.470) and computed total mathematics mean (M=701.01, N=7315, and SD=106.634).

Table 55

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Table 55. Grades 6-8 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	774.68	100.379	668	741.20	97.834	669
	EconDis	722.00	122.476	4946	698.90	111.938	4935
	Total	728.27	121.258	5614	703.95	111.191	5604
Participant	Non-EconDis	650.17	201.465	6	677.00	183.299	6
	EconDis	709.53	129.804	1715	691.46	89.071	1705
	Total	709.32	130.079	1721	691.41	89.470	1711
Total	Non-EconDis	773.57	102.101	674	740.63	98.853	675
	EconDis	718.79	124.514	6661	696.99	106.579	6640
	Total	723.82	123.636	7335	701.01	106.634	7315

In Table 56, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that only one interaction, reading (participant_status * economic status), has a statistically significant interaction at the $p < 0.05$ level (F = 4.953, p=0.026). In reading, we also see that there was no significant difference in participant_status (p=0.436) and gender (p=0.962). In mathematics, we see that there was no significant difference in participant_status (p=0.427) and economic status (p=0.710). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 56

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-56. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	48291990.69	1	182521.7	0.001	46688173.27	1	10176.947	0.006
	Error	264.582	1			4587.641	1		
Participant_status	Hypothesis	111067.488	1	1.495	0.436	30373.453	1	1.593	0.427
	Error	74298.362	1			19070.444	1		
disadv	Hypothesis	264.582	1	0.004	0.962	4587.641	1	0.241	0.71
	Error	74298.362	1			19070.444	1		
Participant_status * disadv	Hypothesis	74298.362	1	4.953	0.026	19070.444	1	1.702	0.192
	Error	109980214.9	7331			81904650.33	7311		

Grades 9-11

Table 57 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=7919) was 2183.10 (SD=216.649). This was compared to the computed total mean of reading Participants (M=2189.86, N=4383, and SD=195.656) and the computed total reading mean (M=2185.50, N=12302, and SD=209.428).

The computed total mean of mathematics Non-Participants (N=7583) was 2113.49 (SD=245.313). This was compared to the computed total mean of mathematics Participants (M=2142.09, N=4203, and SD=233.244) and computed total mathematics mean (M=2123.69, N=11786, and SD=241.457).

Table 57

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 57. Grades 9-11 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	2202.97	224.056	1724	2128.67	247.392	1641
	EconDis	2177.56	214.233	6195	2109.30	244.591	5942
	Total	2183.10	216.649	7919	2113.49	245.313	7583
Participant	Non-EconDis	2099.63	302.740	78	2086.78	317.617	58
	EconDis	2191.49	192.834	4305	2142.87	231.804	4145
	Total	2189.86	195.656	4383	2142.09	233.244	4203
Total	Non-EconDis	2198.50	228.884	1802	2127.24	250.113	1699
	EconDis	2183.27	205.833	10500	2123.09	239.976	10087
	Total	2185.50	209.428	12302	2123.69	241.457	11786

In Table 58, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that both interactions, reading and mathematics (participant_status * economic status), have a statistically significant interaction at the $p < 0.05$ level {(Reading ($F = 22.2795$, $p=0.000$) and Mathematics ($F = 5.371$, $p=0.020$)}. In reading, we also see that there was no significant difference in participant_status ($p=0.585$) and gender ($p=0.672$). In mathematics, we see that there was no significant difference in participant_status ($p=0.930$) and economic status ($p=0.712$). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 4 of the 6 cases.

Table 58

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-58. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	5451368442	1	17027.93	0.005	3926572483	1	53193.844	0.003
	Error	320142.716	1			73816.295	1		
Participant_status	Hypothesis	579625.272	1	0.581	0.585	3795.219	1	0.012	0.93
	Error	996998.914	1			311909.965	1		
disadv	Hypothesis	320142.716	1	0.321	0.672	73816.295	1	0.237	0.712
	Error	996998.914	1			311909.965	1		
Participant_status * disadv	Hypothesis	996998.914	1	22.795	0	311909.965	1	5.371	0.02
	Error	537874692.3	12298			684210060.6	11782		

Fort Worth ISD Analysis

2010 – Gender

Grades 6-8

Table 59 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=2597) was 730.31 (SD=108.229). This was compared to the computed total mean of reading Participants (M=710.11, N=2021, and SD=105.690) and the computed total reading mean (M=721.47, N=4618, and SD=107.581).

The computed total mean of mathematics Non-Participants (N=2593) was 697.21 (SD=91.26). This was compared to the computed total mean of mathematics Participants (M=686.93, N=2010, and SD=89.345) and computed total mathematics mean (M=692.72, N=4603, and SD=90.563).

Table 59

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Table 59. Grades 6-8 Mean performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	740.77	104.323	1219	697.97	88.586	1214
	Male	721.06	110.788	1378	696.55	93.578	1379
	Total	730.31	108.229	2597	697.21	91.260	2593
Participant	Female	720.19	104.784	942	686.38	85.571	933
	Male	701.31	105.739	1079	687.41	92.527	1077
	Total	710.11	105.690	2021	686.93	89.345	2010
Total	Female	731.80	104.997	2161	692.93	87.458	2147
	Male	712.38	109.019	2457	692.54	93.210	2456
	Total	721.47	107.581	4618	692.72	90.563	4603

In Table 60, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was a significant difference in participant_status (p=0.013) and gender (p=0.014). In mathematics, we can see that there was no significant difference in participant_status (p=0.075) and gender (p=0.900). Therefore, in Grades 6-8, the null hypothesis "There is no statistically

significant difference in student achievement based on demographic groups" is accepted in 4 of the 6 cases.

Table 60

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Table 4-60. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	2352180449	1	5582.305	0.009	2159214650	1	50753192	0
	Error	421363.65	1			42.543	1		
participant	Hypothesis	460109.849	1	2380.139	0.013	121000.277	1	71.623	0.075
_status	Error	193.312	1			1689.403	1		
sex	Hypothesis	421363.65	1	2179.706	0.014	42.543	1	0.025	0.9
	Error	193.312	1			1689.403	1		
participant	Hypothesis	193.312	1	0.017	0.896	1689.403	1	0.207	0.65
_status *	Error	52541748.31	4614			37622354.39	4599		

Grades 9-11

Table 61 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=2863) was 2175.73 (SD=209.624). This was compared to the computed total mean of reading Participants (M=2193.66, N=1993, and SD=190.401) and the computed total reading mean (M=2183.09, N=4856, and SD=202.129).

The computed total mean of mathematics Non-Participants (N=2715) was 2109.63 (SD=230.52). This was compared to the computed total mean of mathematics

Participants (M=2132.31, N=1924, and SD=224.327) and computed total mathematics mean (M=2119.04, N=4639, and SD=228.225).

Table 61

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Table 61. Grades 9-11 Mean performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2203.42	197.041	1390	2126.16	208.271	1335
	Male	2149.60	217.702	1473	2093.64	249.213	1380
	Total	2175.73	209.624	2863	2109.63	230.526	2715
Participant	Female	2211.72	189.487	970	2131.71	222.367	942
	Male	2176.52	189.773	1023	2132.89	226.304	982
	Total	2193.66	190.401	1993	2132.31	224.327	1924
Total	Female	2206.83	193.974	2360	2128.46	214.184	2277
	Male	2160.64	207.096	2496	2109.96	240.684	2362
	Total	2183.09	202.129	4856	2119.04	228.225	4639

In Table 62, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that that only one interaction, mathematics (participant_status * gender), has a statistically significant interaction at the $p < 0.05$ level ($F = 6.166$, $p=0.013$). In reading, we see that there was no significant difference in participant_status ($p=0.309$) and gender ($p=0.131$). In mathematics, we can also see that there was no significant difference in participant_status ($p=0.411$) and gender ($p=0.523$). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 62

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-62. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	22428891184	1	9644.316	0.006	20256939820	1	73301.53	0.002
	Error	2325607.366	1			276350.845	1		
participant	Hypothesis	364272.74	1	3.583	0.309	564436.05	1	1.766	0.411
_status	Error	101665.378	1			319657.57	1		
sex	Hypothesis	2325607.366	1	22.875	0.131	276350.845	1	0.865	0.523
	Error	101665.378	1			319657.57	1		
participant	Hypothesis	101665.378	1	2.526	0.112	319657.57	1	6.166	0.013
_status *	Error	195290500.6	4852			240279994.5	4635		

2011 – Gender

Grades 6-8

Table 63 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=3346) was 734.38 (SD=115.202). This was compared to the computed total mean of reading Participants (M=715.25, N=1795, and SD=106.598) and the computed total reading mean (M=727.70, N=5141, and SD=112.632).

The computed total mean of mathematics Non-Participants (N=3329) was 705.55 (SD=99.374). This was compared to the computed total mean of mathematics

Participants (M=691.16, N=1789, and SD=90.208) and computed total mathematics mean (M=700.52, N=5118, and SD=96.504).

Table 63

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Table 63. Grades 6-8 Mean performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	740.08	116.209	1561	704.72	101.351	1552
	Male	729.40	114.113	1785	706.27	97.637	1777
	Total	734.38	115.202	3346	705.55	99.374	3329
Participant	Female	722.22	106.744	834	689.95	89.855	832
	Male	709.21	106.156	961	692.22	90.547	957
	Total	715.25	106.598	1795	691.16	90.208	1789
Total	Female	733.86	113.301	2395	699.57	97.728	2384
	Male	722.33	111.789	2746	701.35	95.434	2734
	Total	727.70	112.632	5141	700.52	96.504	5118

In Table 64, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was a significant difference in participant_status (p=0.039) and no significant difference in gender (p=0.062). In mathematics, we can also see that there was a significant difference in participant_status (p=0.016) and no significant difference in gender (p=0.119). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 4 of the 6 cases.

Table 64

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Table 4-64. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	2445976631	1	14996.43	0.005	2258801080	1	535568.65	0.001
	Error	163103.963	1			4217.575	1		
Participant	Hypothesis	420946.63	1	269.437	0.039	240474.743	1	1598.974	0.016
_status	Error	1562.32	1			150.393	1		
sex	Hypothesis	163103.963	1	104.399	0.062	4217.575	1	28.044	0.119
	Error	1562.32	1			150.393	1		
Participant	Hypothesis	1562.32	1	0.124	0.725	150.393	1	0.016	0.899
_status *	Error	64607686.88	5137			47409878.52	5114		

Grades 9-11

Table 65 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=3963) was 2188.47 (SD=197.362). This was compared to the computed total mean of reading Participants (M=2192.82, N=1218, and SD=194.635) and the computed total reading mean (M=2189.50, N=5181, and SD=196.715).

The computed total mean of mathematics Non-Participants (N=3826) was 2129.16 (SD=223.392). This was compared to the computed total mean of mathematics Participants (M=2141.79, N=1176, and SD=220.899) and computed total mathematics mean (M=2132.13, N=5002, and SD=22.851).

Table 65

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Table 65. Grades 9-11 Mean performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2205.19	194.964	1972	2130.10	213.495	1916
	Male	2171.92	198.374	1991	2128.21	232.951	1910
	Total	2188.47	197.362	3963	2129.16	223.392	3826
Participant	Female	2207.76	200.383	574	2150.05	195.204	557
	Male	2179.50	188.525	644	2134.36	241.615	619
	Total	2192.82	194.635	1218	2141.79	220.899	1176
Total	Female	2205.77	196.162	2546	2134.59	209.642	2473
	Male	2173.77	196.005	2635	2129.71	235.068	2529
	Total	2189.50	196.715	5181	2132.13	222.851	5002

In Table 66, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.292) and gender (p=0.052). In mathematics, we can also see that there was no significant difference in participant_status (p=0.310) and gender (p=0.424). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 66

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-66. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	17845878737	1	20288.55	0.004	16376309653	1	236048.41	0.001
	Error	879603.288	1			69376.912	1		
Participant	Hypothesis	23982.535	1	4.116	0.292	152889.133	1	3.577	0.31
_status	Error	5826.266	1			42737.888	1		
sex	Hypothesis	879603.288	1	150.972	0.052	69376.912	1	1.623	0.424
	Error	5826.266	1			42737.888	1		
Participant	Hypothesis	5826.266	1	0.152	0.697	42737.888	1	0.861	0.354
_status *	Error	199091850	5177			248143663.9	4998		

2010 – Economic Status

Grades 6-8

Table 67 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=2597) was 730.31 (SD=108.229). This was compared to the computed total mean of reading Participants (M=710.11, N=2021, and SD=105.690) and the computed total reading mean (M=721.47, N=4618, and SD=107.581).

The computed total mean of mathematics Non-Participants (N=2593) was 697.21 (SD=91.260). This was compared to the computed total mean of mathematics

Participants (M=686.93, N=2010, and SD=89.345) and computed total mathematics mean (M=692.72, N=4603, and SD=90.563).

Table 67

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Table 67. Grades 6-8 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	748.48	99.696	58	689.41	70.667	58
	EconDis	729.89	108.399	2539	697.39	91.680	2535
	Total	730.31	108.229	2597	697.21	91.260	2593
Participant	Non-EconDis	697.67	104.201	51	657.98	109.173	51
	EconDis	710.43	105.734	1970	687.69	88.677	1959
	Total	710.11	105.690	2021	686.93	89.345	2010
Total	Non-EconDis	724.71	104.505	109	674.71	91.662	109
	EconDis	721.39	107.665	4509	693.16	90.502	4494
	Total	721.47	107.581	4618	692.72	90.563	4603

In Table 68, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.267) and economic status (p=0.883). In mathematics, we can also see that there was no significant difference in participant_status (p=0.309) and economic status (p=0.333). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 68

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-68. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	220703759.3	1	245383.2	0.001	197763204.9	1	5258.765	0.009
	Error	899.425	1			37606.395	1		
participant_status	Hypothesis	130834.274	1	5.024	0.267	44824.483	1	3.584	0.309
	Error	26040.475	1			12506	1		
disadv	Hypothesis	899.425	1	0.035	0.883	37606.395	1	3.007	0.333
	Error	26040.475	1			12506	1		
participant_status * disadv	Hypothesis	26040.475	1	2.269	0.132	12506	1	1.531	0.216
	Error	52944612.3	4614			37576718.43	4599		

Grades 9-11

Table 69 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=2863 was 2175.73 (SD=209.624). This was compared to the computed total mean of reading Participants (M=2193.66, N=1993, and SD=190.401) and the computed total reading mean (M=2183.09, N=4856, and SD=202.129).

The computed total mean of mathematics Non-Participants (N=2715) was 2109.63 (SD=230.526). This was compared to the computed total mean of mathematics Participants (M=2132.31, N=1924, and SD=224.327) and computed total mathematics mean (M=2119.04, N=4639, and SD=228.225).

Table 69

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 69. Grades 9-11 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	2184.69	213.989	275	2104.70	229.523	251
	EconDis	2174.78	209.175	2588	2110.14	230.668	2464
	Total	2175.73	209.624	2863	2109.63	230.526	2715
Participant	Non-EconDis	2136.66	289.793	56	2053.42	225.730	48
	EconDis	2195.30	186.598	1937	2134.33	223.987	1876
	Total	2193.66	190.401	1993	2132.31	224.327	1924
Total	Non-EconDis	2176.56	228.785	331	2096.47	229.319	299
	EconDis	2183.56	200.059	4525	2120.59	228.093	4340
	Total	2183.09	202.129	4856	2119.04	228.225	4639

In Table 70, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that both interactions, reading and mathematics (participant_status * economic status), have a statistically significant interaction at the $p < 0.05$ level {(Reading ($F = 5.149$, $p=0.023$) and Mathematics ($F = 4.259$, $p=0.039$)}. In reading, we also see that there was no significant difference in participant_status ($p=0.757$) and economic status ($p=0.607$). In mathematics, we see that there was no significant difference in participant_status ($p=0.781$) and economic status ($p=0.457$). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 4 of the 6 cases.

Table 70

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-70. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	3372943502	1	31812.24	0.004	2741210546	1	9469.354	0.007
	Error	106026.599	1			289482.313	1		
participant_status	Hypothesis	33777.875	1	0.161	0.757	28500.664	1	0.129	0.781
	Error	209853.601	1			221170.118	1		
disadv	Hypothesis	106026.599	1	0.505	0.607	289482.313	1	1.309	0.457
	Error	209853.601	1			221170.118	1		
participant_status * disadv	Hypothesis	209853.601	1	5.149	0.023	221170.118	1	4.259	0.039
	Error	197766548	4852			240685174.3	4635		

2011 – Economic Status

Grades 6-8

Table 71 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=3346) was 734.38 (SD=115.202). This was compared to the computed total mean of reading Participants (M=715.25, N=1795, and SD=106.598) and the computed total reading mean (M=727.70, N=5141, and SD=112.632).

The computed total mean of mathematics Non-Participants (N=3329) was 705.55 (SD=99.374). This was compared to the computed total mean of mathematics

Participants (M=691.16, N=1789, and SD=90.208) and computed total mathematics mean (M=700.52, N=5118, and SD=96.504).

Table 71

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Table 71. Grades 6-8 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	780.22	110.425	494	732.81	101.383	495
	EconDis	726.45	114.173	2852	700.79	98.263	2834
	Total	734.38	115.202	3346	705.55	99.374	3329
Participant	Non-EconDis	743.22	94.321	117	696.16	80.477	116
	EconDis	713.30	107.154	1678	690.82	90.856	1673
	Total	715.25	106.598	1795	691.16	90.208	1789
Total	Non-EconDis	773.13	108.439	611	725.85	98.752	611
	EconDis	721.58	111.793	4530	697.09	95.692	4507
	Total	727.70	112.632	5141	700.52	96.504	5118

In Table 72, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that both interactions, reading and mathematics (participant_status * economic status), have a statistically significant interaction at the $p < 0.05$ level {(Reading ($F = 3.998$, $p=0.046$) and Mathematics ($F = 6.688$, $p=0.010$)}. In reading, we also see that there was no significant difference in participant_status ($p=0.283$) and economic status ($p=0.177$). In mathematics, we see that there was no significant difference in participant_status ($p=0.331$) and economic status ($p=0.395$). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant

difference in student achievement based on demographic groups" is accepted in 4 of the 6 cases.

Table 72

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-72. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	762335299.3	1	1253.659	0.018	686331795.8	1	5700.055	0.008
	Error	608088.38	1			120407.929	1		
Participant_status	Hypothesis	218237.07	1	4.418	0.283	187505.397	1	3.052	0.331
	Error	49397.056	1			61433.898	1		
disadv	Hypothesis	608088.38	1	12.31	0.177	120407.929	1	1.96	0.395
	Error	49397.056	1			61433.898	1		
Participant_status * disadv	Hypothesis	49397.056	1	3.998	0.046	61433.898	1	6.688	0.01
	Error	63462927.62	5137			46978953.73	5114		

Grades 9-11

Table 73 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=3964) was 2188.30 (SD=197.653). This was compared to the computed total mean of reading Participants (M=2192.82, N=1218, and SD=194.635) and the computed total reading mean (M=2189.36, N=5182, and SD=196.939).

The computed total mean of mathematics Non-Participants (N=3827) was 2128.94 (SD=223.777). This was compared to the computed total mean of mathematics

Participants (M=2141.79, N=1176, and SD=220.899) and computed total mathematics mean (M=2131.96, N=5003, and SD=223.148).

Table 73

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 73. Grades 9-11 Mean performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	2217.44	187.559	761	2137.34	221.064	729
	EconDis	2181.37	199.380	3203	2126.96	224.400	3098
	Total	2188.30	197.653	3964	2128.94	223.777	3827
Participant	Non-EconDis	2166.39	202.572	74	2111.94	207.131	66
	EconDis	2194.53	194.079	1144	2143.57	221.652	1110
	Total	2192.82	194.635	1218	2141.79	220.899	1176
Total	Non-EconDis	2212.91	189.366	835	2135.23	219.929	795
	EconDis	2184.84	198.061	4347	2131.34	223.772	4208
	Total	2189.36	196.939	5182	2131.96	223.148	5003

In Table 74, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that only one interaction, reading (participant_status * economic status), has a statistically significant interaction at the $p < 0.05$ level ($F = 6.662$, $p=0.010$). In reading, we also see that there was no significant difference in participant_status ($p=0.661$) and economic status ($p=0.922$). In mathematics, we see that there was no significant difference in participant_status ($p=0.869$) and economic status ($p=0.702$). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 74

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-74. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	4791642793	1	1222279	0.001	4090117711	1	160787.23	0.002
	Error	3920.252	1			25438.076	1		
Participant_status	Hypothesis	89632.86	1	0.348	0.661	4356.191	1	0.044	0.869
	Error	257398.39	1			99440.157	1		
disadv	Hypothesis	3920.252	1	0.015	0.922	25438.076	1	0.256	0.702
	Error	257398.39	1			99440.157	1		
Participant_status * disadv	Hypothesis	257398.39	1	6.662	0.01	99440.157	1	1.998	0.158
	Error	200070867.1	5178			248800724.7	4999		

Houston ISD Analysis

2010 – Gender

Grades 6-8

Table 75 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=201) was 713.62 (SD=107.691). This was compared to the computed total mean of reading Participants (M=697.07, N=209, and SD=160.283) and the computed total reading mean (M=705.18, N=410, and SD=137.131).

The computed total mean of mathematics Non-Participants (N=201) was 689.06 (SD=88.41). This was compared to the computed total mean of mathematics Participants (M=675.29, N=213, and SD=94.706) and computed total mathematics mean (M=681.98, N=414, and SD=91.852).

Table 75

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Table 75. Grades 6-8 Mean performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	731.35	91.074	72	702.85	73.763	72
	Male	703.73	115.085	129	681.37	95.019	129
	Total	713.62	107.691	201	689.06	88.410	201
Participant	Female	706.81	132.512	83	687.04	103.188	83
	Male	690.65	176.425	126	667.79	88.467	130
	Total	697.07	160.283	209	675.29	94.706	213
Total	Female	718.21	115.432	155	694.38	90.778	155
	Male	697.27	148.442	255	674.56	91.863	259
	Total	705.18	137.131	410	681.98	91.852	414

In Table 76, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.188) and gender (p=0.163). In mathematics, we can see that there was a significant difference in participant_status (p=0.048) and gender (p=0.035). Therefore, in Grades 6-8, the null hypothesis "There is no statistically

significant difference in student achievement based on demographic groups" is accepted in 4 of the 6 cases.

Table 76

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Table 4-76. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	192748270.4	1	4186.956	0.01	181298744	1	4524.866	0.009
	Error	46035.416	1			40067.207	1		
participant	Hypothesis	33996.086	1	10.771	0.188	20874.701	1	173.505	0.048
_status	Error	3156.233	1			120.312	1		
sex	Hypothesis	46035.416	1	14.586	0.163	40067.207	1	333.028	0.035
	Error	3156.233	1			120.312	1		
participant	Hypothesis	3156.233	1	0.168	0.682	120.312	1	0.014	0.905
_status *	Error	7614773.374	406			3424687.743	410		

Grades 9-11

Table 77 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=4059) was 2127.68 (SD=284.220). This was compared to the computed total mean of reading Participants (M=2127.46, N=3719, and SD=263.295) and the computed total reading mean (M=2127.57, N=7778, and SD=274.396).

The computed total mean of mathematics Non-Participants (N=3811) was 2089.17 (SD=280.114). This was compared to the computed total mean of mathematics

Participants (M=2068.74, N=3529, and SD=278.727) and computed total mathematics mean (M=2079.35, N=7340, and SD=279.61).

Table 77

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Table 77. Grades 9-11 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2151.29	275.707	1970	2090.63	278.946	1877
	Male	2105.41	290.331	2089	2087.76	281.307	1934
	Total	2127.68	284.220	4059	2089.17	280.114	3811
Participant	Female	2147.56	262.276	1845	2078.07	275.217	1759
	Male	2107.67	262.866	1874	2059.46	281.943	1770
	Total	2127.46	263.295	3719	2068.74	278.727	3529
Total	Female	2149.49	269.267	3815	2084.55	277.181	3636
	Male	2106.48	277.650	3963	2074.24	281.928	3704
	Total	2127.57	274.396	7778	2079.35	279.615	7340

In Table 78, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.847) and there was a significant difference gender (p=0.044). In mathematics, we can see that there was no significant difference in participant_status (p=0.234) and gender (p=0.403). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 78

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-78. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	35138342509	1	9849.093	0.006	31674239848	1	149936.24	0.002
	Error	3567673.1	1			211251.4	1		
participant	Hypothesis	1040.684	1	0.06	0.847	764808.633	1	6.745	0.234
_status	Error	17442.335	1			113382.698	1		
sex	Hypothesis	3567673.1	1	204.541	0.044	211251.4	1	1.863	0.403
	Error	17442.335	1			113382.698	1		
participant	Hypothesis	17442.335	1	0.233	0.629	113382.698	1	1.452	0.228
_status *	Error	581942601.3	7774			572718760.7	7336		

2011 – Gender

Grades 6-8

Table 79 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=172) was 698.23 (SD=111.143). This was compared to the computed total mean of reading Participants (M=708.22, N=207, and SD=91.989) and the computed total reading mean (M=703.69, N=379, and SD=101.116).

The computed total mean of mathematics Non-Participants (N=166) was 683.9 (SD=85.460). This was compared to the computed total mean of mathematics

Participants (M=692, N=207, and SD=87.186) and computed total mathematics mean (M=688.4, N=373, and SD=86.4).

Table 79

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Table 79. Grades 6-8 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	735.39	92.616	59	712.17	80.357	59
	Male	678.83	115.373	113	668.36	84.540	107
	Total	698.23	111.143	172	683.93	85.460	166
Participant	Female	742.04	89.665	69	728.94	81.499	69
	Male	691.31	88.708	138	673.53	84.273	138
	Total	708.22	91.989	207	692.00	87.186	207
Total	Female	738.98	90.737	128	721.21	81.091	128
	Male	685.69	101.559	251	671.27	84.255	245
	Total	703.69	101.116	379	688.41	86.400	373

In Table 80, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.188) and there was a significant difference in gender (p=0.035). In mathematics, we can see that there was no significant difference in participant_status (p=0.310) and gender (p=0.074). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 80

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Table 4-80. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	170573449	1	704.423	0.024	161242126.6	1	786.768	0.023
	Error	242146.322	1			204942.445	1		
Participant	Hypothesis	7700.946	1	10.785	0.188	10018.587	1	3.571	0.31
_status	Error	714.027	1			2805.228	1		
sex	Hypothesis	242146.322	1	339.128	0.035	204942.445	1	73.057	0.074
	Error	714.027	1			2805.228	1		
Participant	Hypothesis	714.027	1	0.074	0.786	2805.228	1	0.405	0.525
_status *	Error	3613100.31	375			2556725.242	369		

Grades 9-11

Table 81 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=3907) was 2144.2 (SD=266.101). This was compared to the computed total mean of reading Participants (M=2147.14, N=4085, and SD=237.297) and the computed total reading mean (M=2145.70, N=7992, and SD=251.779).

The computed total mean of mathematics Non-Participants (N=3742) was 2103.39 (SD=310.889). This was compared to the computed total mean of mathematics Participants (M=2091.14, N=3886, and SD=278.169) and computed total mathematics mean (M=2097.15, N=7628, and SD=294.71).

Table 81

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Table 81. Grades 9-11 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2173.94	260.124	1799	2113.06	300.855	1728
	Male	2118.81	268.565	2108	2095.09	319.087	2014
	Total	2144.20	266.101	3907	2103.39	310.889	3742
Participant	Female	2163.80	229.342	1976	2089.85	271.403	1878
	Male	2131.52	243.538	2109	2092.35	284.414	2008
	Total	2147.14	237.297	4085	2091.14	278.169	3886
Total	Female	2168.63	244.515	3775	2100.97	286.090	3606
	Male	2125.17	256.403	4217	2093.72	302.239	4022
	Total	2145.70	251.779	7992	2097.15	294.718	7628

In Table 82, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that that only one interaction, reading (participant_status * gender), has a statistically significant interaction at the $p < 0.05$ level ($F = 4.129$, $p=0.042$). In reading, we see that there was no significant difference in participant_status ($p=0.929$) and gender ($p=0.163$). In mathematics, we can also see that there was no significant difference in participant_status ($p=0.425$) and gender ($p=0.588$). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 82

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-82. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	36685298970	1	9653.851	0.006	33431832274	1	294457.37	0.001
	Error	3800068.956	1			113537.087	1		
Participant	Hypothesis	3292.697	1	0.013	0.929	319849.132	1	1.609	0.425
_status	Error	259737.726	1			198829.455	1		
sex	Hypothesis	3800068.956	1	14.63	0.163	113537.087	1	0.571	0.588
	Error	259737.726	1			198829.455	1		
Participant	Hypothesis	259737.726	1	4.129	0.042	198829.455	1	2.29	0.13
_status *	Error	502540934.6	7988			661881183.6	7624		

2010 – Economic Status

Grades 6-8

Table 83 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=201) was 713.62 (SD=107.691). This was compared to the computed total mean of reading Participants (M=697.07, N=209, and SD=160.283) and the computed total reading mean (M=705.18, N=410, and SD=137.131).

The computed total mean of mathematics Non-Participants (N=201) was 689.06 (SD=88.410). This was compared to the computed total mean of mathematics

Participants (M=675.29, N=213, and SD=94.706) and computed total mathematics mean (M=681.98, N=414, and SD=91.852).

Table 83

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Table 83. Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	0	0	0	0	0	0
	EconDis	713.62	107.691	201	689.06	88.410	201
	Total	713.62	107.691	201	689.06	88.410	201
Participant	Non-EconDis	0	0	0	0	0	0
	EconDis	697.07	160.283	209	675.29	94.706	213
	Total	697.07	160.283	209	675.29	94.706	213
Total	Non-EconDis	0	0	0	0	0	0
	EconDis	705.18	137.131	410	681.98	91.852	414
	Total	705.18	137.131	410	681.98	91.852	414

In Table 84, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Due to the fact that there were zero non-economically disadvantaged students that participated in Grades 6-8, we were not able to calculate the analysis of variance. Thus, the hypothesis cannot be tested within this group.

Table 84

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-84. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	203901758.1	1			192499929.6	1		
	Error								
participant_status	Hypothesis	28080.955	1			19618.692	1		
	Error								
disadv	Hypothesis	0	0			0	0		
	Error								
participant_status * disadv	Hypothesis	0	0			0	0		
	Error								

Grades 9-11

Table 85 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=4056) was 2128.11 (SD=283.647). This was compared to the computed total mean of reading Participants (M=2127.46, N=3719, and SD=263.295) and the computed total reading mean (M=2127.80, N=7775, and SD=274.083).

The computed total mean of mathematics Non-Participants (N=3809) was 2089.7 (SD=279.257). This was compared to the computed total mean of mathematics Participants (M=2068.74, N=3529, and SD=278.727) and computed total mathematics mean (M=2079.6, N=7338, and SD=279.180).

Table 85

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 85. Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	2039.82	350.880	170	2015.35	335.097	152
	EconDis	2131.98	279.758	3886	2092.79	276.314	3657
	Total	2128.11	283.647	4056	2089.70	279.257	3809
Participant	Non-EconDis	2048.89	338.762	105	2046.76	275.834	93
	EconDis	2129.74	260.482	3614	2069.33	278.820	3436
	Total	2127.46	263.295	3719	2068.74	278.727	3529
Total	Non-EconDis	2043.28	345.709	275	2027.27	313.707	245
	EconDis	2130.90	270.625	7500	2081.42	277.759	7093
	Total	2127.80	274.083	7775	2079.62	279.180	7338

In Table 86, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.654) and there was a significant difference in economic status (p=0.042). In mathematics, we can see that there was no significant difference in participant_status (p=0.908) and economic status (p=0.319). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 86

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-86. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	4374448551	1	2329.374	0.013	3779475157	1	6763.171	0.008
	Error	1877949.932	1			558831.784	1		
participant_status	Hypothesis	2931.919	1	0.366	0.654	3538.313	1	0.021	0.908
	Error	8010.293	1			168245.186	1		
disadv	Hypothesis	1877949.932	1	234.442	0.042	558831.784	1	3.322	0.319
	Error	8010.293	1			168245.186	1		
participant_status * disadv	Hypothesis	8010.293	1	0.107	0.744	168245.186	1	2.164	0.141
	Error	581944806.5	7771			570128977.8	7334		

2011 – Economic Status

Grades 6-8

Table 87 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=172) was 698.23 (SD=111.143). This was compared to the computed total mean of reading Participants (M=708.22, N=207, and SD=91.989) and the computed total reading mean (M=703.69, N=379, and SD=101.116).

The computed total mean of mathematics Non-Participants (N=166) was 683.93 (SD=85.460). This was compared to the computed total mean of mathematics

Participants (M=692, N=207, and SD=87.187) and computed total mathematics mean (M=688.41, N=373, and SD=86.4).

Table 87

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Table 87. Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	245.00		1	0.00	0.00	0.00
	EconDis	700.88	105.877	171	683.93	85.460	166
	Total	698.23	111.143	172	683.93	85.460	166
Participant	Non-EconDis	564.00		1	600.00		1
	EconDis	708.92	91.659	206	692.45	87.161	206
	Total	708.22	91.989	207	692.00	87.186	207
Total	Non-EconDis	404.50	225.567	2	600.00		1
	EconDis	705.28	98.310	377	688.65	86.394	372
	Total	703.69	101.116	379	688.41	86.400	373

In Table 88, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that only one interaction, reading (participant_status * economic status), has a statistically significant interaction at the $p < 0.05$ level (F = 4.971, p=0.026). In reading, we see that there was no significant difference in participant_status (p=0.484 and gender (p=0.304). In mathematics, we were not able to calculate the analysis of variance due to the fact that there were zero non-economically disadvantaged students that participated in Grades 6-8. Therefore, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 2 of the 3 cases in reading.

Table 88

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-88. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	2448446.605	1	13.639	0.168	2638316.647	1		
	Error	179522.891	1						
Participant_status	Hypothesis	53192.706	1	1.106	0.484	6661.685	1		
	Error	48090.939	1						
disadv	Hypothesis	179522.891	1	3.733	0.304	8505.087	1		
	Error	48090.939	1						
Participant_status * disadv	Hypothesis	48090.939	1	4.971	0.026	0	0		
	Error	3627960.418	375						

Grades 9-11

Table 89 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=3889) was 2147.77 (SD=261.41). This was compared to the computed total mean of reading Participants (M=2147.53, N=4083, and SD=236.694) and the computed total reading mean (M=2147.65, N=7972, and SD=249.043).

The computed total mean of mathematics Non-Participants (N=3732) was 2106.28 (SD=306.283). This was compared to the computed total mean of mathematics Participants (M=2091.41, N=3885, and SD=277.705) and computed total mathematics mean (M=2098.69, N=7617, and SD=292.132).

Table 89

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 89. Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	2145.90	278.774	415	2077.28	306.960	397
	EconDis	2147.99	259.300	3474	2109.73	306.066	3335
	Total	2147.77	261.410	3889	2106.28	306.283	3732
Participant	Non-EconDis	1869.97	431.863	38	1825.26	514.743	31
	EconDis	2150.13	232.623	4045	2093.55	274.049	3854
	Total	2147.53	236.694	4083	2091.41	277.705	3885
Total	Non-EconDis	2122.75	303.830	453	2059.02	332.079	428
	EconDis	2149.14	245.295	7519	2101.06	289.435	7189
	Total	2147.65	249.043	7972	2098.69	292.132	7617

In Table 90, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that both interactions, reading and mathematics (participant_status * economic status), have a statistically significant interaction at the $p < 0.05$ level {(Reading (F = 42.847, p=0.000) and Mathematics (F = 18.522, p=0.000)}. In reading, we also see that there was no significant difference in participant_status (p=0.505) and economic status (p=0.495). In mathematics, we see that there was no significant difference in participant_status (p=0.459) and economic status (p=0.423). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 4 of the 6 cases.

Table 90

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-90. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	2362318575	1	867.655	0.022	1859398734	1	726.438	0.024
	Error	2722648.243	1			2559609.79	1		
Participant_status	Hypothesis	2561739.715	1	0.969	0.505	2035600.952	1	1.293	0.459
	Error	2642586.388	1			1574024.732	1		
disadv	Hypothesis	2722648.243	1	1.03	0.495	2559609.79	1	1.626	0.423
	Error	2642586.388	1			1574024.732	1		
Participant_status * disadv	Hypothesis	2642586.388	1	42.847	0	1574024.732	1	18.522	0
	Error	491422371	7968			646949233.4	7613		

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2010 – Gender

Grades 6-8

Table 91 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=69) was 679.23 (SD=149.941). This was compared to the computed total mean of reading Participants (M=693.6, N=230, and SD=100.115) and the computed total reading mean (M=690.28, N=299, and SD=113.443).

The computed total mean of mathematics Non-Participants (N=69) was 670.99 (SD=126.697). This was compared to the computed total mean of mathematics Participants (M=681.4, N=224, and SD=121.633) and computed total mathematics mean (M=678.95, N=293, and SD=122.705).

Table 91

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Table 91. Grades 6-8 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	694.41	153.364	39	670.79	128.658	39
	Male	659.50	145.550	30	671.23	126.292	30
	Total	679.23	149.941	69	670.99	126.697	69
Participant	Female	698.44	87.558	105	678.22	72.467	99
	Male	689.54	109.745	125	683.92	149.806	125
	Total	693.60	100.115	230	681.40	121.633	224
Total	Female	697.35	108.761	144	676.12	91.428	138
	Male	683.72	117.596	155	681.46	145.254	155
	Total	690.28	113.443	299	678.95	122.705	293

In Table 92, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.415) and gender (p=0.341). In mathematics, we can also see that there was no significant difference in participant_status (p=0.163) and gender (p=0.451). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 92

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Table 4-92. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	98275944.97	1	3916.563	0.01	94875156.46	1	194206.4	0.001
	Error	25092.394	1			488.527	1		
participant	Hypothesis	15168.273	1	1.715	0.415	5249.066	1	14.626	0.163
_status	Error	8842.361	1			358.875	1		
sex	Hypothesis	25092.394	1	2.838	0.341	488.527	1	1.361	0.451
	Error	8842.361	1			358.875	1		
participant	Hypothesis	8842.361	1	0.687	0.408	358.875	1	0.024	0.878
_status *	Error	3798903.872	295			4388968.037	289		

Grades 9-11

Table 93 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=112) was 2077.38 (SD=303.679). This was compared to the computed total mean of reading Participants (M=2179.25, N=420, and SD=209.479) and the computed total reading mean (M=2157.81, N=532, and SD=235.863).

The computed total mean of mathematics Non-Participants (N=83) was 1962.02 (SD=303.970). This was compared to the computed total mean of mathematics Participants (M=2062.65, N=396, and SD=210.643) and computed total mathematics mean (M=2045.21, N=479, and SD=232.315).

Table 93

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Table 93. Grades 9-11 Mean performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2050.89	306.991	56	1949.74	291.689	38
	Male	2103.88	300.742	56	1972.40	316.874	45
	Total	2077.38	303.679	112	1962.02	303.970	83
Participant	Female	2180.83	229.095	195	2077.16	197.194	182
	Male	2177.89	191.369	225	2050.30	221.150	214
	Total	2179.25	209.479	420	2062.65	210.643	396
Total	Female	2151.84	253.771	251	2055.15	221.005	220
	Male	2163.14	218.955	281	2036.77	241.610	259
	Total	2157.81	235.863	532	2045.21	232.315	479

In Table 94, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.170) and gender (p=0.535). In mathematics, we can also see that there was no significant difference in participant_status (p=0.151) and gender (p=0.946). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 94

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-94. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	1600447941	1	28939.19	0.004	1103749280	1	3686497.6	0
	Error	55303.834	1			299.403	1		
participant	Hypothesis	918460.149	1	13.302	0.17	718142.679	1	17.193	0.151
_status	Error	69046.907	1			41769.701	1		
sex	Hypothesis	55303.834	1	0.801	0.535	299.403	1	0.007	0.946
	Error	69046.907	1			41769.701	1		
participant	Hypothesis	69046.907	1	1.277	0.259	41769.701	1	0.793	0.374
_status *	Error	28543305.78	528			25021529.81	475		

2011 – Gender

Grades 6-8

Table 95 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=292) was 700.8 (SD=130.071). This was compared to the computed total mean of reading Participants (M=730.20, N=1124, and SD=221.264) and the computed total reading mean (M=724.14, N=1416, and SD=206.096).

The computed total mean of mathematics Non-Participants (N=289) was 669.74 (SD=99.940). This was compared to the computed total mean of mathematics Participants (M=728.73, N=1109, and SD=273.648) and computed total mathematics mean (M=716.54, N=1398, and SD=249.043).

Table 95

Grades 6-8 Mean Performance Scores of Participant Status and Gender

Table 95. Grades 6-8 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	711.48	113.433	139	669.26	86.225	138
	Male	691.10	143.209	153	670.17	111.294	151
	Total	700.80	130.071	292	669.74	99.940	289
Participant	Female	729.22	194.328	516	705.72	217.775	510
	Male	731.03	241.939	608	748.32	312.320	599
	Total	730.20	221.264	1124	728.73	273.648	1109
Total	Female	725.46	180.291	655	697.96	197.757	648
	Male	723.00	226.072	761	732.59	285.206	750
	Total	724.14	206.096	1416	716.54	249.043	1398

In Table 96, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was no significant difference in participant_status (p=0.234) and gender (p=0.556). In mathematics, we can also see that there was no significant difference in participant_status (p=0.222) and gender (p=0.486). Therefore, in Grades 6-8, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is fully accepted.

Table 96

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Table 4-96. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	473393314	1	23761.42	0.004	445936735.2	1	4121.98	0.01
	Error	19922.769	1			108185.089	1		
Participant	Hypothesis	192038.808	1	6.757	0.234	750622.247	1	7.558	0.222
_status	Error	28422.582	1			99311.249	1		
sex	Hypothesis	19922.769	1	0.701	0.556	108185.089	1	1.089	0.486
	Error	28422.582	1			99311.249	1		
Participant	Hypothesis	28422.582	1	0.67	0.413	99311.249	1	1.622	0.203
_status *	Error	59871505.43	1412			85347507.05	1394		

Grades 9-11

Table 97 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and gender. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and gender) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=294) was 2036.66 (SD=315.983). This was compared to the computed total mean of reading Participants (M=2182.31, N=474, and SD=200.410) and the computed total reading mean (M=2126.56, N=768, and SD=260.633).

The computed total mean of mathematics Non-Participants (N=227) was 1826.72 (SD=374.725). This was compared to the computed total mean of mathematics Participants (M=2070.51, N=441, and SD=232.720) and computed total mathematics mean (M=1987.66, N=668, and SD=310.899).

Table 97

Grades 9-11 Mean Performance Scores of Participant Status and Gender

Table 97. Grades 9-11 Mean Performance Scores of Participant Status and Gender

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Female	2047.29	328.049	150	1868.75	333.361	117
	Male	2025.59	303.652	144	1782.01	411.052	110
	Total	2036.66	315.983	294	1826.72	374.725	227
Participant	Female	2195.96	211.331	228	2081.91	223.730	217
	Male	2169.67	189.283	246	2059.46	241.095	224
	Total	2182.31	200.410	474	2070.51	232.720	441
Total	Female	2136.96	273.365	378	2007.24	285.572	334
	Male	2116.47	247.604	390	1968.09	333.597	334
	Total	2126.56	260.633	768	1987.66	310.899	668

In Table 98, we are interested in the participant_status, gender, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Within this case, we see that none of the effects have a statistically significant interaction in reading or mathematics at the $p < 0.05$ level. In reading, we see that there was a significant difference in participant_status (p=0.010) and there was no significant difference in gender (p=0.061). In mathematics, we can see that there was no significant difference in participant_status (p=0.083) and gender (p=0.339). Therefore, in Grades 9-11, the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 5 of the 6 cases.

Table 98

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Table 4-98. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Gender

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	3227629865	1	30929.85	0.004	2273163962	1	5093.005	0.009
	Error	104353.219	1			446330.586	1		
Participant	Hypothesis	3884600.983	1	4069.619	0.01	9011402.369	1	58.218	0.083
_status	Error	954.537	1			154786.531	1		
sex	Hypothesis	104353.219	1	109.323	0.061	446330.586	1	2.884	0.339
	Error	954.537	1			154786.531	1		
Participant	Hypothesis	954.537	1	0.015	0.902	154786.531	1	1.866	0.172
_status *	Error	48135947.39	764			55082318.67	664		

2010 – Economic Status

Grades 6-8

Table 99 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=69) was 679.23 (SD=149.941). This was compared to the computed total mean of reading Participants (M=693.6, N=230, and SD=100.115) and the computed total reading mean (M=690.28, N=299, and SD=113.443).

The computed total mean of mathematics Non-Participants (N=69) was 670.99 (SD=126.697). This was compared to the computed total mean of mathematics Participants (M=681.40, N=224, and SD=121.633) and computed total mathematics mean (M=678.95, N=293, and SD=122.705).

Table 99

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Table 99. Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	679.23	149.941	69	670.99	126.697	69
	Total	679.23	149.941	69	670.99	126.697	69
Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	693.60	100.115	230	681.40	121.633	224
	Total	693.60	100.115	230	681.40	121.633	224
Total	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	690.28	113.443	299	678.95	122.705	293
	Total	690.28	113.443	299	678.95	122.705	293

In Table 100, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Due to the fact that there were zero non-economically disadvantaged students that participated in Grades 6-8, we were not able to calculate the analysis of variance. Thus, the hypothesis cannot be tested within this group.

Table 100

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-100. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	100032345.7	1			96478746.37	1		
	Error								
participant_status	Hypothesis	10957.346	1			5723.407	1		
	Error								
disadv	Hypothesis	0	0			0	0		
	Error								
participant_status * disadv	Hypothesis	0	0			0	0		
	Error								

Grades 9-11

Table 101 shows the reading and mathematics total mean and standard deviation for the 2010 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=112) was 2077.38 (SD=303.679). This was compared to the computed total mean of reading Participants (M=2179.25, N=420, and SD=209.479) and the computed total reading mean (M=2157.81, N=532, and SD=235.863).

The computed total mean of mathematics Non-Participants (N=83) was 1962.02 (SD=303.970). This was compared to the computed total mean of mathematics Participants (M=2062.65, N=396, and SD=210.643) and computed total mathematics mean (M=2045.21, N=479, and SD=232.315).

Table 101

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 101. Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	1435.00		1	0	0	0
	EconDis	2083.17	298.788	111	1962.02	303.970	83
	Total	2077.38	303.679	112	1962.02	303.970	83
Participant	Non-EconDis				0	0	0
	EconDis	2179.25	209.479	420	2062.65	210.643	396
	Total	2179.25	209.479	420	2062.65	210.643	396
Total	Non-EconDis	1435.00		1	0.00	0.000	0
	EconDis	2159.17	233.985	531	2045.21	232.315	479
	Total	2157.81	235.863	532	2045.21	232.3150441	479

In Table 102, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Due to the fact that there were zero non-economically disadvantaged students that participated in Grades 9-11, we were not able to calculate the analysis of variance. Thus, the hypothesis cannot be tested within this group.

Table 102

Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-102. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	21576857.18	1			1111471776	1		
	Error								
participant_status	Hypothesis	810503.087	1			694747.247	1		
	Error								
disadv	Hypothesis	416374.743	1			0	0		
	Error								
participant_status * disadv	Hypothesis	0	0			0	0		
	Error								

2011 – Economic Status

Grades 6-8

Table 103 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=292) was 700.8 (SD=130.071). This was compared to the computed total mean of reading Participants (M=730.2, N=1124, and SD=221.264) and the computed total reading mean (M=724.14, N=1416, and SD=206.096).

The computed total mean of mathematics Non-Participants (N=289) was 669.74 (SD=99.940). This was compared to the computed total mean of mathematics Participants (M=728.73, N=1109, and SD=273.648) and computed total mathematics mean (M=716.54, N=1398, and SD=249.043).

Table 103

Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Table 103. Grades 6-8 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	700.80	130.071	292	669.74	99.940	289
	Total	700.80	130.071	292	669.74	99.940	289
Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	730.20	221.264	1124	728.73	273.648	1109
	Total	730.20	221.264	1124	728.73	273.648	1109
Total	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	724.14	206.096	1416	716.54	249.043	1398
	Total	724.14	206.096	1416	716.54	249.043	1398

In Table 104, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Due to the fact that there were zero non-economically disadvantaged students that participated in Grades 6-8, we were not able to calculate the analysis of variance. Thus, the hypothesis cannot be tested within this group.

Table 104

Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-104. Factorial Analysis of Variance Summary Regarding Grades 6-8 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	474642447.7	1			448360060.1	1		
	Error								
Participant_status	Hypothesis	200246.668	1			797863.383	1		
	Error								
disadv	Hypothesis	0	0			0	0		
	Error								
Participant_status * disadv	Hypothesis	0	0			0	0		
	Error								

Grades 9-11

Table 105 shows the reading and mathematics total mean and standard deviation for the 2011 TAKS scale scores by participant_status and economic status. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant status and economic status) interaction and the total groups for the two measurements.

The computed total mean of reading Non-Participants (N=294) was 2036.66 (SD=315.983). This was compared to the computed total mean of reading Participants (M=2182.31, N=474, and SD=200.410) and the computed total reading mean (M=2126.56, N=768, and SD=260.633).

The computed total mean of mathematics Non-Participants (N=227) was 1826.72 (SD=374.725). This was compared to the computed total mean of mathematics Participants (M=2070.51, N=441, and SD=232.72) and computed total mathematics mean (M=1987.66, N=668, and SD=310.899).

Table 105

Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Table 105. Grades 9-11 Mean Performance Scores of Participant Status and Economic Status

Dependent Variable		Reading			Mathematics		
Participant_status		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	Non-EconDis	1308.00	0.000	3	0	0	0
	EconDis	2044.17	308.754	291	1826.72	374.725	227
	Total	2036.66	315.983	294	1826.72	374.725	227
Participant	Non-EconDis	0.00	0.000	0	0.00	0.000	0
	EconDis	2182.31	200.410	474	2070.51	232.720	441
	Total	2182.31	200.410	474	2070.51	232.720	441
Total	Non-EconDis	1308.00	0.000	3	0.00	0.000	0
	EconDis	2129.77	256.037	765	1987.66	310.899	668
	Total	2126.56	260.633	768	1987.66	310.899	668

In Table 106, we are interested in the participant_status, economic status, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and their interactions. Due to the fact that there were zero non-economically disadvantaged students that participated in Grades 9-11, we were not able to calculate the analysis of variance. Thus, the hypothesis cannot be tested within this group.

Table 106

Factorial Analysis of Variance Summary Regarding Grades 69-11 Reading and Mathematics Performance by Participation Status and Economic Status

Table 4-106. Factorial Analysis of Variance Summary Regarding Grades 9-11 Reading and Mathematics Performance by Participation Status and Economic Status

Dependent Variable		Reading				Mathematics			
Source		Type III Sum of Squares	df	F	Sig.	Type III Sum of Squares	df	F	Sig.
Intercept	Hypothesis	60546019.14	1			2276141024	1		
	Error								
Participant_status	Hypothesis	3440841.545	1			8906751.036	1		
	Error								
disadv	Hypothesis	1609256.577	1			0	0		
	Error								
Participant_status * disadv	Hypothesis	0	0			0	0		
	Error								

Research Question Three

To address the research question "To what extent are differences in the academic growth of students associated with grade levels?", a factorial analysis of variance was computed on the 2010 and 2011 TAKS scores. The assumptions for the factorial ANOVA are that the observations are independent, the variances of the groups are equal, and the dependent variable is normally distributed for each group. The analysis was done for Grades 6-11 with all five school districts. For each grade level, descriptive statistics were used to identify the data collected from the students in this research. This two-way ANOVA estimates the impact of the main effects of participant_status and grade and the interaction effect of participant_status and grade on students' achievement in reading and mathematics. As in Research Question Two, prior to the spring of 2009, all TAKS scale scores ranged from 1399 to 2630 (Old Scale Score), with 2100 being the standard or passing level. In the spring of 2009, the Texas Education Agency introduced a new scale

score for Grades 8 and below. This new scale score ranged from 194 to 935, with 644 being the standard or passing level.

Reading Analysis

All Districts Analysis (Old Scale Score)

Table 107 shows the All Districts total mean and standard deviation of 2010 and 2011 TAKS scale scores by participant_status and grade. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and grade) interaction and the total groups for the two measurements.

The computed total mean of 2010 Non-Participants (N=16156) was 2151.86 (SD=254.057). This was compared to the computed total mean of 2010 Participants (M=2161.97, N=11527, and SD=231.609) and the computed total mean of the total district (M=2156.07, N=27683, and SD=245.006).

In 2011, the computed total mean of Non-Participants (N=16344) was 2171.46 (SD=229.97). This was compared to the computed total mean of 2011 Participants (M=2172.00, N=10471, and SD=216.058) and computed total mean of the total (M=2171.67, N=26815, and SD=224.636).

Table 107.

All Districts Mean Reading Performance Scores by Grade (Old Scale Score)

		2010			2011		
Participant_status	Grade	Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	9	2115.46	305.356	7046	2133.07	281.241	6789
	10	2162.34	187.845	4867	2188.19	170.742	5254

	11	2200.27	214.029	4243	2211.61	190.388	4301
	Total	2151.86	254.057	16156	2171.46	229.97	16344
Participant	9	2130.99	282.268	4835	2130.23	274.771	3918
	10	2174.69	168.762	3630	2187.7	151.932	3703
	11	2195.82	198.857	3062	2209.03	183.481	2850
	Total	2161.97	231.609	11527	2172	216.058	10471
Total	9	2121.78	296.264	11881	2132.03	278.881	10707
	10	2167.62	180.034	8497	2187.99	163.22	8957
	11	2198.4	207.802	7305	2210.58	187.657	7151
	Total	2156.07	245.006	27683	2171.67	224.636	26815

In Table 108, we are interested in the participant_status, grade, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and for their interactions. Within this case, we see that the interaction (participant_status * grade) has a statistically significant interaction at the $p < 0.05$ level ($F = 3.957$, $p=0.019$). We can also see that there was a significant difference in grade ($p=0.018$). Therefore, in the 2010 All Districts (Old Scale Score), the null hypothesis, there is no statistically significant difference in student achievement based on demographic groups, is accepted in 1 of the 3 cases.

Table 108

Univariate Analysis of Variance Summary of All Districts 2010 Reading Performance Scores by Grade (Old Scale Score)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	1.2103E+11	1	1.2103E+11	9418.436	0.000

participant_status	Hypothesis	394116.331	1	394116.331	1.712	0.320
grade	Hypothesis	26169084.07	2	13084542.03	56.065	0.018
participant_status * grade	Hypothesis	466763.674	2	233381.837	3.957	0.019

In Table 109, we are interested in the participant_status, grade, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and for their interactions. Within this case we see that the interaction (participant_status * grade) has no statistically significant interaction at the $p < 0.05$ level (F = 0.074, p=0.929). We can also see that there is a significant difference in grade (p=0.000). Therefore, in the 2011 All Districts (Old Scale Score), the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 2 of the 3 cases.

Table 109

Univariate Analysis of Variance Summary of All Districts 2011 Reading Performance Scores by Grade (Old Scale Score)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	1.17929E+11	1	1.17929E+11	8390.657	0.000
Participant_status	Hypothesis	24301.467	1	24301.467	5.798	0.104
grade	Hypothesis	28456430.03	2	14228215.02	3917.081	0.000
Participant_status * grade	Hypothesis	7264.704	2	3632.352	0.074	0.929

All Districts Analysis (New Scale Score)

Table 110 shows the All Districts total mean and standard deviation of 2010 and 2011 TAKS scale scores by participant_status and grade. The descriptive statistics in this

table contain the mean and standard deviations for each independent variable (participant_status and grade) interaction and the total groups for the two measurements.

The computed total mean of 2010 Non-Participants (N=7441) was 724.93 (SD=118.266). This was compared to the computed total mean of 2010 Participants (M=704.25, N=5256, and SD=118.315) and the computed total mean of the total (M=716.37, N=12697, and SD=118.719).

In 2011, the computed total mean of Non-Participants (N=9677) was 726.28 (SD=110.114). This was compared to the computed total mean of 2011 Participants (M=706.34, N=5341, and SD=106.384) and computed total mean of the total (M=719.19, N=15018, and SD=109.217).

Table 110

All Districts Mean Reading Performance Scores by Grade (New Scale Score)

Participant_status	Grade	2010			2011		
		Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	6	684.6	100.041	1951	690.56	100.78	2526
	7	716.07	112.642	2720	715.87	95.179	3648
	8	762.04	124.39	2770	762.89	119.877	3503
	Total	724.93	118.266	7441	726.28	110.114	9677
Participant	6	663.96	92.809	1565	671.2	97.94	1713
	7	700.51	112.797	1933	699.44	90.311	1802
	8	744.23	130.956	1758	746.1	115.242	1826
	Total	704.25	118.315	5256	706.34	106.384	5341
Total	6	675.41	97.417	3516	682.73	100.082	4239

	7	709.61	112.955	4653	710.44	93.907	5450
	8	755.13	127.262	4528	757.14	118.566	5329
	Total	716.37	118.719	12697	719.19	109.217	15018

In Table 111, we are interested in the participant_status, grade, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and for their interactions. Within this case, we see that the interaction (participant_status * grade) has no statistically significant interaction at the $p < 0.05$ level (F = 0.489, p=0.613). We can also see that there is a significant difference in participant_status (p=0.006) and grade (p=0.001). Therefore, in the 2010 All Districts (New Scale Score), the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in only one of the 3 cases.

Table 111

Univariate Analysis of Variance Summary of All Districts 2010 Reading Performance Scores by Grade (New Scale Score)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	6150651036	1	6150651036	1014.133	0.001
participant_status	Hypothesis	983378.323	1	983378.323	153.562	0.006
grade	Hypothesis	12214510.09	2	6107255.044	960.616	0.001
participant_status * grade	Hypothesis	12715.29	2	6357.645	0.489	0.613

In Table 112, we are interested in the participant_status, grade, and the interaction between the two. These rows inform us of whether we have significant mean differences

between our groups for our independent variables and for their interactions. Within this case, we see that the interaction (participant_status * grade) has no statistically significant interaction at the $p < 0.05$ level (F = 0.251, p=0.778). We can also see that there is a significant difference in participant_status (p=0.002) and grade (p=0.000). Therefore, in the 2011 All Districts (New Scale Score), the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in only one of the 3 cases.

Table 112

Univariate Analysis of Variance Summary of All Districts 2011 Reading Performance Scores by Grade (New Scale Score)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	6953605084	1	6953605084	1117.217	0.001
Participant_status	Hypothesis	1046069.05	1	1046069.05	376.364	0.002
grade	Hypothesis	12487526.03	2	6243763.014	2267.592	0.000
Participant_status * grade	Hypothesis	5506.955	2	2753.477	0.251	0.778

Mathematics Analysis

All Districts Analysis (Old Scale Score)

Table 113 shows the All Districts total mean and standard deviation of 2010 and 2011 TAKS scale scores by participant_status and grade. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and grade) interaction and the total groups for the two measurements.

The computed total mean of 2010 Non-Participants (N=15237) was 2089.53 (SD=273.629). This was compared to the computed total mean of 2010 Participants

(M=2099.80, N=11078, and SD=259.205) and the computed total mean of the total (M=2093.85, N=26315, and SD=267.695).

In 2011, the computed total mean of Non-Participants (N=15606) was 2109.98 (SD=263.138). This was compared to the computed total mean of 2011 Participants (M=2117.48, N=9996, and SD=253.385) and computed total mean of the total (M=2112.91, N=25602, and SD=259.394).

Table 113

All Districts Mean Mathematics Performance Scores by Grade (Old Scale Score)

		2010			2011		
Participant_status	Grade	Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	9	2027.59	330.716	6586	2051.34	323.152	6429
	10	2095.33	209.642	4585	2104.73	197.983	5047
	11	2183.32	197.079	4066	2207.67	190.478	4130
	Total	2089.53	273.629	15237	2109.98	263.138	15606
Participant	9	2035.43	326.08	4634	2048.06	319.701	3720
	10	2107.97	189.386	3485	2116.2	183.75	3542
	11	2190.99	167.122	2959	2213.6	190.182	2734
	Total	2099.8	259.205	11078	2117.48	253.385	9996
Total	9	2030.83	328.818	11220	2050.14	321.879	10149
	10	2100.79	201.23	8070	2109.46	192.313	8589
	11	2186.55	185.079	7025	2210.03	190.368	6864
	Total	2093.85	267.695	26315	2112.91	259.394	25602

In Table 114, we are interested in the participant_status, grade, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and for their interactions. Within this case, we see that the interaction (participant_status * grade) has no statistically significant interaction at the $p < 0.05$ level (F = 0.240, p=0.787). We can also see that there is a significant difference in participant_status (p=0.022) and grade (p=0.000). Therefore, in the 2010 All Districts (Old Scale Score), the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in only one of the 3 cases.

Table 114

Univariate Analysis of Variance Summary of All Districts 2010 Mathematics Performance Scores by Grade (Old Scale Score)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	1.09699E+11	1	1.09699E+11	2179.785	0.000
participant_status	Hypothesis	543833.969	1	543833.969	31.837	0.022
grade	Hypothesis	102383441.4	2	51191720.71	3157.947	0.000
participant_status * grade	Hypothesis	32420.892	2	16210.446	0.24	0.787

In Table 115, we are interested in the participant_status, grade, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and for their interactions. Within this case, we see that the interaction (participant_status * grade) has no statistically significant interaction at the $p < 0.05$ level (F = 1.952, p=0.142). We can also see that there is a significant difference in grade (p=0.002). Therefore, in the 2011 All Districts (Old Scale

Score), the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 2 of the 3 cases.

Table 115

Univariate Analysis of Variance Summary of All Districst 2011 Mathematics Performance Scores by Grade (Old Scale Score)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	1.07322E+11	1	1.07322E+11	2160.277	0.000
Participant_status	Hypothesis	131872.658	1	131872.658	1.075	0.408
grade	Hypothesis	100523624.1	2	50261812.03	407.45	0.002
Participant_status * grade	Hypothesis	246713.801	2	123356.9	1.952	0.142

All Districts Analysis (New Scale Score)

Table 116 shows the All Districts total mean and standard deviation of 2010 and 2011 TAKS scale scores by participant_status and grade. The descriptive statistics in this table contain the mean and standard deviations for each independent variable (participant_status and grade) interaction and the Total groups for the two measurements.

The computed total mean of 2010 Non-Participants (N=7422) was 695.28 (SD=94.751). This was compared to the computed total mean of 2010 Participants (M=683.14, N=5236, and SD=91.209) and the computed total mean of the total (M=690.26, N=12658, and SD=93.49).

In 2011, the computed total mean of Non-Participants (N=9638) was 700.94 (SD=95.88). This was compared to the computed total mean of 2011 Participants (M=689.24, N=5296, and SD=87.653) and computed total mean of the total (M=696.79, N=14934, and SD=93.211).

Table 116

All Districts Mean Mathematics Performance Scores by Grade (New Scale Score)

		2010			2011		
Participant_status	Grade	Mean	Std. Deviation	N	Mean	Std. Deviation	N
Non-Participant	6	671.52	91.489	1944	678.42	100.274	2538
	7	696.32	89.074	2728	699.8	85.773	3618
	8	711.04	98.997	2750	718.56	98.974	3482
	Total	695.28	94.751	7422	700.94	95.88	9638
Participant	6	658.44	84.359	1548	667.61	88.478	1710
	7	687.08	77.333	1942	692.31	77.225	1784
	8	700.66	105.499	1746	706.71	92.179	1802
	Total	683.14	91.209	5236	689.24	87.653	5296
Total	6	665.72	88.626	3492	674.07	95.836	4248
	7	692.48	84.504	4670	697.32	83.115	5402
	8	707.01	101.686	4496	714.52	96.864	5284
	Total	690.26	93.49	12658	696.79	93.211	14934

In Table 117, we are interested in the participant_status, grade, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and for their interactions. Within this case, we see that the interaction (participant_status * grade) has no statistically significant interaction at the $p < 0.05$ level (F = 0.440, p=0.644). We can also see that there is a significant difference in grade (p=0.002). Therefore, in the 2010 All Districts (New

Scale Score), the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in 2 of the 3 cases.

Table 117

Univariate Analysis of Variance Summary of All Districts 2010 Mathematics Performance Scores by Grade (New Scale Score)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	5713442564	1	5713442564	3558.913	0.000
participant_status	Hypothesis	359007.229	1	359007.229	95.667	0.009
grade	Hypothesis	3234536.376	2	1617268.188	435.01	0.002
participant_status * grade	Hypothesis	7435.543	2	3717.772	0.44	0.644

In Table 118, we are interested in the participant_status, grade, and the interaction between the two. These rows inform us of whether we have significant mean differences between our groups for our independent variables and for their interactions. Within this case, we see that the interaction (participant_status * grade) has no statistically significant interaction at the $p < 0.05$ level (F = 0.729, p=0.483). We can also see that there is a significant difference in participant_status (p=0.017) and grade (p=0.004). Therefore, in the 2011 All Districts (New Scale Score), the null hypothesis "There is no statistically significant difference in student achievement based on demographic groups" is accepted in only 1 of the 3 cases.

Table 118

Univariate Analysis of Variance Summary of All Districts 2011 Mathematics Performance Scores by Grade (New Scale Score)

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	6521736046	1	6521736046	3782.432	0.000
Participant_status	Hypothesis	341650.8	1	341650.8	55.711	0.017
grade	Hypothesis	3457894.158	2	1728947.079	282.216	0.004
Participant_status * grade	Hypothesis	12252.662	2	6126.331	0.729	0.483

Research Question Four

To address the research question "To what extent does student attendance produce a higher level of academic achievement in students as determined by the 2010 and 2011 TAKS scale scores?", an analysis of variance was computed on the 2010 and 2011 TAKS scores. The analysis was done for Grades 6-11 with all five school districts. For each grade level, descriptive statistics were used to identify the data collected from the students in this research. This ANOVA estimates the impact of the main effect of attendance on students' achievement in reading and mathematics.

Reading Analysis

All Districts Analysis

Tables 119 through 124 show the All Districts total mean and standard deviation of 2010 and 2011 TAKS scale scores by attendance. The descriptive statistics in these tables contain the mean and standard deviations for each group (Non-Participant, Less Than 20 Hours, and 20 or More Hours) by grade level.

Table 119

Grade 6 Reading Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	2037	683.71	99.49	2635	690.97	107.723
Less Than 20 Hours	366	655.27	103.246	893	691.08	218.671
20 or More Hours	1113	666.86	89.684	735	682.67	140.623

Table 120

Grade 7 Reading Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	2813	712.94	101.527	3790	715.37	95.205
Less Than 20 Hours	503	691.99	101.736	1058	699.56	92.275
20 or More Hours	1370	696.54	86.405	602	698.46	85.614

Table 121

Grade 8 Reading Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	2844	761.37	124.902	3621	762.14	119.605
Less Than 20 Hours	524	740.13	132.932	1138	743.99	112.764
20 or More Hours	1160	746.59	129.409	570	751.6	121.162

Table 122

Grade 9 Reading Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	7243	2115.65	305.183	6986	2132.74	281.486
Less Than 20 Hours	1070	2106.81	289.588	2324	2133.33	278.997
20 or More Hours	3568	2138.73	278.695	1397	2126.33	265.399

Table 123

Grade 10 Reading Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	4970	2161.58	189.148	5402	2187.5	171.570
Less Than 20 Hours	752	2169.02	179.899	2233	2190.94	148.765
20 or More Hours	2775	2178.06	162.007	1322	2185	151.152

Table 124

Grade 11 Reading Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	4342	2199.57	214.45	4419	2211.19	191.002
Less Than 20 Hours	636	2180.25	229.671	1771	2205.78	190.337
20 or More Hours	2327	2201.18	187.798	961	2216.64	165.863

Table 125 shows the ANOVA results of mean scale scores received by All Districts students in each school district. As the table shows, in 2010, the difference

among the means was statistically significant in 5 of the 6 grade levels. Statistically significant differences between groups were found in Grade 6 (F = 19.7, p=0.000), Grade 7 (F = 18.813, p=0.000), Grade 8 (F = 9.708, p=0.000), Grade 9 (F = 8.765, p=0.000), and Grade 10 (F = 3.14, p=0.044). There was no statistically significant difference among the means in Grade 11 (F = 2.704, p=0.067). In 3 (Grades 6-8) of the 6 cases, the Non-Participant mean was higher than both participant group means. In each of the 6 cases, Tier 2 (20 or More Hours) students scored higher than Tier 1 (Less Than 20 Hours) students.

Table 125

ALL DISTRICTS 2010 Reading Analysis of Variance of Attendance

Grade	Source	Sum of Squares	df	Mean Square	F	Sig.
6	Between Groups	369962.6	2	184981.3	19.7	0.000
7	Between Groups	356759.6	2	178379.8	18.813	0.000
8	Between Groups	313257.3	2	156628.6	9.708	0.000
9	Between Groups	1536609	2	768304.3	8.765	0.000
10	Between Groups	160893.4	2	80446.71	3.14	0.044
11	Between Groups	233423.5	2	116711.7	2.704	0.067

Table 126 shows that in 2011, the difference among the means was statistically significant in only one of the 6 grade levels. Statistically significant differences between groups were found in Grade 7 (F = 17.334, p=0.000) only. There was no statistically significant difference among the means in Grade 6 (p=0.359), Grade 8 (p=0.250), Grade 9 (p=0.712), Grade 10 (p=0.542), and Grade 11 (p=0.331). In 3 (Grades 6-8) of the 6 cases, the Non-Participant mean was higher than both participant group means. In only 2 (Grades 8 and 11) of the 6 cases, Tier 2 (20 or More Hours) students scored higher than Tier 1 (Less Than 20 Hours) students.

Table 126

ALL DISTRICTS 2011 Reading Analysis of Variance of Attendance

Grade	Source	Sum of Squares	df	Mean Square	F	Sig.
6	Between Groups	42177.63	2	21088.82	1.024	0.359
7	Between Groups	303900.9	2	151950.5	17.334	0.000
8	Between Groups	38415.76	2	19207.88	1.389	0.250
9	Between Groups	52790.56	2	26395.28	0.339	0.712
10	Between Groups	32606.83	2	16303.42	0.612	0.542
11	Between Groups	77830.03	2	38915.01	1.105	0.331

Collectively in reading for 2010 and 2011, the null hypothesis was rejected in only 6 of the 12 grade level cases.

Mathematics Analysis

All Districts Analysis

Tables 127 through 132 show the All Districts total mean and standard deviation of 2010 and 2011 TAKS scale scores by attendance. The descriptive statistics in these tables contain the mean and standard deviations for each group (Non-Participant, Less Than 20 Hours, and 20 or More Hours) by grade level.

Table 127

Grade 6 Mathematics Mean Performance Scores of Attendance

Status	2010			2011		
	N	Mean	SD	N	Mean	SD
Non-Participant	2038	670.85	91.711	2645	678.88	106.993
Less Than 20 Hours	362	645.52	82.383	890	687.94	208.995
20 or More Hours	1116	660.94	85.345	735	684.7	161.391

Table 128

Grade 7 Mathematics Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	2803	696.01	88.795	3779	698.93	85.733
Less Than 20 Hours	501	680.26	75.057	1051	693.87	76.905
20 or More Hours	1366	689.72	78.034	600	690.29	76.745

Table 129

Grade 8 Mathematics Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	2832	710.14	99.033	3615	717.3	98.803
Less Than 20 Hours	520	690.35	106.424	1133	707.4	91.997
20 or More Hours	1156	705.96	105.581	563	707.86	94.774

Table 130

Grade 9 Mathematics Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	6933	2019.46	336.513	6837	2040.05	331.259
Less Than 20 Hours	1034	1984.1	333.226	2243	2053.79	330.009
20 or More Hours	3499	2048.87	323.596	1368	2024.23	323.898

Table 131

Grade 10 Mathematics Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	4817	2089.47	213.825	5358	2097.51	207.644
Less Than 20 Hours	719	2075.25	216.479	2204	2114.78	193.162
20 or More Hours	2757	2113.37	188.555	1294	2105.91	179.08

Table 132

Grade 11 Mathematics Mean Performance Scores of Attendance

	2010			2011		
Status	N	Mean	SD	N	Mean	SD
Non-Participant	4250	2175.61	209.911	4346	2199.91	203.845
Less Than 20 Hours	615	2179.46	178.519	1736	2212.3	203.316
20 or More Hours	2311	2187.18	181.749	959	2196.83	197.391

Table 133 shows the ANOVA results of mean scale scores received by students in each school district. As the table shows, in 2010, the difference among the means was statistically significant in 5 of the 6 grade levels. Statistically significant differences between groups were found in Grade 6 (F = 14.289, p=0.000), Grade 7 (F = 8.439, p=0.000), Grade 8 (F = 8.385, p=0.000), Grade 9 (F = 17.818, p=0.000), and Grade 10 (F = 15.86, p=0.000). There was no statistically significant difference among the means in Grade 11 (F = 2.541, p=0.079). In 3 (Grades 6-8) of the 6 cases, the Non-Participant mean was higher than both participant group means. In each of the 6 cases, Tier 2 (20 or More Hours) students scored higher than Tier 1 (Less Than 20 Hours) students.

Table 133

ALL DISTRICTS 2010 Mathematics Analysis of Variance of Attendance

Grade	Source	Sum of Squares	df	Mean Square	F	Sig.
6	Between Groups	225365.7	2	112682.8	14.289	0.000
7	Between Groups	120146.5	2	60073.25	8.439	0.000
8	Between Groups	173158.9	2	86579.44	8.385	0.000
9	Between Groups	3935743	2	1967871	17.818	0.000
10	Between Groups	1346199	2	673099.6	15.86	0.000
11	Between Groups	200584.9	2	100292.5	2.541	0.079

Table 134 shows that in 2011, the difference among the means was statistically significant in 4 of the 6 grade levels. Statistically significant differences between groups were found in Grade 7 (F = 3.721, p=0.024), Grade 8 (F = 5.838, p=0.003), Grade 9 (F = 3.479, p=0.031), and Grade 10 (F = 5.975, p=0.003). There was no statistically significant difference among the means in Grade 6 (F = 1.507, p=0.222) and Grade 11 (F = 2.752, p=0.064). In 2 (Grades 7 and 8) of the 6 cases, the Non-Participant mean was higher than both participant group means. In only 1 (Grade 8) of the 6 cases, Tier 2 (20 or More Hours) students scored higher that Tier 1 (Less Than 20 Hours) students.

Table 134

ALL DISTRICTS 2011 Mathematics Analysis of Variance of Attendance

Grade	Source	Sum of Squares	df	Mean Square	F	Sig.
6	Between Groups	62301.28	2	31150.64	1.507	0.222
7	Between Groups	51426.83	2	25713.42	3.721	0.024
8	Between Groups	109790.1	2	54895.05	5.838	0.003

9	Between Groups	757866.9	2	378933.4	3.479	0.031
10	Between Groups	478681.5	2	239340.8	5.975	0.003
11	Between Groups	226470.5	2	113235.2	2.752	0.064

Collectively in mathematics for 2010 and 2011, the null hypothesis was rejected in only 7 of the 12 grade level cases.

Summary

The purpose of this research study was to evaluate the effectiveness of the Supplemental Educational Services in large Texas school districts' Title I schools that were required to offer tutoring programs during the 2009-10 and 2010-11 school years. This study used the ANOVA test of means to examine student tutoring groups that included students who were tutored in reading and math. It also examined the role of demographics as related to reading and math, grade level as related to reading and math, and attendance as related to reading and math for each researched year. Chapter V presents an analysis of the results, conclusions, and recommendations for future research.

CHAPTER V

DISCUSSION

Overview

This research study's purpose was to determine if delivery of supplemental educational services significantly progresses the academic achievement of secondary students in large Texas school districts. Furthermore, this study considered the relationship between certain grade levels, attendance patterns, and demographic variables for the TAKS reading and math scores of Grades 6-11 students in these five districts.

Analysis of the Results

This study included 163,300 students from five large urban Texas school districts in Grades 6 through 11 who were served in reading and math by state-approved SES providers. There were a total of 24,518 students that participated in 20 or more hours of tutoring in reading and math in 2010 and 11,106 in 2011. Additionally, there were 7,602 students that spent less than 20 hours with SES providers in 2010 and 18,674 in 2011. The outcomes of this study established that while there were various increases in the academic achievement of students taking part in this program, the growth was limited to a comparatively low number of participants. The increases were evident mostly along grade levels. Middle school students (Grades 6-8) that participated in SES programs fared worse than high school students (Grades 9-12) in all four research questions. The subsequent research questions were addressed in the study.

1. To what extent do students who participate in Supplemental Educational Services in reading and math demonstrate a higher level of achievement as compared to students in a control group who do not participate as determined by the 2010 and 2011 TAKS scale scores? **Null Hypothesis**: There is no

statistically significant difference in 2010 and 2011 TAKS scale scores between those students who participate in Supplemental Educational Services in reading and math and those who do not.

This research question was designed to examine whether student participation in SES had a significant effect on reading and math achievement. From the researched group of 163,300 students, an ANOVA test evaluated the TAKS scale scores during the 2010 and 2011 school years to compare the means of students tutored in reading and math. The results from the ANOVA were statistically significant with a significance level of .05. Table 135 illustrates the reading and mathematics trials for 2010 and 2011 of participants and non-participants.

Table 135

NULL Hypothesis Results for Research Question 1 by Grade Level and Year

		Reading											
		San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD		ALL Districts	
	Year	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
Grade													
6		***Accept***	***Accept***	***Reject***	***Reject***	***Accept***	Reject	***Reject***	***Reject***	***Accept***	***Accept***	***Accept***	***Reject***
7		***Accept***	***Accept***	***Reject***	***Reject***	***Reject***	***Accept***	***Reject***	***Reject***	Accept	***Accept***	***Reject***	***Reject***
8		Reject	Accept	***Reject***	***Reject***	***Accept***	***Accept***	***Accept***	***Reject***	***Accept***	Accept	***Reject***	***Reject***
9		Reject	Reject	Accept	Accept	Reject	Accept	Reject	Accept	Accept	***Accept***	***Reject***	***Accept***
10		Accept	Reject	Reject	Accept	***Accept***	Accept	Reject	Accept	Reject	Reject	Reject	***Accept***
11		Accept	Reject	Accept	Accept	***Reject***	Accept	Accept	Accept	***Accept***	Accept	***Accept***	***Accept***
		Mathematics											
		San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD		ALL Districts	
	Year	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
Grade													
6		***Accept***	***Accept***	***Reject***	***Reject***	Accept	Accept	***Accept***	***Accept***	***Accept***	Accept	***Reject***	Accept
7		***Accept***	Accept	***Accept***	***Accept***	***Reject***	Accept	***Reject***	***Reject***	Accept	Accept	***Reject***	***Reject***
8		Accept	Reject	***Reject***	***Reject***	***Accept***	Accept	***Accept***	***Reject***	***Accept***	Accept	***Reject***	***Reject***
9		Reject	Reject	Reject	Reject	***Reject***	***Accept***	Reject	***Accept***	Accept	***Accept***	Accept	***Accept***
10		Accept	Accept	Reject	Reject	***Accept***	***Reject***	Reject	Reject	Accept	Reject	Reject	Reject
11		Reject	Reject	Reject	Accept	Accept	***Accept***	Reject	Reject	***Accept***	Accept	Reject	Accept

Italics designate non-participant means that were higher than participant means.

Of the 144 trials in reading and mathematics, the null hypothesis was rejected on 62 occasions or 43% of the time. Of these 62 rejections, 31 of them occurred when the participants' scores were higher than those of the non-participants. Therefore, the hypothesis was either accepted or rejected while showing higher scores for non-participants during 78% of the trials. This means that of the 163,300 students that were eligible for SES services, only approximately 36,000 benefited.

When looking at each district, we see that some fared better than others. San Antonio ISD showed the highest reject rate at 42% (10 rejects out of 24 trials for 2010 and 2011). Houston ISD fared the worst with a reject rate of 8% (2 rejects out of 24 trials for 2010 and 2011). Dallas ISD, Fort Worth ISD, and Austin ISD had reject rates of 25%, 28%, and 13%, respectively.

2. To what extent are student demographic characteristics (i.e., gender and socio-economic status) related to differences in the academic achievement between the two group of students in 2010 and 2011? **Null Hypothesis**: There is no statistically significant difference in student achievement based on demographic groups.

This research question was designed to examine whether gender and socio-economic status had a significant effect on reading and math achievement. From the researched group, a factorial ANOVA estimated the impact of the main effects of participant status, gender, and socioeconomic status and the interaction effect of participant status on gender and socioeconomic status on students' achievement in reading and mathematics. The results from the ANOVA were statistically significant with a significance level of 0.05. Table 136 illustrates the reading and mathematics 2010 and 2011 trials by gender for each school district.

Table 136

NULL Hypothesis Results for Research Question 2 by Gender

2010										
Grades	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6-8	Accept	Accept	*Accept*	*Accept*	*Accept*	*Reject*	*Reject*	*Accept*	*Accept*	*Accept*
9-11	Accept	Accept	Accept	Accept	*Reject*	*Accept*	Accept	Accept	Accept	Accept
2011										
Grades	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6-8	Accept	Accept	*Accept*	*Accept*	Reject	Accept	*Accept*	*Accept*	*Accept*	Accept
9-11	Accept	Accept	Accept	Accept	Accept	*Accept*	Accept	Accept	Accept	Accept

Italics designate non-participant means that were higher than participant means.

Of the 40 gender trials in reading and mathematics, the null hypothesis was rejected on 4 occasions, or 10% of the time. Of these 4 rejections, 1 of them took place when the participants' mean was higher than that of the non-participants' mean. Therefore, the hypothesis was either accepted or rejected while showing a higher mean for non-participants during 97% of the trials. Only Houston ISD showed statistically significant scores where participants outscored non-participants (2011 mathematics, Grades 6-8).

Table 137 illustrates the reading and mathematics 2010 and 2011 trials by socio-economic status for each school district.

Table 137

NULL Hypothesis Results for Research Question 2 by Socioeconomic Status

2010										
Grades	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6-8	Undef	Undef	*Accept*	*Reject*	*Undef*	*Undef*	*Accept*	*Accept*	*Undef*	*Undef*
9-11	Undef	Undef	Accept	Accept	*Reject*	*Accept*	Accept	Accept	Accept	Undef
2011										
Grades	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6-8	Undef	Undef	*Accept*	*Accept*	Accept	Undef	*Accept*	*Accept*	*Undef*	Undef
9-11	Undef	Undef	Accept	Accept	Accept	*Accept*	Accept	Accept	Undef	Undef

Italics designate non-participant means that were higher than participant means.

Of the 40 socioeconomic status trials in reading and mathematics, 18 were unable to be calculated (Undefined-Undef) due to zero non-economically disadvantaged students in the non-participant student group. Of the remaining 22 trials, the null hypothesis was rejected on 2 occasions, or 9% of the time. Of these 2 rejections, none of them took place when the participants' mean was higher than that of the non-participants' mean. Therefore, the hypothesis was either accepted or rejected while showing a higher mean for non-participants during 100% of the remaining trials. None of the school districts showed statistically significant scores where participants outscored non-participants.

Table 138 illustrates the reading and mathematics 2010 and 2011 trials by participation status and socioeconomic interaction for each school district.

Table 138

NULL Hypothesis Results for Research Question 2 by Participation Status and Socioeconomic Interaction for Each School District

2010										
Grades	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6-8	Accept	Accept	*Accept*	*Accept*	*Undef*	*Undef*	*Accept*	*Accept*	*Accept*	*Accept*
9-11	Undef	Undef	Accept	Reject	*Accept*	*Accept*	Reject	Reject	Reject	Undef
2011										
Grades	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6-8	Undef	Undef	*Reject*	*Accept*	Reject	Undef	*Reject*	*Reject*	*Undef*	Undef
9-11	Undef	Undef	Reject	Reject	Reject	*Reject*	Reject	Accept	Undef	Undef

Italics designate non-participant means that were higher than participant means.

Of the 40 participation status and socioeconomic interaction trials in reading and mathematics, 14 were unable to be calculated (Undefined-Undef) due to zero non-economically disadvantaged students in the non-participant student group. Of the remaining 26 trials, the null hypothesis was rejected on 13 occasions, or 50% of the time. Of these 13 rejections, 9 of them took place when the participants' mean was higher than that of the non-participants' mean. Therefore, the hypothesis was either accepted or rejected while showing a higher mean for non-participants during 65% of the remaining trials. Dallas ISD showed statistically significant scores where participants outscored non-participants in 2010 mathematics, Grades 6-8 and 2011 reading and mathematics, Grades 9-11. Houston ISD showed statistically significant scores where participants outscored non-participants in 2011 reading, Grades 6-8 and 9-11. Fort Worth ISD showed statistically significant scores where participants outscored non-participants in 2010 reading and mathematics, Grades 9-11 and 2011 reading, Grades 9-11.

Table 139 illustrates the reading and mathematics 2010 and 2011 trials by participation status and gender interaction for each school district.

Table 139

NULL Hypothesis Results for Research Question 2 by Participation Status and Gender Interaction

2010										
Grades	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6-8	Accept	Accept	*Accept*	*Accept*	*Accept*	*Accept*	*Accept*	*Accept*	*Accept*	*Accept*
9-11	Accept	Accept	Accept	Accept	*Accept*	*Accept*	Accept	Reject	Accept	Reject
2011										
Grades	San Antonio ISD		Dallas ISD		Houston ISD		Fort Worth ISD		Austin ISD	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
6-8	Accept	Accept	*Accept*	*Accept*	Accept	Accept	*Accept*	*Accept*	*Accept*	Accept
9-11	Accept	Accept	Reject	Accept	Reject	*Accept*	Accept	Accept	Accept	Accept

Italics designate non-participant means that were higher than participant means.

Of the 40 gender trials in reading and mathematics, the null hypothesis was rejected on 4 occasions, or 10% of the time. Of these 4 rejections, all of them took place when the participants' mean was higher than that of the non-participants' mean. Therefore, the hypothesis was either accepted or rejected while showing a higher mean for non-participants during 90% of the trials. Houston ISD and Dallas ISD showed statistically significant scores where participants outscored non-participants in 2011 reading, Grades 9-11. Fort Worth ISD and Austin ISD showed statistically significant scores where participants outscored non-participants in 2010 mathematics, Grades 9-11.

3. To what extent are differences in the academic growth of students associated with grade levels? **Null Hypothesis**: There is no statistically significant difference in student achievement based on grade level.

This research question was designed to examine whether grade level had a significant effect on reading and math achievement. From the researched group, a factorial ANOVA estimated the impact of the main effects of participant status, grade level, and their interaction effect on students' achievement in reading and mathematics. The results from the ANOVA were statistically significant with a significance level of 0.05. Table 140 illustrates the reading and mathematics trials for 2010 and 2011 of participant status and grade level. New scores represented Grades 6-8, and Old scores represented Grades 9-11.

Table 140

NULL Hypothesis Results for Research Question 3 by Participant Status and Grade Level

	Reading				
	2010			2011	
	Old	New		Old	New
grade	Reject	***Reject***		Reject	***Reject***
participant_status * grade	Reject	***Accept***		Accept	***Accept***
	Mathematics				
	2010			2011	
	Old	New		Old	New
grade	Reject	***Reject***		Reject	***Reject***
participant_status * grade	Accept	***Accept***		Accept	***Accept***

Italics designate non-participant means that were higher than participant means.

Of the 16 trials in reading and mathematics, the null hypothesis was rejected on 9 occasions or 56% of the time. Of these 9 rejections, 5 of them took place when the participants' scores were higher than that of the non-participants' scores. Therefore, the hypothesis was either accepted or rejected while showing higher scores for non-

participants during 69% of the trials. In every new trial, which represented Grades 6-8, the participant mean was lower than the non-participant mean. This means that of the 163,300 students that were eligible for SES services, only approximately 50,623 benefited. These students primarily resided in the Grades 9-11 (Old Trial).

4. To what extent does student attendance produce a higher level of academic achievement in students as determined by the 2010 and 2011 TAKS scale scores? **Null Hypothesis**: There is no statistically significant difference in student achievement based on student attendance.

This research question was designed to examine whether student attendance had a significant effect on reading and math achievement. From the researched group, a factorial ANOVA estimated the impact of student attendance (Tier 1–-less than 20 hours of participation in Supplemental Educational Services and Tier 2–-more than 20 hours of participate in Supplemental Educational Services) on students' achievement in reading and mathematics. The results from the ANOVA were statistically significant with a significance level of 0.05. Table 141 illustrates the reading and mathematics trials for 2010 and 2011 student attendance.

Table 141

NULL Hypothesis Results for Research Question 4 by Participant Status and Attendance

		Reading			Mathematics	
Grade	Source	2010	2011		2010	2011
6	Between Groups	***Reject***	Accept		***Reject***	Accept
7	Between Groups	***Reject***	***Reject***		***Reject***	***Reject***
8	Between Groups	***Reject***	***Accept***		***Reject***	***Reject***
9	Between Groups	Reject	Accept		Reject	Reject
10	Between Groups	Reject	Accept		Reject	Reject
11	Between Groups	Accept	Accept		Accept	Accept

Italics designate non-participant means that were higher than participant means.

Of the 24 trials in reading and mathematics for 2010 and 2011, the null hypothesis was rejected on 15 occasions, or 63% of the time. Of these 15 rejections, 6 of them took place when the participants' scores were higher than that of the non-participants' scores. Therefore, the hypothesis was either accepted or rejected while showing higher scores for non-participants during 75% of the trials. This means that of the 163,300 students that were eligible for SES services, only approximately 40,825 benefited to the point where they scored higher than non-participants.

Conclusions and Recommendations

This research study was intended to observe whether student participation, demographics, grade level, and attendance had a significant effect on reading and math achievement. The results, which were mixed, did not fully support the null hypothesis that there was no statistically significant difference in reading or math achievement for the groups of students based on the observed variables. However, the results displayed a pattern of inconsistency that suggests that the general effect of SES on student achievement is relatively small, given the magnitude and scope of the program and the number of students observed.

Overall participation showed that SES programs were ineffective in middle school grades (Grades 6 through 8). Favorable results (rejected hypothesis and higher participant mean scores) were observed in only 3 of the 72 trials in Grades 6 through 8. This trend continued when we looked at the demographic results. The SES treatment in Grades 6 through 8 shows very limited effectiveness along demographic variables. Of the 48 trails, we observed only 1with favorable results. Favorable results for attendance were also negative. Of the 12 trials, we observed none with favorable results.

In Grades 9 through 12, the results varied. The majority of data supported the null hypotheses that there was no significant statistical difference in TAKS reading or math scale scores for these students based on participation, demographics, grade level, and attendance. Conversely, we cannot overlook the fact that significant differences were established, therefore leading me to conclude that there are pockets of supporting data that show that supplemental instruction in reading or math did boost the students' achievement scores.

There have been a limited number of studies that evaluate the effectiveness of supplemental and remedial programs (Fashola, 2002). The majority of these studies have been concentrated on after-school tutoring rather than federally funded private supplemental instruction. In a 1996 study of the Lighthouse program to test the effectiveness of an after-school program, Smith, Roderick, and Degener (2005) reported that it was successful for third and sixth grade participants. Conversely, eighth grade students exhibited little to no increases in academic achievement. We can make the argument that the explorations into supplemental instruction have varied due to the numerous types of programs that have been offered to the public. All tutoring programs and SES are not equivalently successful in raising achievement scores (Mayhall & Jenkins, 2001). The effectiveness of the programs depends on the nature, components, and design of each individual supplemental program.

These results advocate that additional study is desirable to dig deeper into the methods used to evaluate SES programs. Generating a laborious evaluation protocol may assist states and LEAs in executing appraisals which do not culminate in precise overall results irrespective of the tendency of the results. Based on these results, it appears that we have no reason to be optimistic about the prospective for SES to

constructively influence student achievement within current conditions. As the need grows for the development of SES evaluations by state and LEAs, conceivably a more focused narrative of valuable programs will emerge to propel the imminent reform efforts of the overall SES system. With the chief objective of NCLB being student proficiency mastery in core academic areas, the development of students in the recognized aptitude levels would be interesting areas toward which to direct evaluation method attention. Some LEAs and state agencies have put systems in place, but trends have shifted from ascertaining variations in ability levels to determining effect sizes (Potter & Ross, 2005; Potter et al., 2007; Ross, Harmon, & Wong, 2009).

State agencies, as with LEAs, have substantial obligations under NCLB and SES. Like LEAs, they too are burdened with inadequate capability to implement their duties successfully. States agencies are accountable for vetting providers for signs of effectiveness and for collecting and maintaining a catalog of acceptable providers. These agencies are also held accountable, by law, for checking provider actions for potential malfeasance or improper conduct. State agencies must also scrutinize and enforce LEA compliance with guidelines and procedures dictated by federal law as seen within other programs that fall under the Title I umbrella. Last, if state agencies are accountable for assessing providers' academic achievement results within SES, then they must follow through. A more rigorous and enforced evaluation process will encourage state agencies to raise the standards for provider performance and discipline providers that consistently exhibit unsatisfactory performance over a set period of time. Simultaneously, evaluation results can be a positive resource to all providers as they go through the natural cycle of improvement.

We must also do a better job of data disaggregation when it comes to results. Separating the influences within the SES program on participants that made academic gains can be problematic. Favorable results of participants in the SES might stem from the fact that some students are more inspired and tenacious in character or who have more actively involved parents than those of non-participants (Rickles & Barnhart, 2007).

Recommendations for Future Research

In today's education system, the main focus of the Supplemental Education Service system of support is to improve the academic achievement of all Title I students. Today's educational leaders face an assortment of multi-faceted problems, and with these challenges new and creative ways to increase student achievement effectively and efficiently within a predetermined system must be found. No Child Left Behind was implemented to impact the achievement gap, dropout rate, and to insure that our students are competitive in a global society that demands high competency in critical areas. This study only initiates the dialogue on the effectiveness of Supplemental Education Services, and additional research is needed not only to validate these results but also to study additional variables that may influence academic achievement in these SES programs. This researcher suggests the following recommendations:

1. A longitudinal study that tracks SES students for multiple years is desired to evaluate the comprehensive efforts of extended tutoring methods. Uniformity through several years would validate conclusions that deal with program achievement levels.
2. TAKS scale scores were employed as the measurement instrument in this study. These scores are rigid in nature and uncompromising when viewing this from an evaluation standpoint. Future research should include additional

measures that allow us to better comprehend and construe the research finding to measure the success of these SES programs.

3. A replication research study can be performed within comparable large urban school districts in locations around the country. This would help validate or disprove some of the conclusions found in this study.
4. A mixed-methods methodology which views SES modes of instruction can be performed to equate and contrast the impact of diverse supplemental educational programs on students' academic achievement.
5. A comprehensive study can be performed to evaluate the effects of motivational factors (extrinsic and intrinsic) on the concentration of involvement of students with respect to these tutoring programs. This would be most effective when looking at the differences between middle and high school students.
6. Careful thought must be given when looking at the confounders of this study. Within this parent-driven customer friendly program, treatment can only take place when the parent follows through with the application process. An inquiry should be conducted on the variances between those parents that show initiative to request tutoring for their children as compared to those who do not.
7. Additional inquiry is needed to explore additional factors that may impact student achievement in an organized federally funded tutoring program.

Implications

According to the federal guidelines that govern Supplemental Education Services, the evaluation responsibility lies with each state to appraise SES providers to determine

their level of effectiveness, while trying to raise the academic standards within their tutored population. While the federal government has allocated and disbursed billions into SES since its inception, to date there is no evidence that any state receiving these funds has carried out an in-depth or methodical review of the value of SES. Research has revealed that in most cases where states are attempting to assess the system, they are finding obstacles not only with the evaluation design but also within the funding components needed to carry out such a comprehensive assessment (Barton, 2004; Minnici & Bartley, 2007; Owen, 2003; U. S. Government Accountability Office, 2006;). The process of effectively evaluating SES will be convoluted and require additional funding. In the near future, a thorough SES evaluation system must be designed and funded, and the U. S. Department of Education needs to lead the way.

Existing reviews are normally directed by larger districts that are focused on monetary and budget areas that are related to the effectiveness of the programs. Even though research has confirmed that these programs can be effective in some cases, most of the current SES evaluations are devoid of positive results that show increases in student academic achievement (Bloom, 1984; Lauer et al., 2004; Moss et al., 2001; Turnbull, 2005). The state of Texas is currently devoid of any statewide reviews of SES. This is true though SES has been a part of the Texas educational landscape for the past ten years.

The lone course of action to eliminate ineffective practices within the current SES system is by an effective state evaluation system (Chicago Public Schools, 2009; U. S. Department of Education, 2005). When states direct little attention and due diligence to the evaluation process, it handcuffs school districts and forces them to make contractual commitments with SES providers whose effectiveness is questionable and lacks

documented evidence to support their results. This essentially wastes millions of federal dollars, as documented in the results of this study. What gives additional significance to this is that students participating in these programs are not getting the advertised and mandated assistance they were promised to increase their academic skills. The evaluation of SES practices must start at the state level; effective providers, as defined by the evaluation process, should be maintained in an approved provider database. The overall evaluation results should dictate directional system changes as determined by outcomes which can then place emphasis on the necessary shifts in defining program structures that will lead to increased academic performance for all participating students. Many research studies exists that place emphasis on the effectiveness of out-of-school instructional treatments, and this evidence should be taken into consideration when designing evaluations in order to improve and rate the effectiveness of these highly funded programs (National Institute on Out-of-School-Time, 2008). Leaders in education, principally those accountable for the growth of the academic performance of Title I students, have to be mindful of the influence and potential of effective supplemental education programs.

While there is evidence that some academic achievement increases were established in this research study, the participants benefiting from these instructional treatments must be significantly increased to validate the effort and resources consumed in implementing these programs across Texas. The foremost purpose of Title I is to ensure that students of poverty have the same academic successes as their counterparts, and all federally funded Title I programs must abide by this expectation. Thus, the review and consequent research-based next steps must be taken to ensure that Supplemental Education Services are successful.

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APPENDIX

APPROVAL FOR SUCCESSFUL DEFENSE

SETON HALL UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN SERVICES
OFFICE OF GRADUATE STUDIES

APPROVAL FOR SUCCESSFUL DEFENSE

Doctoral Candidate, **Carlos Glenn Lee,** has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ed.D.** during this **Summer Semester 2013**.

DISSERTATION COMMITTEE
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