

**THE RELATIONSHIP BETWEEN SMALL LEARNING COMMUNITIES
AND STUDENT PERFORMANCE AS IDENTIFIED BY THE
ACADEMIC EXCELLENCE INDICATOR SYSTEM AT ROBERT E. LEE
HIGH SCHOOL IN NORTH EAST INDEPENDENT SCHOOL
DISTRICT, SAN ANTONIO, TEXAS**

A Record of Study

by

BOBBIE JO TURNBO

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

December 2007

Major Subject: Educational Administration

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Approved by:

Co-Chairs of Committee, Virginia Collier

John Hoyle

Committee Members, Kim Dooley

Alvin Larke

Head of Department, Jim Scheurich

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ABSTRACT

The Relationship between Small Learning Communities and Student Performance as Identified by the Academic Excellence Indicator System at Robert E. Lee High School in North East Independent School District, San Antonio, Texas. (December, 2007)

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Co-Chairs of Advisory Committee: Dr. Virginia Collier
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The purpose of this research was to investigate the relationship of small learning communities (SLCs) and student performance for ninth grade students at Robert E. Lee High School in North East Independent School District (NEISD). For this study, student performance includes achievement on reading and math Texas Assessment of Knowledge and Skills (TAKS), attendance rates, and number of dropouts. Research included data for years 2002-2003 through 2005-2006 retrieved from the Academic Excellence Indicator System (AEIS).

An extensive review of the literature revealed support for implementation of the SLCs model for high school reform. Recent research indicates that student performance will improve if SLCs are fully implemented and supported using a framework, such as Oxley's five domains for SLCs.

The first two questions of this study addressed reading and math TAKS data by ethnic, economically disadvantaged, and special education subpopulations. The third question in this study addressed attendance rates and dropouts.

This study found a significant difference in reading TAKS scores for the ethnic subpopulations with the implementation of SLCs. Economically disadvantaged students' and special education students' scores also showed significant gains in reading scale scores over the four years of the study.

Data from this study revealed that math TAKS scale scores showed a significant increase in the economically disadvantaged and special education subpopulations after implementation of the SLCs. In addition, significance was found in reducing the achievement gap between special education and regular education students on math TAKS.

Attendance rates showed no statistical significance after the implementation of the SLCs. An analysis of dropout rates was not possible due to low dropout numbers. The empirical data would not support meaningful analysis.

Further investigation is needed to gain a better understanding of the relationship of SLCs on student performance, especially for African American and Hispanic students in math. Additional factors such as degree of implementation and influence of the administrative leadership needs to be explored.

DEDICATION

This record of study is dedicated to the most important people in my life, my family. First, I would like to dedicate this study to my mother, Willie M. Giddens, who left this world long before I was ready to let her go. She showed me how to work hard, play hard, and love hard. She also taught me that 'anything' is possible if you have a dream and a positive attitude.

I would also like to dedicate this work to my husband of 32 years, Jack Wayne Turnbo. He has supported me every step of this journey. He has been part chauffeur -- driving thousands of miles between San Antonio and College Station, so that I could study a few extra hours Part editor -- typing and proofing pages of this study Part cheerleader -- always encouraging me to push forward, finally my best friend, and the love of my life.

This record of study is also dedicated to my daughter, Tara Nicole Silvers. She has been the center of my world since the day she was born. Her determination, courage, loyalty, giving heart, and kind soul inspire me every day. She has given me more joy than she will ever know.

Finally, I would like to dedicate this work to my son-in-law, Ryan Silvers, who has become an important part of our family and lives. He is a strong, patient, and caring man that I love dearly.

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This record of study is dedicated to my beloved family; however, it is important to acknowledge some very special individuals that have made this ‘dream’ of earning a doctoral degree a reality. I want to acknowledge the professional guidance, support, and cooperation of the professors and staff of the Educational and Human Resource Department at Texas A&M University, especially Joyce Nelson and Clarice Fulton.

I must acknowledge the person who first inspired me to take this journey, Dr. Stephen Stark. His eternal optimism, dedication to ‘his students,’ and his common sense approach to education made him a ‘hero’ to his students. His retirement saddened and frightened me until I met with Dr. Virginia Collier. Dr. Collier assumed the duties of co-chair for my committee after Dr. Stark announced his retirement. She willingly spent hours editing, counseling, and encouraging me in completing this record of study. I will always appreciate her time and patience.

I also owe a great deal of appreciation to 12th man, Dr. John Hoyle. Dr. Hoyle was also called upon at the last hour to move from serving as a member of my committee, to serving as co-chair with Dr. Collier. He found time to read and provide guidance for one more hopeful graduate student. He exemplifies a true Aggie.

It is with utmost admiration and respect that I acknowledge Dr. Kim Dooley and Dr. Alvin Larke for serving as members of my committee. Dr. Dooley joined my committee at a time when I was very distraught over the loss of a beloved professor and committee member, Dr. Gonzolo Garcia, who died in a tragic automobile accident. She provided encouragement and hope. Dr. Larke stepped up to assist with my study after

the retirement of Dr. Julian Trevino. Dr. Larke was there when he was needed most, filling in as a substitute during my proposal hearing and comps, and officially joining my committee for this record of study.

In addition to the members of my committee, I want to acknowledge Dr. Linda Skrla and Dr. Katherine MacKenzie for forcing me out of my little quantitative box. They are both master teachers. I want to thank Dr. Homer Tolson who taught me ‘WHY’ and worked hard to teach this statistically challenged student.

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CHAPTER I

INTRODUCTION

No Child Left Behind (NCLB) has left American public educators faced with the difficult challenge to educate every child in the country. Educators are accountable for teaching children who are under motivated, disengaged, and often underachieving (Muir, 2001), resulting in a critical need for school improvement (Cobb, Abate, & Baker, 1999). Lawrence Hardy (2002) tells us that large high schools are not meeting the needs of all students as dictated in No Child Left Behind (NCLB) legislation. Hardy states that large schools are often guilty of stifling student creativity and providing a perfect climate for failure. Large schools often create increased “competition, conformity, intolerance, and mean-spiritedness” (Hardy, 2002).

Majorities of the 14 million students in public schools continue to fare poorly on national and statewide performance assessments, and many eventually tune out or drop out of school. Dropout rates are soaring, reaching 50 percent and higher in some urban areas. Large enrollment has continued to increase with approximately 70 percent of American teens attending schools enrolling 1000 or more students. These large schools are failing to meet the needs of all students. We must develop more efficient and viable alternatives to the large traditional high school (Cater, 2005) so that all students can be successful.

This record of study follows the style of *The Journal of Educational Research*.

One reason attributed to dropouts, student-disconnect, and low level of achievement is that too many students attend large, impersonal schools, where they are not engaged in learning. They often lack any meaningful relationships with adults, and are increasingly alienated from school (NMSA, 2004). Emerging chief among the reform options designed to engage these students is the development of smaller learning communities. Small learning communities are often autonomous small schools. However, some SLCs are developed to operate within larger comprehensive high schools (Cater, 2005). Reconstructing our high schools by creating small learning communities (SLCs) represents a giant step toward personalizing education and establishing the right conditions for enhanced student achievement.

Historical Background

The structure of American high schools has undergone many changes over the past 40 years. In the 1960s, high school reformers first began organizing schools-within-schools, focusing on career/vocational pathways. In the 1970s, schools progressed toward developing magnet programs, career academies, and mini-schools (Oxley, 2006). Charter schools became part of the high school evolution in the 1980s - 1990s, and are still strong advocates for small schools.

Oxley (2006) describes how the growth of SLCs parallels the development of the effective schools movement. SLCs encompass elements of instruction that focus on the learner and learning. The phrase 'small learning communities' is often used in a generic sense. It describes numerous structures such as teams, houses, and magnet schools.

Successful SLCs encompass the school redesign efforts intended to create smaller, learner-centered units in the high schools.

A series of studies and national reports released in the 1980s identified many of the shortfalls in the organizational, curricular, and instructional practices found in traditional comprehensive public schools (Boyer, 1983). Research found many teachers and students in large schools were plagued with apathy, and students were becoming alienated from school. In addition, curriculum was often fragmented, superficial, and disconnected from real life. The small schools literature has provided clearly established data that supports small schools as more productive and effective than large schools (Raywid, 1999).

The movement toward small learning communities was first led by the Carnegie Corporation Council on Adolescent Development. The Carnegie Corporation funded research in the ‘educational reform movement’ that began in the early 1980’s (Jackson & Davis, 2000). This research was one of the precursors to the high school movement toward creating small schools (Carnegie Council on Adolescent Development, 1989; Hamburg, 2000; Jackson & Davis, 2000). In 1996, *Breaking Ranks: Changing an American Institution* (NASSP, 1996) and the Carnegie Foundation for the Advancement of Teaching, began to lay the groundwork for small learning communities in high schools. This movement was supported largely by research driven by the Coalition of Essential Schools (CES). The Coalition of Essential Schools was established in 1984 in response to an earlier study questioning the efficacy of the large high school. The small school movement found broad-based support from funding sources as diverse as the U.S.

Department of Education, the Carnegie Corporation, and the Bill and Melinda Gates Foundation (Cater, 2005).

Recommendations for Small Learning Communities/Five Domains

Breaking Ranks (NASSP, 1996) offered more than 80 recommendations for improving schools. *Breaking Ranks II* (NASSP, 2004) condensed these into 31 recommendations clustered in three core areas: collaborative leadership and professional learning communities; personalization; and curriculum, instruction, and assessment. Three core areas encompass the five domains identified for successful small learning communities. The five SLC domains include interdisciplinary teaching and learning teams, rigorous, relevant curriculum and instruction, inclusive program and practices, continuous program improvement, and building/district support (NWREL, 2002).

Barriers to Small Learning Communities

Three barriers to small learning communities have been identified by Oxley (2001). Oxley explains that the barriers include competition for services, operation of SLCs along with a traditional organization, and instruction that does not change. These three barriers must be addressed for successful implementation of a SLC on a traditional campus.

Small Learning Communities Models and Strategies

Sammon (2000) describes small learning communities by clustering them into six main models: career academies, houses, small learning community (SLC)/school-within-school, magnet schools, and ninth grade/freshmen academies, and

pathways/clusters. SLC (2002) research has identified numerous strategies for successful implementation of SLCs. Sammon's (2000) work provides six main strategies for SLCs including freshman transition, multiyear groups, alternative scheduling, adult advocate systems, teacher advisory, and academic teaming.

Student Performance

Decades of research on school size provides substantial evidence that small high schools provide more favorable student outcomes than large high schools (Cotton, 2001). Small schools have greater student holding power with lower dropout rates, more students involved in school activities, and fewer incidents of student misconduct and violence.

Research indicates that in order for there to be lasting improvement and positive changes in beliefs and student behaviors, that there must be a shift in the school's culture and philosophy. This is essential for any restructuring to be successful. Wasley, Powell, Mosak, King, Holland, Gladden, & Fine (2000) stated that smaller school size helps faculty and staff lead schools to improved performance by allowing for personal connections between all stakeholders, including students, parents, faculty and staff, and community members.

A growing body of literature has examined the importance of students' sense of belonging in school and the relationship to a number of important outcomes in student performance. Researchers have suggested that the sense of belonging is particularly important during adolescence (Anderman, 2003). SLCs can have an important impact on the students' sense of belonging, and create a wide range of academic and psychosocial

outcomes. Raywid (1999) states that students learn better and learn more when they are in a small learning environment. SLCs are essential in developing school-level interventions to address the sense of alienation some teens experience in high school (Anderman & Freeman, 2004).

Hamburg (2000) tells us that small groups provide an opportunity for students to think creatively and to develop higher order thinking skills. SLCs create an environment where students can meet or exceed high academic standards. In addition, students can develop the capacity to lead healthful lives, physically and mentally; to become caring, compassionate, and tolerant individuals; and to become active, contributing citizens of the United States and the world.

In the aftermath of violence that has occurred in public schools across the country, it is becoming more evident that it “takes a village” to create a safe learning environment safe for all students. The classroom teacher can no longer meet all of the educational, social, and emotional needs of his or her diverse learners in isolation. Small learning communities facilitate teachers, counselors, and administrators working together. Professional learning communities encourage collaborative planning, improves instruction, and produces a nurturing educational environment (Bloss, Bloss, & Marlow, 2000).

The challenges that face high school teachers and students have been exaggerated by the accountability of NCLB (Kain, 2003). SLCs provide teachers with collaborative and supportive work groups. SLCs offer students instructional structures that encourage stable relationships with teachers and peers and a learning environment that promotes

student success (Jackson & Davis, 2000). Students and teachers in schools that have implemented SLCs and its associated practices consistently report more positive and productive learning environments (Arhar, 1990, 1997; Dickinson & Erb, 1997; Lee & Smith, 1993). Several large-scale and comprehensive studies have been conducted that successfully demonstrate the positive effects of SLC teams on student outcomes (Flowers & Mertens, 2004). In order to meet the challenge of accountability for student performance, we must create small learning communities so that students are not lost in a frenzy of high stakes standardized testing (Kain, 2003), and large impersonal schools.

Statement of the Problem

Growing up in the United States includes a landmark event in which a young person moves from a primary, small, intimate learning environment to a secondary, large, impersonal environment -- creating a perfect breeding ground for academic failure, grade retention, and increased dropouts. There is a crucial need to help adolescents through this difficult transition period and to prevent them from disconnecting from school. Educators must provide an environment that will help build a sense of belonging and self-esteem, while developing flexible and inquiring minds.

High school students have a strong need for a sense of belonging and affiliation. When students are part of a small group, they are more likely to feel connected to the school (Jackson & Davis, 2000), and less likely to drop out. Research on student achievement supports the development of small learning communities, citing that high school students are more successful when they attend small schools. The small school

environment positively affects academic achievement, attendance rates, and graduation rates (Klonsky, 1998).

“Regardless of where they live, incoming freshmen face the same problems nationwide, such as anxiety about entering a new school, social pressures, and increased academic pressure and responsibility” (Clark & Hunley, 2007, p. 41). Duffrin’s (2003) study (as cited in Hoyle & Collier, 2006) warns that students who fall behind during the ninth grade are five times more likely to drop out of school. According to Kaufman, Kwon, Klein, and Chapman (1999) even with the current efforts to increase high school completion, approximately 5% of all high school students end up dropping out of school. The increased accountability standards set by NCLB have created an urgent need for change. Educators have released data indicating that students attending schools that have implemented SLC strategies have lower rates of dropouts (Flowers & Mertens, 2004). Heath (2005, p. 3) states that when SLCs are part of the campus structure, and that there is a “separate space combined with teaming, and heightened visibility, that there is an increased sense of safety for students in all aspects of school life.”

Purpose of the Study

The purpose of this study was to determine the relationship of small learning communities on student performance. The Texas Assessment of Knowledge and Skills (TAKS) scale scores as reported by the Academic Excellence Indicator System (AEIS) will be used to determine if there is a relationship between student performance and the

implementation of small learning communities at the ninth grade level at Robert E. Lee High School in North East Independent School District, San Antonio, Texas.

The outcome of this study has determined the relationship that the implementation of a small learning community has had on student performance for reading and math TAKS, attendance rates and the number of dropouts. This information may be utilized to evaluate the effectiveness of current SLCs, to identify needed modifications in the SLC programs, and will provide data for future implementation of SLCs in North East Independent School District.

Research Questions

This study addresses the following three questions.

1. What is the relationship between Small Learning Communities (SLCs) and student achievement as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and math for ethnic subpopulations at Robert Lee High School ninth grade academy in North East Independent School District?
2. What is the relationship between Small Learning Communities (SLCs) and student achievement as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and math for economically disadvantaged and special education subpopulations at Robert Lee High School ninth grade academy in North East Independent School District?

3. What is the relationship between Small Learning Communities (SLC) and attendance and dropout rates at Robert E. Lee High School ninth grade academy in North East Independent School District as reported in the Academic Excellence Indicator System (AEIS)?

Operational Definitions

The findings of this study have been reviewed within the context of the following definitions of operational terminology.

Academic Excellence Indicator System (AEIS): AEIS is a statewide system database of information regarding the broad operations and achievements of all Texas independent school districts and their respective campuses.

Academic Teaming: Teaming organizes groups of teachers across departments, so they share the same students. Teaming responsibilities include; shared responsibility for curriculum, instruction, evaluation, scheduling, and discipline of a group of 100-150 students. Teaming is a way to personalize the learning community by building a sense of community so students learn more and they can meet higher standards (NWREL, 2002).

Achievement Gap: Achievement gap is a persistent, pervasive, and significant disparity in educational achievement and attainment among groups of students as determined by a standardized measure (PSNC, 2007, p. 1).

Adult Advocate Systems: These systems insure that each student has an adult advocate. Many times students report that they do not have an adult figure to go to for advice or assistance, and need the additional support to be successful in school (USDOE,

2001).

Alternative Scheduling: This SLC strategy allows for creative student scheduling. This can include block schedules, extended periods, longer days, or increased number of days in a school year (USDOE, 2001).

Bexar County, Texas: Bexar County is a geographic region defined by the state of Texas that encompasses the greater San Antonio area and shares borders with seven other state identified counties.

Career Academies: A career academy is a school-within-a-school that focuses on a broad occupational area, such as engineering, natural resources, or the hospitality industry. Teachers and students are self-selected. The career academy curriculum directs students' attention to the application of school-based learning by including in its curriculum work-based learning experiences with businesses in the community (USDOE, 2001).

Coalition of Essential Schools: The Coalition of Essential Schools is an organization created by Ted Sizer as part of the whole-school reform for high schools. The first CES began in 1984 with twelve schools.

Freshman Transition Activities: All ninth grade students are often placed in a separate setting from older students. Special attention is given to assigning mentors while providing exploration courses to assist students in selecting pathways to college and careers (USDOE, 2001).

House: House plans divide students in a large school into groups either by grade level or across grade levels. House arrangements may be yearlong or multiyear. Each

house usually has its own extracurricular and social activities (USDOE, 2001).

Influence: Influence is the “effect on something,” the effect of something on a person, thing, or event (Encarta, 2005).

Impact: Impact is a change or changed state occurring as a direct result of action by somebody or something else (Encarta, 2005).

Magnet School: A magnet school offers specialized curriculum and usually pulls students from all over the area not just within the schools attendance boundaries.

Multi-year Groups: This strategy involves a group of students who remain with a team of teachers for a period of two or more years (USDOE, 2001).

Ninth Grade Academy: The ninth grade academy is a school-within-a-school organized around an interdisciplinary team of English, math, science, and social studies teachers. Incoming freshmen are connected to a select team of teachers using research proven instructional strategies to teach the curriculum as well as address their students' needs more personally. Teachers work in a collaborative environment and are committed to the learning of the students they share.

North East Independent School District: This is a school district of approximately 140 square miles located in the north central and northeast areas of Bexar County, Texas. Approximately 60,000 students are currently enrolled with 7973 employees.

Pathways/Clusters: Career clusters or pathways are broad-based industry areas, which include all careers from technical through professional levels. They provide a structure that organizes students according to their career goals and interests and become

the foundation for integration of high academic standards, technical skills, and knowledge. Career clusters identify academic and technical skills needed by students as they transition from high school to postsecondary education and/or employment (USDOE, 2001).

Public Education Information System (PEIMS): PEIMS is a data collection system developed by the Texas Education Agency (TEA) (HB 72 of 1984) to provide a single system for collecting school district information and to maintain the information in one common coordinated database for accountability. PEIMS is the primary method by which school districts in the state of Texas deliver data to TEA. School districts are required to submit data to TEA four times a year through PEIMS: fall, mid-year, summer, and extended-year.

Relationship: A relationship is defined as a connection, association, or the condition of being related.

Small learning community (SLC): A SLC is any separately defined, individualized learning unit that may be in a separate building or within a larger school setting. Students and teachers are usually placed in teams, and frequently have a common area of the school for classes.

State Board of Education (SBOE): The SBOE consists of 15 elected members representing different regions. The board oversees the public education system of Texas in accordance with the Texas Education Code. One member is appointed by the governor to serve as chair of the committee.

Student Performance: Campus, grade level and sub-group population data as

reported by the Texas Education Agency (TEA) annual administration of the Texas Assessment of Knowledge and Skills (TAKS) and data reported in the Academic Excellence Indicator System (AEIS). Standardized test scores, attendance rates, and dropout rates will be included in the study.

Teacher Advisory: Advisories offer students an opportunity to meet on a regular basis with an adult to assist with personalizing the high school experience for each student. Advisories usually consist of approximately 20 students to one advisor. The advisory may meet weekly or less often. Advisory curriculum is often written by the campus teachers designed to meet the needs of their particular campus.

Texas Assessment of Knowledge and Skills (TAKS): A completely revised standardized testing program implemented during the academic year of 2002-2003 across all public school campuses in the State of Texas. The Texas Assessment of Knowledge and Skills (TAKS) include a more advanced alignment with the Texas Essential Knowledge and Skills (TEKS) than any prior assessment format. TAKS has been developed to better reflect good instructional practice and more accurately measure student learning (TEA, 2007).

Texas Education Agency: The Texas Education Agency (TEA) is comprised of the commissioner of education and agency staff. The TEA and the State Board of Education (SBOE) guide and monitor activities and programs related to public education in Texas. The TEA administers the statewide assessment program, maintains a data collection system on public schools for a variety of purposes, and operates research and information programs. State and federal funds support the operational cost for the TEA

(TEA, 2007).

Texas Education Agency Databases: The Texas Education Agency (TEA) is comprised of the Commissioner of Education and agency staff. The TEA and State Board of Education (SBOE) guide and monitor activities and programs related to public education in Texas. Under the leadership of the Commissioner of Education, the TEA administers the statewide assessment program, maintains a data collection system on public schools for a variety of purposes, and operates research and information programs. The data includes information from the PEIMS and AEIS.

Assumptions

The findings of this study have been preceded by the following assumptions:

1. Robert E. Lee High School has implemented SLCs on the ninth grade level.
2. Interpretation of the data collected accurately reflects the relationship SLCs have on student performance for the identified populations.
3. The methodology proposed and described here offers a logical and appropriate design for this particular research project.

Limitations

The findings of this study are limited by the following:

1. The scope of this study is limited to ninth grade students at Robert E. Lee High School in the North East Independent School District in San Antonio, Texas for the year 2002-2003 through 2005-2006.

2. This study is limited to the information-acquired from the literature review and Texas Education data analysis.
3. The findings of this study may be generalized only to Robert E. Lee High School in North East Independent School District, San Antonio, Texas.

Significance of the Study

High school students continue to fare poorly in American traditional high schools, and Hoyle and Collier (2006, p. 73) tell us that “it is common knowledge that reasons surrounding the dropout problem” can be contributed to many factors facing today’s students, including “demographic, social, political, and economic” status. They also cite “child abuse, poverty, family instability, unemployment, and discrimination” as contributing to the challenge of engaging high school students.

This We Believe...and Now We Must Act (Erb, 2003) along with *Turning Points 2000* (Jackson & Davis, 2000) were the first sources to provide research based information aimed at assisting educators and policy makers in seeing the whole picture regarding the importance of small schools (Erb, 2003). In the face of No Child Left Behind (NCLB) legislation and its focus on state standards of accountability, educators are feeling the pressure of raising achievement while addressing the development of the whole child (L’Esperance, Farrington, & Fryer, 2005). Over the past 30 years, the majority of research on high school size suggests that we need to move to smaller schools (Gregory, 2000).

Cotton (2001) encourages schools to implement SLCs stating that they provide

greater personalization and tend to have a greater focus on active learning and problem solving. In addition, SLCs provide students opportunities to engage in project-based and community-based learning experiences. Students that are part of SLCs often have higher attendance, lower mobility in transferring to other schools, and higher graduation rates (Cotton, 2001).

The SLCs are ‘at risk’ in today’s high schools due to the financial commitment that SLCs require. Budget cuts and the financial deficits in many school districts have resulted in administrations selecting to cut SLCs leaving the ‘small school/team philosophy’ in the past. This study is an attempt to examine the relationship that SLCs have on three areas: academics, attendance, and dropout rates.

The methodological protocol and the research-based literature developed by this study will provide data that will prove to be a basis for future study. The comparison data will provide a justification for the implementation and/or maintenance of SLCs.

Record of Study Contents

This record of study is offered in five major content chapters. Chapter I contains an introduction to the study, statement of the problem to be studied, the purpose of the study, research questions, operational definitions, assumptions, limitations and the significance of this study.

Chapter II of this study includes a thorough review of the literature related to small learning communities and school size.

Chapter III defines the methodological protocol used for this study of record.

Included in this chapter are operational definitions, an examination of the population studied, instrumentation of the study, procedures used and a summarization of how the data was analyzed.

Chapter IV offers the data collected during the study and the quantitative analysis. Analysis of the research questions and a summary of findings are included in this chapter.

Chapter V provides a comparison between the historical literature and the findings of this study concerning the relationship between small learning communities and student performance. This chapter also offers recommendations for future practice of SLCs and recommendations for continued research.

CHAPTER II

REVIEW OF THE LITERATURE

There is much more to the whole matter of scale. It is not only that each teacher must have a sensible load of students. It is that the school itself has to be of human scale—a place where everyone can know everyone else.

Ted Sizer, *Horace's Hope* (1996).

What is wrong with American high schools? Lawrence Hardy (2002) sums it up by stating that too many high schools are large and impersonal. Large high schools have schedules that are too regimented, and teacher-student loads that do not allow time for teachers to get to know their students. Large schools often stifle creativity while fostering competition, conformity, intolerance, and mean-spiritedness. The need for change is evident. The larger the school, the easier it is for students to “slip through the cracks.” Small schools that have small classes allow students to know everyone and give students, their parents, and teachers a sense of community (Jehlen & Kopkowski, 2006). Jehlen and Kopkowski (p. 2) acknowledge, “Making schools smaller is not a panacea for secondary education, but smaller, more personalized learning structures provide fertile soil for other high school improvement strategies to take root and succeed.”

No Child Left Behind (NCLB) legislation has left American public educators faced with the difficult challenge of educating each child in the country. The Texas Education Agency (TEA) provides the following definition for No Child Left Behind:

The NCLB Act is an accountability system covering all public schools and students based on challenging State standards in reading and mathematics, annual testing for all students in grades 3-8, and annual statewide progress objectives ensuring that all groups of students reach proficiency within 12 years.

Assessment results and State progress objectives must be broken out by poverty, race, ethnicity, disability, and limited English proficiency to ensure that no group is left behind. School districts and schools that fail to make adequate yearly progress (AYP) toward statewide proficiency goals will, over time, be subject to improvement, corrective action, and restructuring measures aimed at getting them back on course to meet State standards. Schools that meet or exceed AYP objectives or close achievement gaps will be eligible for State Academic Achievement Awards (TEA, 2007).

NCLB (Jehlen & Kopkowski, 2006) puts more pressure on schools to improve student achievement for all students regardless of ethnic background, socioeconomic status, or special needs. In addition, NCLB and the reauthorization of the Individuals with Disabilities Education Improvement Act (IDEA) in 2004 placed more accountability on schools for improved academic performance in the special education subpopulation (Albrecht & Joles, 2003; Mooney, Denny, & Gunter, 2004). The escalating punishments for schools that do not meet the NCLB standards have created a sense of urgency for change. Educators are accountable for teaching all children including those who are under-motivated, disengaged, and often underachieving (Muir, 2001). This state of accountability results in a critical need for school improvement (Cobb, Abate, & Baker, 1999). The creation of the NCLB law, with its escalating punishments for schools with low-test scores, has placed mounting pressure on schools in low-income areas, where scores are usually much lower than in wealthy areas. In this era of accountability, something clearly must be done to insure that all students are successful regardless of their socioeconomic status. The establishment of SLCs is one way of addressing the tremendous, ever growing problem of accountability in public schools (Jehlen & Kopkowski, 2006) while increasing student performance. Today's schools serve students who are more diverse and come to school with a wide variety of

life circumstances and needs. These students are often unsuccessful in schools that hold to traditional instructional practices (Vander Ark, 2002).

Students across the nation are assessed with high stakes testing. Texas has helped forge the path for high stakes testing with the development of the Texas Assessment of Knowledge and Skills (TAKS). TAKS is a state-mandated test for Texas students based on the curriculum standards set by the Texas Essential Knowledge and Skills (TEKS). TAKS was mandated by the 76th Texas Legislature in 1999 and was administered beginning in the 2002-2003 school year, following the Texas Assessment of Academic Skills (TAAS).

The TAKS measures the statewide curriculum in reading at Grades 3-9; in writing at Grades 4 and 7; in English Language Arts at Grades 10 and 11; in mathematics at Grades 3-11; in science at Grades 5,10, and 11; and social studies at Grades 8, 10, and 11. Satisfactory performance on the TAKS tests at Grade 11 is a prerequisite to a high school diploma (TEA, 2007).

The TEA has reported tremendous gains in student achievement, leading the country in improved performance. TEA contributes increased accountability as one reason for the increase in TAKS scores. A policy review of research, reported by Achieve, Inc. (2002), notes that Texas students have had significant gains in academic performance with the greatest gains in mathematics. The National Assessment of Educational Progress (NAEP) also reports that the state registered a ‘first’ on the 2002 writing national exam. For the first time, black students outperformed many of the white students in Texas, and scored higher than white students did in a handful of other states.

However, a large number of the nations' 14 million students in public schools continue to fare poorly on national and statewide performance assessments. In addition, school districts continue to be faced with growing enrollments where students are forced to attend 'large, impersonal schools'. Students often feel isolated in high school and become discouraged, eventually tuning out and dropping out of school. Dropout rates are soaring, reaching 50 percent and higher in some urban areas where approximately 70 percent of American teens are attending schools with 1000 or more students. These large schools are failing to meet the needs of many students, thus creating an urgent need to develop more efficient and viable alternatives to the large traditional high school (Cater, 2005). On the other hand, students who have been enrolled in SLCs for four years have attained national prominence because of student achievement (Cook, 2000). Research shows that students in SLCs achieve at higher levels than do students in large schools on both standardized achievement tests and on other measures (Cotton, 2001).

Mitchell (2000) suggests that school size has a powerful positive effect on the achievement of low-socioeconomic students, and that school size even 'trumps' the benefits of small class size. Wallach and Lear (2003) state that the need for small schools is about far more than size; it is about the students. Wallach and Lear also list the benefits of small schools, which include safer, more personalized schools, increased achievement for all students, higher post secondary rates, and increased stakeholder satisfaction.

One reason given for high dropout rates and low levels of student achievement is that too many students attend large, schools where they are not engaged in learning.

Many of these students lack meaningful relationships with any adults at school, and are increasingly alienated from school (NMSA, 2004). Large high schools (1,500 to 3,000 students) consist of large staffs and ‘host thousands of activities’ a year. This makes it difficult for students and teachers to connect and many ‘lose their way’ suffering in the large environment (Dukes & Lamar-Dukes, 2007). Research tells us that the development of SLCs is emerging chief among the reform options designed to engage students in high school.

The term SLC describes a growing number of autonomous small schools, as well as programs developed within larger high schools (Cater, 2005). Sammon (2000, p. 13) defines the SLC as “any separately defined, individualized learning unit” within a larger school setting. Students and teachers in SLCs are scheduled in classes together, and classrooms are usually located in the same area of the school. SLCs are based on numerous models, and may or may not have a “career theme or a set sequence of courses for their students.”

The term SLCs is often used in a generic sense, describing numerous structures such as teams, houses, and magnet schools. SLCs often differ and can encompass all school redesign efforts intended to create smaller, learner-centered units in high schools. Decades of research on the size of schools provides substantial evidence that small high schools are more often associated with favorable student outcomes than are larger high schools (Cotton, 2001).

Restructuring our high schools by creating SLCs represents a giant step toward personalizing education, and establishing the right conditions for enhanced student

achievement. Mitchell (2000) cites data that shows that students who transferred from large schools to smaller schools showed marked improvement in attendance and were less likely to drop out of school.

Leading analysts such as Cotton (2001), Raywid (1999), and Klonsky (1998) have extensively studied the quantitative research on small schools determining that there is an impressive degree of support for 'smallness.' They found that there is little empirical support or justification for the large, comprehensive high school. Even studies that cite positive benefits of large schools find that the benefits are outweighed by the disadvantages.

Sammon (2000, p. 20) said, "To our knowledge, the only longitudinal, post-secondary study of students in academies was conducted on graduates of Washington, D.C.'s Anacostia High School Public Service Academy." The results of that study showed graduation rates of academy students exceeded non-academy students by 40%, and after graduation 84% of the students were "either in school, employed, or dually engaged." The students revealed that their experiences at the academy had made 'critical differences' in their high school experience. The students pointed to the link with adults who took an interest in them as one of the strongest factors in their success.

Mooney, Denny and Gunter (2004) state that the ability of teachers, students, and administrators to develop relationships is paramount for SLCs. Small schools have greater holding power with more students involved in school activities, and have less student misconduct and violence. The small schools literature clearly establishes that small schools are more productive and effective than large ones (Raywid, 1999).

Historical Growth of the American High School

Schools do change; but they seem to change only when the gap between schools and society is extreme and at the same time, the demand for formal education is growing. In 1892, the pressures that inevitably affected education clearly were great; change was inevitable.

Ted Sizer, (1964, p.17).

The structure of American education and the model for secondary schools has undergone many changes, transforming from the Latin grammar school in 1635, to SLCs in 2007 (Murphy, Beck, Crawford, Hodges, & McGaughy, 2001). Benjamin Franklin established the first academy for secondary students in 1751. This move was the result of growing dissatisfaction with the narrow focus of the Latin grammar schools. These academies' curricular limitations and strict participation guidelines paved the road for the development of the first free high schools. Reese (1995, p. 208) explained, "There was really no such thing as the American high school... citizens lacked the coherent definition of a high school or high school student." The time was right for the formation of the comprehensive high school. This reorganization of schools was the result of the controversial changes the United States was experiencing on the political, social, and economic front (Murphy et al., 2001).

In the 1960s, high school reformers began organizing schools-within-schools and in the 1970s, schools began moving toward magnet programs, career academies, and mini-schools (Oxley, 2006) in the search for increased student performance. Charter schools entered the evolution in the 1980s through the 1990s, and were among the first advocates for small learning communities offering an alternative to large comprehensive high schools.

A series of studies and national reports released in the 1980s identified many of the shortfalls in the organizational, curriculum, and instructional practices found in traditional comprehensive secondary schools (Boyer, 1983). These reports identified school size as a major contributor to the apathy and alienation from school that many students were feeling. Curriculum was often fragmented, superficial, and disconnected from real life, resulting in students failing to make the needed connections to learning. The lack of relevance and disconnect to ‘real-life’ produced increasing dropout and retention rates.

Effective Schools Movement and Small Learning Communities (SLCs)

The movement toward SLCs was first led by the Carnegie Corporation Council on Adolescent Development. The Carnegie Corporation spearheaded research during the educational reform movement that began in the early 1980’s (Jackson & Davis, 2000). In 1989, the Carnegie Task Force prepared the groundbreaking report, *Turning Points: Preparing American Youth for the 21st Century* (Jackson, 1991; Jackson & Davis, 2000; Powell & Van Zandt-Allen, 2001). This research was one of the precursors to the movement toward creating SLCs in high schools (Carnegie Council on Adolescent Development, 1989; Hamburg, 2000; Jackson & Davis, 2000).

The Coalition of Essential Schools was established in 1984 in response to an earlier study questioning the efficacy of the large high school philosophy. The Coalition report clearly supported the move to smaller schools. In addition, the small school movement found broad-based support from the government and private sectors. The

large to small school transformation was supported with funding sources as diverse as: the U.S. Department of Education, the Carnegie Corporation, and the Bill and Melinda Gates Foundation (Cater, 2005). Deborah Meier, one of the pioneers in SLCs research, studied the implementation of SLCs in East Harlem in 1985 funded by a SLCs grant. The success of this project helped to influence the Gates Foundation to contribute over \$1 billion in 2000 to create about 850 SLCs and transforming 700 large comprehensive schools into SLCs (Jehlen & Kopkowski, 2006).

In 1996, *Breaking Ranks: Changing an American Institution*, (NASSP, 1996) and the Carnegie Foundation for the Advancement of Teaching, provided educators with the ground work for building SLCs in high schools. *Breaking Ranks* (NASSP, 1996) grew out of the research and recommendations from experts in educational reform including Theodore Sizer's *Horace's Compromise* (1984), and his research through the Coalition of Essential Schools (CES, 2007). In her research, Oxley (2006) describes how the growth of SLCs paralleled the development of the effective schools movement, and encompassed elements that focus on the 'learner and learning'.

The CES (2007) practice is centered in small, personalized learning communities where teachers and students have the opportunity to develop relationships that include trust, decency, and high expectations. The Essential Schools movement placed increased focus on developing standards-based curriculum, interdisciplinary units of study, mentorships, and internships. Personalization, school size, class size, modes of instruction, and methods of assessment are commonalities found in both these movements (NASSP, 1996).

Breaking Ranks (NASSP, 1996) offered more than 80 recommendations for school improvement. The follow up research in *Breaking Ranks II* (NASSP, 2004) condensed the recommendations into 31 key points. These recommendations are clustered into three core areas (NASSP, 2004, p.xvi) “that provide a guide for personalizing the high school experience.” NASSP (2004) reported that curriculum must ‘lend coherency’ to the student’s education, must provide optimum use of time, implement effective leadership and staff development, and utilize technology to further understanding and enhance learning. The three core areas identified by the NASSP (2004) are:

1. Collaborative Leadership and Professional Learning Communities - This core area component includes the Principal who is responsible for vision, direction, and focus of the team; an active, elected, site-based council; collaboration of staff in decision making; personal learning plans for the administration and staff; and a leadership team that is knowledgeable of political and financial partnership development.
2. Personalization - Personal graduation plans are developed for students with input from adult advocates and/or mentors. Personalization includes encouraging families and community members to join as partners in planning with and preparing the students to reach career and school goals. Small units promote democratic values by including all stakeholders in the decision-making. Classes are planned with flexible scheduling to meet the needs of individual students.
3. Curriculum, Instruction, and Assessment - The third core area includes the

integration of interdisciplinary curriculum, technology, authentic assessment, real-world applications, community service, K-16 continuity, higher education partnerships, and knowledgeable and caring teachers (NASSP, 2004).

The three core areas are closely aligned with the five domains identified for successful small learning communities by Oxley (2006) and are supported in SLCs research.

Five Research-Based Domains of Small Learning Communities (SLCs)

The fact that the captain of the ship can clearly see the port is of no use if the crew continues to paddle in different directions.

Author unknown

SLCs should include the key elements found in the five domains of SLCs that are the center of Oxley's (2006) research. The five domains include interdisciplinary teaching and learning teams, rigorous and relevant curriculum and instruction, inclusive program and practices, continuous program improvement, and building/district support (NWREL, 2002).

Interdisciplinary Teaching and Learning Teams

Interdisciplinary teaching and learning teams are the foundation of SLCs. Each team of teachers share common students and plan together to create thematic and/or interdisciplinary lessons (Oxley, 2006). *This We Believe* (Erb, 2003) promoted the importance of teacher teams and small learning environments for student engagement and academic success.

Heath (2005) found that the formation of teams of teachers and the opportunity for teacher collaboration were two of the keys to the success of SLCs. Teaching teams

are able to develop interdisciplinary units that actively engaged the students. The higher the level of the interdisciplinary engagement the more students wanted to be in class.

SLC teachers at Wyandotte High School, Kansas City, Kansas confirm that the biggest improvement has been the relationship with students after the moved to the small school model. Interdisciplinary teaching and teaming have played a major role in the increase in student performance. Before implementing SLCs, Wyandotte was a troubled high school with graduations rates on the decline and attendance problems that continued to impact student achievement. In an effort to improve student performance, a new principal was hired to spearhead Wyandotte's transformation into eight SLCs. The move increased attendance more than 15 percent and graduation rates increased over 25 percent (Nathan, 2002). Students and teachers interacted more and students were closer to each other. Wyandotte High School formed teams of teachers, including those who taught core and elective courses. Each team was responsible for approximately 170 students. The educators met weekly, to review concerns about particular students, administrative duties, and to discuss ways to improve curriculum. Meetings were focused on instruction and student success (Jehlen & Kopkowski, 2006).

Oxley (2006, p. 3) describes interdisciplinary teaching and learning teams as the "fundamental building blocks of the 21st century school." Members of teacher teams spend time collaborating about program designs and providing input for campus and district decisions. Erb (2003) stated that interdisciplinary teams that work with a common group of students are one of the major components of high-performing schools.

Rigorous, Relevant Curriculum and Instruction

Rigorous, relevant curriculum and instruction is at the ‘heart’ of SLCs.

Collectively the teacher teams work to develop a coherent and relevant program of study that is appropriate and available to all students. The teams work to involve business and community members to ensure authentic lessons that will increase understanding and promote student success.

Students enrolled in SLCs (Heath, 2005) report that their teachers hold them to higher academic standards. They are also part of setting their own goals. In Albuquerque public schools, 71 percent of students in the SLCs reported that they felt like their teachers cared about their progress and success. This was a dramatic increase with only 57 percent of the same students reporting that they felt like the teachers cared about their success before implementing SLCs.

Hamburg (2000) tells us that small groups enable every student to think creatively, and to develop higher order thinking skills. Developing these skills creates an environment where students can meet or exceed high academic standards. In addition, students develop the capacity to lead healthful lives physically and mentally, to become caring, compassionate, and tolerant individuals, and to become active, contributing citizens.

Opponents of small schools have claimed that smaller schools cannot offer the quality or quantity of courses that are available in a large school. However, Cotton (2000) found that even though large high schools offered a larger variety of courses, that they tended to be more introductory courses in non-core areas. Cotton further states that

students in small schools have approximately the same access to higher-level core courses as students in large schools. The increased use of distance learning and technology is often used to supplement course selection and availability in small schools.

Inclusive Program and Practices

SLC research has proven evidence that reducing the size of schools can increase student participation in school activities, reduce student dropout rates, and improve academic achievement, while enhancing teacher efficacy. Downsizing stimulates the move toward personalized “communal” schools, which result in independent benefits with respect to enhancing student engagement and achievement (Raywid, 1996).

Inclusive programs and practices ensure that students are able to participate in course work that meets their curricular needs/interests, regardless of their previous academic history. Inclusion is the norm in SLCs. The teams solicit assistance from educational specialists and parents to mold instruction to fit each student (NWREL, 2002). Debra Heath (2005) gives data from the SLC research conducted in the Albuquerque Public Schools (APS) citing the successes of the SLCs implemented from the 2000-2001 to the 2002-2003 school year. The evaluation showed that “well implemented small learning community programs produce statistically significant improvements in the school’s climate, student dropout, attendance and grade completion” (Heath, 2005, p. 1).

Cotton (2000) found that smaller schools have better attendance and fewer dropouts. In addition, students who transferred from a large to a small school had increased attendance and fewer dropouts. Students that are a minority and/or have a low

socioeconomic status have attitudes that are more positive about school, and have better attendance and higher graduation rates.

Continuous Program Improvement

One of the key elements to small learning communities is continuous program improvement. SLC practices cannot be implemented in one year. Continuous improvement must occur over time to improve the practice of meeting the needs of all students (Senge, Cambron-McCabe, Lucas, Smith, Dutton, & Kleiner, 2000). Senge states that schools that have SLC practices in place report a smooth transition for students from the ninth grade through post secondary.

In order for the practices to be in place, all stakeholders need to be headed toward the same goal. One effective method utilized in SLCs to focus on a central goal or mission, is the use of reflective practice. During reflection, teams of teachers meet to examine the work of each other's students, and to offer suggestions for improvement. Teachers have the opportunity to share teaching strategies and ideas aimed at improving student performance. The practice of reflection helps teachers to refocus on the curriculum and strengthens instruction. Teachers are able to build strong professional learning communities that support student achievement.

Building/District Support

Size is a key component for SLCs (Fine & Somerville, 1998; Wasley et al., 2000). However, research tells us that small size is not an end in itself. Building and district support must be in place to support conditions for change in instruction and

curriculum. In order for the SLC implementation to be effective, the entire organization must be in support of and assist with facilitating change.

A successful SLC must have policies and practices in place that allow teachers to function with sufficient autonomy. The teams must have the flexibility to respond to the needs of their students (NWREL, 2002). SLCs must be designed to meet the needs of the individual campus and cannot be simply added on to the existing school organizational structure (Cook, 2000; Oxley, 2001). In addition, research supports that “faithful implementation of the SLC model yields the strongest results” (Heath, 2005, p.1).

Small Learning Communities (SLCs) Models and Strategies

Educators need attend not only to the technical core of instruction but also to the human environments in which this instruction occurs. The social processes of school shape the meaning of school events for students and teachers alike. They can help to make schools engaging environments for students and productive workplaces for adults, or they impede these ends.

Lee & Bryk (1989)

Grace Sammon (2000, p. 13) defines the SLC as “any separately defined, individualized learning unit within a larger school setting” that is designed to provide individual instruction while developing important student and teacher relationships. A main characteristic of SLCs is the team concept with approximately 100-150 students assigned to 4-5 core teachers. In addition, Sammon states that the teams are frequently located in a common area of the school where they hold most, or all of their classes. This separation enables the teams of students and teachers to create a community of learners. SLCs often are planned around a career theme. The career theme drives the sequence and selection of courses that the student will take throughout high school.

Small Learning Community Models

Sammon (2000) describes SLCs by clustering them into six main models: career academies, houses, small learning community/school-within-school, magnet schools, ninth grade/freshmen academies, and pathways or clusters. Sammon (p. 13) states, “There is no one model... their variety is as individual as the schools and school systems in which they are housed.” Sammon describes several of the more common and popular models of SLC. These include:

- **Career Academies:** “A small learning community that enrolls students and teachers who self-select to be part of the academy. Each academy has a broad-based career theme, an integrated sequence of courses, work-based experiences, and strong partnerships with business and community partners” (Sammon, 2000, p. 13).
- **House Plan:** Students in a large school are divided into smaller groups either by grade level or by combining two grade levels. Students take some of or all of the same courses, and are scheduled with a team of core teachers. Houses may be designed for one to multiple year programs. Each house usually develops its own structure and policies designed by the stakeholders, including students, teachers, administrators, parents, and community leaders. Osterman (2000) tells us that when students are involved in setting the expectations for the school, they work harder to meet the set expectations. Students enrolled in a SLC are usually allowed to participate in extra-curricular activities on the home campus. This addresses the concern that SLCs cannot offer the same opportunities as a large

comprehensive high school (SLC, 2002).

- SLC/School-Within-a-School: Students are usually housed within a larger school comprehensive high school. “Schools-within-schools have their own culture, program, personnel, students, budget, and school space, negotiating the use of common space with the host school in the same way office building tenants arrange for use of shared conference facilities. (SLC, 2002, p. 48).
- Magnet Schools: Magnet schools are a natural progression from the early Latin schools and alternative schools. Magnet schools were among the first specialty and themed-based programs designed to provide options for desegregation without forced busing programs (Sammon, 2000). Today’s magnet programs are usually based on a specialty core focus (such as math, science, creative arts, or a career theme) to attract students from the entire school district. Some magnet programs have competitive admission requirements; others are open to any interested student.
- Ninth Grade/Freshman Academies: “As ‘wall to wall’ academies develop, many schools have sought to establish introductory academies that prepare students for an intense career-focused program for tenth through twelfth grade. The ninth grade academies work on students’ academic and social skills and have strong career awareness components,” reports Sammon (2000, p.14.)
- Pathway or Cluster: This type of small learning community offers, “a sequence of career-related and/or academic courses that lead toward graduation”

(Sammon, 2000, p.14). Students enroll in courses that are closely linked with the graduation pathway that they choose.

Small Learning Communities Strategies

Regardless of the model that is selected, effective initiatives often use multiple strategies to compliment the structure in order to produce beneficial results for all students (SLC, 2002). SLC research has identified numerous strategies for successful SLCs.

Sammon's (2000) work provides six major strategies for SLCs including freshman transition, multiyear groups, alternative scheduling, adult advocate systems, teacher advisory, and academic teaming. Sammon reminds us that every program may have "some or all of the elements," and that it is the school's responsibility to define what the small learning community will look like on their campus and in their district based on the needs of their students.

- Freshman transition activities help ease the stress and worry that ninth grade students face as they enter high school for the first time. Some schools place all first-year students in their own academy or house system. Freshman academies are often located in a separate part of the building, reducing the amount of contact with the older students. Freshman transition activities also include providing support through peer mentoring. Older students are trained to provide support for the younger students in adjusting to high school. This helps ease the fear of entering high school and makes the transition smoother.

- Multiyear groups are structured to keep the same teachers with a group of students over a period of two or more years. This long-term arrangement helps to foster trust and intimacy between students and teachers, a key element in the success of SLCs. The multiyear group structure keeps the same core teachers and students together with only the elective teachers changing (SLC, 2002).
- Alternative scheduling gives flexibility for “teachers to develop lessons that are more compatible with learning objectives. Alternative scheduling is also conducive to arranging for work-based learning opportunities and integrating business and community volunteers into the curriculum. One of the more common alternatives, block scheduling, provides extended class periods that provide teachers with the time necessary for in-depth lessons and experiential learning” (SLC, 2002, p. 49).
- Adult advocate systems are built to ensure that each student has an adult who knows him/her well, and serves as a mentor and/or advisor. Research (SLC, 2002) has shown that if an adult meets with a student on a regular basis that the student will have better rapport with adults, and is more likely to seek out assistance and guidance when needed. For students, the SLCs offer stable relationships with teachers and peers (Jackson & Davis, 2000).
- Advisory programs are one of the main elements in the development of SLCs. Advisories are led by at least one teacher per 20-25 students. The students meet on a regular basis and are involved in advisory activities that may include “developing personal learning plans, introducing students to career clusters,

helping students select courses, and working with students on postsecondary plans, pre-employment” (SLC, 2002, p. 49), and character education.

- Academic teaming organizes groups of teachers into teacher teams that share the same students. This strategy is very similar to the house structure. The teacher teams normally represent the four core areas- English, math, science, and social studies. The team shares responsibility for the curriculum, instruction, and evaluation. The team is also involved in developing the master schedule and is responsible for minor discipline of a group of 100-150 students. Teams share the same planning time and sometimes share a specific area of the school building. Though more commonly used in middle level schools, academic teaming is increasingly appearing in the restructuring of high schools.

Barriers Facing Small Learning Communities

Oxley (2001) identifies three barriers to successful implementation of SLCs, and explains how building and district support is essential. The first barrier to adding a SLC to a traditional campus is the competition for services such as administrative, counseling, and special education. These departments operate without the intimate knowledge and working relationship of the SLC. Heath (2005) stresses the importance of each SLC having specific administrators that work with the group of selected teachers and students.

The second barrier facing SLCs is the ‘simultaneous operation of old and new forms of school organization’. The SLCs must often compete for limited resources for staff, materials, and supplies (Oxley, 2001). Administrators must be willing to dedicate

the needed resources to maintain low teacher-student ratios and strong effective staff development and in-service programs (Heath, 2005).

Oxley (2001) tells us that the third barrier facing SLCs is that many times teacher instructional practices do not change and continue as usual. Many of these instructional practices are often inconsistent with or contradictory to the SLCs' philosophy. The continuance of traditional practices implies that the SLCs are appropriate for only a select population of students. This can produce a feeling of alienation for the students in the SLCs. When planning SLCs it is essential to develop school-level interventions to address any sense of alienation that the students might feel (Anderman & Freeman, 2004) at school. An inclusive model provides support that these students need to feel connected to the school.

Influence on Student Performance

After decades of watching schools grow larger and more impersonal, educators and policymakers are taking note of the good things that can happen within smaller communities of learners... Smaller classes, smaller schools, and large schools that 'feel' smaller.

Suzie Boss, 2000

Raywid (1999) presented two decades of data from quantitative studies that clearly establish that SLCs are more productive than their larger counterparts are. Students often experience increased academic achievement in small learning environments. Research has established that there is a strong negative influence on student achievement when students attend large comprehensive high schools providing support for SLCs.

Small schools have proven successful in closing the achievement gap, especially between lower-income and minority students and higher-income mostly white students (Howley & Bickel, 2000). The Rural School and Community Trust conducted a study of smaller schools to establish the influence that school size has on the low socioeconomic students. The four-state study included 13,600 students. The results demonstrated that “students from low-income families... that were in small schools reduced the negative effect of poverty on school performance by at least 20 percent and by as much as 70 percent in both urban and rural schools” (Howley & Bickel, 2000). Howley and Bickel (p. 12) found that:

- The larger the school, the greater the negative effect of poverty on student achievement. The less affluent the community, the smaller a school should be in order to maximize performance, as measured by standardized tests.
- The correlation between poverty and low achievement is as much as 10 times stronger in larger schools than in small ones.
- Although the relationship between school size, poverty, and achievement holds true for all races, minority children are more likely to be enrolled in large schools.

Nebraska state student data established the influence of small schools on student performance, citing that schools with fewer than 100 students had a 3 percent dropout rate compared to larger schools with a 15 percent dropout rate (Mitchell, 2000). Howley and Bikel (2000) further state that low-socioeconomic students fare better in small schools, even if the class size is large.

Mohr (2000) tells us that large schools are like ocean liners that are always on a steady course regardless of the results. She compares small schools to sailboats that can move around easier than the ocean liners, but are easily overturned. Large schools provide the cover for students to hide. Small schools are able to focus on each child and to make sure that they stay the course toward graduation and beyond.

Culture of Small Learning Communities

Research indicates that in order for there to be lasting improvement and positive changes in beliefs and student behaviors, that there must be a shift in the school's culture and philosophy. This is essential for any restructuring to be successful. Wasley et al. (2000) states that smaller school size helps the faculty and staff led the school to improved performance. In addition, Gregory (2000) tells us that in a national poll of parents and high school students, 66 percent of the parents and 79 percent of the teachers were in favor of smaller schools. Cotton (2000) stated that students in smaller schools feel better about themselves, and that interpersonal relationships are stronger and better between students and teachers in SLCs. Students are more positive in smaller schools with the biggest influence on the minority students and low socioeconomic students (Cotton, 2000). Mitchell (2000) tells us that the effects of smallness are indirect, and are often seen in other features of the school culture. Students report that they feel a greater attachment to the school when they are part of a SLC. This is in contrast to large schools described by Toch (2003), "For many students, large comprehensive high schools are joyless, uninspiring, places" (p.9).

Summary

A growing body of literature has examined the importance of a student's sense of belonging in school and the relationship that the sense of belonging has on a number of important outcomes, including student academic success, attendance rates, and dropout rates. Researchers have suggested that the sense of belonging is particularly important during adolescence (Anderman, 2003) when students can feel isolated and not connected to school. Because of small numbers, SLCs can have an important impact on a student's sense of belonging. Affiliation in a SLC and promote improved feelings can create a wide range of positive academic and psychosocial outcomes.

In the aftermath of the violence that has occurred in public schools across the country, it is becoming more evident that it "takes a village" to create an environment safe for learning. The classroom teacher can no longer meet all of the educational, social, and emotional needs of his or her diverse learners. Small learning communities facilitate teachers, counselors, and administrators working together toward collaborative teaching, planning, and assessment in order to produce a nurturing educational environment (Bloss, Bloss, & Marlow, 2000) resulting in increased student performance. Heath (2005, p. 3) states, "the separate space combined with teaming and heightened visibility increased students' sense of safety in all aspects of school life. Students in SLCs... report feeling safe in class..." This sense of safety can also be found in the halls and outside the campus in schools with SLCs.

The challenges for teachers have been exaggerated by the accountability

standards set by NCLB (Kain, 2003). SLCs can provide collaborative and supportive work groups to help meet the challenge for improved instruction to meet these demands. Students and teachers in schools that have implemented SLCs and its associated practices consistently report more positive and productive learning environments (Arhar, 1990, 1997; Dickinson & Erb, 1997; Lee, & Smith, 1993). Several large-scale and comprehensive studies have been conducted that successfully demonstrate the positive effects of SLC teams on student performance (Flowers & Mertens, 2004). The benefits for students are clear. Marsha Smith, NEA Executive Committee member tells us, “In a large high school, students can become invisible and slip through the cracks. In a small school, you personalize attention to the student. Downsized schools give students and their parents a sense of community” (Jehlen & Kopkowski, 2006, p. 24) and increase student performance.

CHAPTER III

METHODOLOGY

High school reform has been a major focus for NEISD for the past several years due to decreasing attendance rates, increased dropouts, and the focus on student achievement on TAKS. The need for improved student performance created an urgency to make changes on the high school level and prompted this study.

This study was designed to determine the relationship that implementing Small Learning Communities (SLCs) have on student performance for ninth grade students at Robert E. Lee High School in the North East Independent School District (NEISD), San Antonio, Texas. For the purpose of this study, student performance is defined by the level of academic achievement on the reading and math Texas Assessment of Knowledge and Skills (TAKS), attendance rates, and dropout rates. Performance data from the Academic Excellence Indicator System (AEIS) for a four year period from 2002-2003 through 2005-2006 was used for this study.

The SLCs at Lee High School were identified to be a viable study. Lee is the only high school in NEISD that has fully transitioned from a traditional system to the SLCs model. Direct and comparable circumstances are present throughout the entire population to be studied thus ensuring a high degree of validity in its outcome. The population of this study, for the purposes of both school and student performance analysis, included only ninth grade students at Lee High School in NEISD for school years 2002-2003 through 2005-2006.

SLCs were implemented on the Lee campus during the school years 2002-2003 in an effort to address low achievement on TAKS, low attendance, and increased dropout rates. The research based SLCs model was selected by the leadership team at Lee High School as a reform option, in hopes of taking a step to “individualize the learning experience for students” (Cater, 2005, p. 1).

Data for this study was collected from the AEIS. In 1984, the Texas Legislature introduced House Bill 72, calling for a state system of accountability for public schools. As a result, the AEIS was designed through legislative action and recommendations of advisory committees, the commissioner of education, and the State Board of Education. The AEIS was developed by Texas Education Agency (TEA) researchers and analysts (TEA, 2007). The AEIS provides an annual school report card’ for each public school and district in Texas. The school report card provides student performance data on the state assessments test, such as TAKS, as well as attendance and dropout information.

The AEIS provided data for selected student performance indicators: TAKS scores, attendance, and dropout rates for the four years included in this study. TAKS scale scores for reading and mathematics were studied to analyze the degree of impact on student performance after implementation of the SLCs. The following questions guided the research emphasis of this study:

1. What is the relationship between Small Learning Communities (SLCs) and student achievement as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and math for ethnic subpopulations at Robert Lee High School ninth grade academy

in North East Independent School District?

2. What is the relationship between Small Learning Communities (SLCs) and student achievement as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and math for economically disadvantaged and special education subpopulations at Robert Lee High School ninth grade academy in North East Independent School District?
3. What is the relationship between Small Learning Communities (SLCs) and student attendance and dropout rates as reported on the Academic Excellence Indicator System (AEIS) at Robert Lee High School ninth grade academy in North East Independent School District?

Operational Definitions

The findings of this study have been reviewed within the context of the following definitions of operational terminology:

Academic Excellence Indicator System (AEIS): This is a statewide system database of information regarding the broad operations and achievements of all Texas independent school districts and their respective campuses.

Academic Teaming: Teaming organizes groups of teachers across departments, so they share the same students. Teaming responsibilities include; shared responsibility for curriculum, instruction, evaluation, scheduling, and discipline of a group of 100-150 students. Teaming is a way to personalize the learning community by building a sense of

community so students learn more and they can meet higher standards (NWREL, 2004).

Achievement Gap: Achievement gap is a persistent, pervasive, and significant disparity in educational achievement and attainment among groups of students as determined by a standardized measure (PSNC, 2007, p. 1).

Attendance Rate: Attendance rates are reported in AEIS. Students must be present in school for least four hours of instruction per day to be eligible for full-day attendance. Attendance rates are calculated as the total number of days students were present divided by total number of days students were in membership.

Bexar County, Texas: Bexar County is a geographic region defined by the state of Texas that encompasses the greater San Antonio area and shares borders with seven other state identified counties.

Dropout Rates: In 2003, the 78th Texas Legislature required that dropout rates be computed according to the National Center for Education Statistics (NCES) dropout definition beginning in the 2005-06 school year (Texas Education Code [TEC] §39.051, 2004). Under the NCES definition, a dropout is a student who is enrolled in public school in Grades 7-12, does not return to public school the following fall, is not expelled, and does not graduate, receive a General Educational Development (GED) certificate, continue school outside the public school system, begin college, or dies (TEA, 2007).

Economically Disadvantaged: An “economically disadvantaged” student is a student who is a member of a household that meets the income eligibility guidelines for free or reduced-price meals (less than or equal to 185% of Federal Poverty Guidelines)

under the National School Lunch Program (NSLP).

House Plan: Students in a large school are divided into smaller groups either by grade level or by combining two grade levels. Students take some of or all of the same courses, and are scheduled with a team of core teachers. Houses may be designed for one to multiple year programs. Each house usually develops its own structure and policies designed by the members of the House, including students, teachers, administrators, parents, and community leaders.

Ninth Grade Academy: The ninth grade academy, developed around the concept of a small learning community, is a school-within-a-school organized around interdisciplinary teams of English, math, science, and social studies. Incoming freshmen are connected to a select team of teachers using research proven best instructional strategies to teach the curriculum as well as address their students' needs more personally. Teachers work in a collaborative environment and are committed to the learning of the students they share.

North East Independent School District: This is a school district of approximately 140 square miles located in the north central and northeast areas of Bexar County, Texas. Approximately 60,000 students are currently enrolled with 7973 employees.

Public Education Information System (PEIMS): PEIMS is a data collection system developed by the Texas Education Agency (TEA) (HB 72 of 1984) to provide a single system for collecting school district information and to maintain the information in one common coordinated database for accountability. School districts are required to

submit data to TEA four times a year through PEIMS: fall, mid-year, summer, and extended-year. Data reported includes student demographic and academic performance, personnel, financial, and organizational information (TEA, 2007).

Relationship: This is defined as a connection, association, or the condition of being related.

Scale Scores: A scale score is a statistic used to show performance on a test. The TAKS scale score allows for comparison with the TAKS scores with the performance standards. A scale score of 2100 is considered passing or 'met standards' in reading and math TAKS.

School Report Card: This is a report required by the Texas Legislature and prepared by the state department of education. The report provides information concerning student performance as well as information concerning expenditures, average class size, and student/teacher ratios.

Small Learning Community (SLC): An SLC is any separately defined, individualized learning unit that may be in a separate building or within a larger school setting. Students and teachers are usually placed in teams, and frequently have a common area of the school for classes.

Student Performance: Campus, grade level and sub-group population data as reported by the Texas Education Agency (TEA) annual administration of the Texas Assessment of Knowledge and Skills (TAKS) and data reported in the Public Education Information System (PEIMS). Student performance for this study includes standardized test scores, attendance rates, and dropout rates.

Texas Assessment of Knowledge and Skills (TAKS): The TAKS is a standardized test used in Texas to assess students' knowledge in the four core areas: math, English, science, and social studies. Students cannot graduate from high school unless they pass the exit-level TAKS or are exempted by a special education admission and review (ARD) committee. The TAKS includes a more advanced alignment with the Texas Essential Knowledge and Skills (TEKS) than any prior assessment format.

Texas Education Agency: The Texas Education Agency (TEA) is comprised of the Commissioner of Education and agency staff. The TEA and the State Board of Education (SBOE) guide and monitor activities and programs related to public education in Texas. The TEA administers the statewide assessment program, maintains a data collection system on public schools for a variety of purposes, and operates research and information programs. State and federal funds support the operational cost for the TEA.

Texas Education Agency Databases: The Texas Education Agency (TEA) is comprised of the Commissioner of Education and agency staff. The TEA and State Board of Education (SBOE) guide and monitor activities and programs related to public education in Texas. Under the leadership of the Commissioner of Education, the TEA administers the statewide assessment program, maintains a data collection system on public schools for a variety of purposes, and operates research and information programs. The data includes information from the PEIMS and AEIS.

Population

The population for this study was composed of ninth grade students at Robert E. Lee High School in the North East Independent School District in San Antonio, Texas. The North East Independent School District spans 140 square miles in the north central and northeast sectors of Bexar County, Texas. The majority of the district lies within the boundaries of the city of San Antonio, Texas.

The selected school for this study, Robert E. Lee High School, is located in the southwestern part of the school district. Lee has the largest population of Hispanic students of any North East high school, with over 50 percent of the students identified as economically disadvantaged. Table 1 shows the student populations by whole and subpopulations, as defined in the AEIS report. Table 2 presents enrollment data by students tested for 2002-2006. Performance data from ethnic, special education, and economically disadvantaged subpopulations have been independently analyzed for the years 2002-2003 through 2005-2006.

Table 1. Enrollment Data by Sub-Populations for All Ninth Grade Students (2002-2006) at Lee High School of the NEISD in San Antonio, Texas

Campus	Total	Subpopulations				
		% African American	% Hispanic	% White	% Economically Disadvantaged	% Special Education
2002-2003	645	4.8	76.7	17	43.4	19.6
2003-2004	543	4	79.7	15	39.6	20.4
2004-2005	615	5	79.6	14.3	55.6	16.2
2005-2006	670	3.8	82	13.2	58	14

Note: Values represent percentages taken from 2002-2006 AEIS reports. Subpopulations include African American, Hispanic, White, Economically Disadvantaged, and Special Education.

Table 2. Enrollment Data by Subpopulations for Tested Ninth Grade Students (2002-2006) at Lee High School of the NEISD in San Antonio, Texas

Campus	Total tested	Subpopulations				
		African American	Hispanic	White	Economically Disadvantaged	Special Education
2002-2003	423	16	318	89	229	127
2003-2004	473	20	370	83	291	111
2004-2005	506	20	427	59	343	100
2005-2006	507	19	417	71	323	93

Note: Subpopulations include African American, Hispanic, White, Economically Disadvantaged, and Special Education.

Instrumentation

This study utilized TAKS scores for the Lee High School ninth grade students for school years 2002-2003 to 2005-2006. Test reliability measures such as the Kuder-Richardson Formula 20(KR-20) indicate the internal consistency rate of the TAKS test for multiple choice and short answer questions to be approximately .81 to .93. The Texas Education Agency (TEA) rates the validity of the TAKS test as extremely high. TEA states that the TAKS offers a ‘genuine evaluation’ of the state curriculum and student performance. This level of validity of the TAKS instrument has been measured as effective for all student sub-populations. TAKS test items are field tested for validity each year, to check for bias and reliability, and revisions made as needed. A committee comprised of educators, test specialists, and members of the Texas Education Agency establishes the validity standard (TEA, 2007).

TAKS scale scores in reading and mathematics were disaggregated by subpopulations: ethnic (African American, Hispanic, and White), economically disadvantaged, and special education. Attendance and dropout rates were the final

variables studied. All data collected was analyzed using the Statistical Package for the Social Sciences (SPSS).

Procedures

North East Independent School District has been in the process of implementing SLCs on the high school campuses for the past several years. In gathering research for the study it was noted that in 2005-2006 only one campus had fully implemented SLCs on the ninth grade level. Lee High School began implementation of the SLCs model in 2002-2003 at the ninth grade level, and had fully implemented the SLCs by the school year 2005-2006 in grades nine through twelve. Lee structured their SLCs using academic teaming on the ninth grade level and moving to the house model in grades ten through twelve. The selected model divides students into grade level academies with the same core area teachers for math, science, social studies, and English. The teams of teachers and students that form the academies are assigned to vertically aligned houses. The students remain in the same House for four years, when scheduling allows.

Data for the selected population at Lee High School was collected using the AEIS for the school years 2002-2003 to 2005-2006. The researcher transferred this information to Microsoft Excel spreadsheets to facilitate disaggregating of the data.

Data Analysis

The examination of student performance data from the selected high school, as reported by the AEIS, was conducted under the accepted quantitative measures that have

been identified by Gall, Gall, and Borg (2003). An electronically driven statistical software program, the Statistical Package for the Social Sciences (SPSS), was used to analyze the collected data.

The performance of all ninth grade students enrolled in the selected high school was analyzed to address the three questions of this research. The research questions were answered using a range of statistical procedures, including analysis of variance and a multivariate analysis to determine if there was a significant difference between the variables and student performance.

TAKS data was utilized to answer the first question. Reading and mathematics scale scores were analyzed for this question. Definable ethnic subpopulations, for the purposes of answering the first question included African American, Hispanic, and Whites. The descriptive statistics included mean scores, standard deviations, and frequencies. These methods were used to define populations' data in a concise manner.

TAKS data was utilized to answer the second question. Reading and mathematics scale scores were analyzed for this question. Definable subpopulations, for the purposes of answering the second question included economically disadvantaged and special education. The descriptive statistics included mean scores, standard deviations, and frequencies. These methods were used to define populations' data in a concise manner.

Inferential statistics – analysis of variance (ANOVA) – was used when answering research questions one and two. This procedure was used to evaluate or infer the degree of significant difference present when measuring the student performance of a traditional campus after implementing SLCs. The level of significance for testing the

hypotheses of this research was set at .05 or at a 95% confidence level. The demographic breakdown of ethnicity and socioeconomic levels will be discussed in Chapter IV.

Student attendance and dropout rates were used to answer the third question of this study. The descriptive statistics included mean scores, standard deviations, and frequencies. These methods were used to define population data in a concise manner.

Inferential statistics – chi-square(χ^2) tests were used when answering research question three. This procedure was used to test the association between categorical variables, and was used to evaluate or infer the degree of significant difference present when measuring student performance on a traditional campus after implementing SLCs. The level of significance for testing the hypotheses of this research was set at .05 or at a 95% confidence level.

The following questions guided the research emphasis of this study.

1. “What is the relationship between Small Learning Communities and student achievement as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and mathematics at Robert Lee High School ninth grade academy in North East Independent School District?” For this question, data from the AEIS was analyzed in reading and mathematics for each identified ethnic subpopulation. The demographic breakdown of ethnicity will be presented in detail in Chapter IV.
2. “What is the relationship between Small Learning Communities and student achievement as reported on the Academic Excellence Indicator System (AEIS)

for Texas Assessment of Knowledge and Skills (TAKS) in reading and mathematics at Robert Lee High School ninth grade academy in North East Independent School District for economically disadvantaged and special education students?” For this question, data from the AEIS was analyzed in reading and mathematics for each identified subpopulation. The demographic breakdown of economically disadvantaged and special education students will be presented in detail in Chapter IV.

3. “What is the relationship between Small Learning Communities and attendance and dropout rates at Robert E. Lee High School ninth grade academy in North East Independent School District as reported the Academic Excellence Indicator System (AEIS)?” For this question, the attendance and dropout data was disaggregated using the AEIS information and will be presented in detail in Chapter IV.

This study includes both descriptive and inferential statistics. The respective data presentations are reported in table format as mean score, standard deviation, standard error of the mean and both minimum and maximum observation values. The Analysis of Variance (ANOVA) was included within group mean sum of squares, degrees of freedom, the mean square, F-statistic, and p-value significance. Chi-square tests were run to determine the association between the categorical variables of student attendance and dropout rates. The relationships to SLCs are embedded in the ANOVA and chi-square analyses. All analyses, interpretations, and recommendations followed the principles that have been identified by Gall, Gall, and Borg (2003). The findings set

forth by this study are presented in detail and further discussed in Chapter IV. A complete summary of this study and the conclusions made by this study are discussed in Chapter V.

CHAPTER IV

ANALYSIS OF DATA

Introduction

The motivation for this study was to determine the relationship that Small Learning Communities (SLCs) have on student performance. Data was collected from the Academic Excellence Indicator System (AEIS) for ninth grade students at Robert E. Lee High School in the North East Independent School District (NEISD) in San Antonio, Texas. Specific attention was given to whether the decision to implement the SLCS model created a measurable influence on student performance on reading and math TAKS, attendance rates, and dropout rates. The hypothesis that guided this research was that there was a relationship between SLCs and student performance for ninth grade students at Lee High School.

Data analyzed for this study-included reading and math TAKS scale scores for African American, Hispanic, White, economically disadvantaged, and special education subpopulations. In addition, attendance rates and dropout rates were examined. Dependent to the format of this study and all other statistical variables, Lee High School transitioned from a traditional model to a SLCs model in 2002-2003. For this study, statistical data was analyzed for the years 2002-2003 through 2005-2006.

This chapter includes a charted tabulation of performance data analysis and review. This chapter presents a quantitative evaluation of student performance over the course of four academic school years, 2002-2003 through 2005-2006 at Lee High School

TAKS scale scores indicate how far ‘above or below the standard’ a student’s achievement is on the subject area TAKS. A scale score of 2100 for reading or math TAKS is considered passing or ‘met standards’ set by the TEA. This section is the quantitative discovery of results from the following questions that have guided this research:

1. What is the relationship between Small Learning Communities (SLCs) and student achievement as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and math for ethnic subpopulations at Robert Lee High School ninth grade academy in North East Independent School District?
2. What is the relationship between Small Learning Communities (SLCs) and student achievement as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and math for economically disadvantaged and special education subpopulations at Robert Lee High School ninth grade academy in North East Independent School District?
3. What is the relationship between Small Learning Communities (SLCs) and student attendance and dropout rates as reported on the Academic Excellence Indicator System (AEIS) at Robert Lee High School ninth grade academy in North East Independent School District?

The TAKS associated student performance areas are publicly reported as one of the components of the Academic Excellence Indicator System (AEIS). Twelve points of

data were examined, each derived from the AEIS, and transferred to spread sheet reports. The twelve points of data included reading and math TAKS scale scores for African American, Hispanic, White, economically disadvantaged, and special education subpopulations, as well as, attendance and dropout information. All students enrolled in the ninth grade on the Lee campus are reflected in the performance information from these reports.

Analysis of Research Question One

What is the relationship between Small Learning Communities (SLCs) and student achievement as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and math for ethnic subpopulations at Robert Lee High School ninth grade academy in North East Independent School District?

The intent of this question for research was to determine if SLCs influenced TAKS scores during the implementation of the SLCs. The SLCs model was first implemented in 2002-2003 through ninth grade academies. Four years of data for the identified subpopulations were studied. Data was analyzed by ethnic subpopulations. Pertinent data for this question was retrieved from AEIS.

Question one of this study consists of two parts. Part one examines student performance on reading TAKS by ethnic subpopulation: African American, Hispanic, and White. Part Two examines student performance on math TAKS by the ethnic subpopulation of African American, Hispanic, and White.

Descriptive statistics and inferential statistics, a two-way Analysis of Variance (ANOVA), are presented to describe the degree of impact SLCs had on student performance. In addition, ANOVA was applied to data from each subpopulation by year with all test analyses disaggregated by content area to determine significant difference. The Scheffé post hoc test was run as needed to determine which of the means were significantly different.

Part One--Reading TAKS

Table 3 presents the descriptive statistics for African American, Hispanic, and White scale scores during implementation of SLCs in 2002-2003 through 2005-2006.

Table 4 Part A presents data from a two-way ANOVA procedure of reading TAKS scale scores by ethnic subpopulations by year, during the implementation of the SLCs model at Lee High School. The level of significance for test years 2002-2003 through 2005-2006 was <0.001 , which is less than the alpha level of 0.05. As a result, the decision was made to reject the null hypotheses of no difference. Analysis showed that there was a statistical difference in reading TAKS scale scores across the four years of the study, irrespective of ethnicity.

Table 4 Part B presents data from a two-way ANOVA procedure of reading TAKS scale scores by ethnic subpopulations by year. The level of significance for the ethnic groups, irrespective of year, was <0.001 . This was less than the alpha level of 0.05. As a result, the decision was made to reject the null hypotheses of no difference. This result meant that there was a statistical difference in reading TAKS scale scores

between the three ethnic groups, irrespective of year. The location of the differences is discussed in the relevant Scheffé section.

Table 3. Number of Students (N), Mean Score, and Standard Deviation for Reading TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	Ethnicity	N	Mean Scale Score	Standard Deviation
2002-2003	African American	17	2168.06	122.270
	Hispanic	318	2156.33	146.190
	White	86	2213.90	180.241
	Total	421	2168.56	154.301
2003-2004	African American	21	2233.29	120.748
	Hispanic	378	2206.06	145.307
	White	82	2324.54	210.357
	Total	481	2227.45	163.187
2004-2005	African American	21	2240.05	167.607
	Hispanic	429	2218.28	152.464
	White	63	2322.33	236.813
	Total	513	2231.95	168.778
2005-2006	African American	20	2187.30	152.454
	Hispanic	400	2209.28	176.795
	White	74	2291.47	194.559
	Total	494	2220.70	180.833
Total	African American	79	2209.41	143.437
	Hispanic	1525	2199.97	157.809
	White	305	2284.86	208.691
	Total	1909	2213.93	169.212

Table 4 Part C presents data from a two-way ANOVA procedure of reading TAKS scale scores by ethnic subpopulations by year, during the implementation of the SLCs model at Lee High School. The level of significance for the interaction between

test years 2002-2003 through 2005-2006 and the ethnic groups within each year was 0.413. This was greater than the alpha level of 0.05. As a result, the decision was made to fail to reject the null hypotheses of no difference. There is no statistical difference in the pattern of TAKS reading scale scores across the four years of the study when comparing the performance of the ethnic groups.

Table 4. ANOVA with Sum of Squares, Degrees of Freedom (df), Mean Square, F-Statistic, and P-Value Significance for Reading TAKS Performance for African American, Hispanic, and White Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Reading TAKS Performance	Type III Sum of Squares	df	Mean Square	F	p-value
A -Combined Years Between 2002-2006	521417.686	3	173805.895	6.430	<0.001
B -Ethnicity Of Students	2058382.187	2	1029191.093	38.076	<0.001
C -Interaction	164839.332	6	27473.222	1.016	0.413

Alpha =0.05

Table 5 presents data from the Scheffé. The Scheffé provided results showed statistical significance during the study for student performance during implementation of the SLCs. The level of significance for scale score means across the four years, with all ethnic groups combined, was <0.001. This was less than the alpha level of 0.05, and as a result, the decision was made to reject the null hypotheses of no difference in student performance. Rejecting the null hypothesis indicates that within the entire student population of this study, the mean scale scores of students in the SLCs are significantly different between years. Specifically, ninth grade students in Spring of

2003 scores significantly lower than ninth grade students in any of the other three years. Student scores in Spring 2004, Spring 2005 and Spring 2006 were all statistically the same.

Table 5. Scheffé by Test Year with Three Subpopulations: African American, Hispanic, and White, Showing Number of Students (N), and Subsets 1 and 2 for Reading TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	N	Subset	
		1	2
Spring 2003	421	2168.56	
Spring 2006	494		2220.7
Spring 2004	481		2227.45
Spring 2005	513		2231.95

Alpha = 0.05

Table 6 presents data from the post hoc test run on the ANOVA. The Scheffé, at an alpha level of 0.05, shows differences in the ethnic subpopulations when all four years are combined. The level of significance for the interaction between years and ethnicity was 0.413. This is greater than the alpha level of 0.05, and as a result, the decision to reject the null was made. Failing to reject the null hypothesis for variable interaction indicates that within the student subpopulations of this study, the mean scale scores of students in SLCs across each year hold a similar pattern. That is, the way the subpopulations performed in each year is the same.

The average mean scale score for the White students was 84.89 points higher than for the Hispanic students and 75.45 points higher than the African American group. Based on the results of the Scheffé, irrespective of year, White students outperformed

both Hispanic and African-American students. Hispanic students and African-American students performed at statistically the same level.

Table 6. Scheffé by Ethnicity with Three Subpopulations: African American, Hispanic, and White, Number of Students (N), and Subsets 1 and 2 for Reading TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Ethnicity (3 subpopulations)	N	Subset	
		1	2
Hispanic	1525	2199.97	
African American	79	2209.41	
White	305		2284.86

Alpha = 0.05

Part Two--Math TAKS

Table 7 presents the descriptive statistics for African American, Hispanic, and White math TAKS scale scores during the implementation of SLCs in 2002-2003 through 2005-2006.

Table 8 Part A presents data from a two-way ANOVA procedure of math TAKS scale scores for ethnic subpopulations by year during the implementation of the SLCs model at Lee High School. The level of significance for test years 2002-2003 through 2005-2006 was .260, which is more than the alpha level of 0.05. As a result, the decision was made to accept the null hypothesis. Based on this level of comparison, there is no statistical difference in math TAKS scale scores across the four years of the study, irrespective of ethnicity. Thus, a relationship between SLCs and math TAKS scale scores may not be inferred.

Table 7. Number of Students (N), Mean Score, and Standard Deviation for Math TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	Ethnicity	N	Mean Score	Standard Deviation
2002-2003	African American	16	2069.50	159.749
	Hispanic	318	2058.25	167.784
	White	89	2159.92	210.799
	Total Students	423		
2003-2004	African American	20	2109.45	209.019
	Hispanic	370	2090.56	169.031
	White	83	2223.93	224.184
	Total Students	473		
2004-2005	African American	20	2061.30	178.430
	Hispanic	427	2081.96	181.843
	White	59	2227.27	216.631
	Total Students	506		
2005-2006	African American	19	2054.42	167.380
	Hispanic	417	2092.78	196.529
	White	71	2187.92	239.797
	Total Students	507		
Total All Years	African American	75	2074.15	178.509
	Hispanic	1532	2082.06	180.492
	White	302	2197.00	223.392
	Total Students	1909		

Table 8 Part B presents data from a two-way ANOVA by year for math TAKS scale scores by ethnic subpopulations. The level of significance for the scale scores by ethnic subpopulations was <0.001 . This was less than the alpha level of 0.05, and as a result, the decision was made to reject the null hypotheses of no difference. There was a statistical difference in math TAKS scale scores between the ethnic subpopulations,

irrespective of year. The location of the differences is discussed in the relevant Scheffé section.

Table 8. ANOVA with Sum of Squares, Degrees of Freedom (df), Mean Square, F-statistic, and P-value Significance for Math TAKS Performance for African American, Hispanic, and White Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Math TAKS Performance	Type III Sum of Squares	df	Mean Square	F	p-value
A -Year	141285.340	3	47095.113	1.339	0.260
B -Ethnicity	3533887.924	2	1766943.962	50.237	<0.001
C -Interaction	142277.478	6	23712.913	0.674	0.671

Alpha level = 0.05

Table 8 Part C presents data from a two-way ANOVA procedure of math TAKS scale scores by ethnic population, during the implementation of the SLCs model at Lee High School. The level of significance for the interaction between test years 2002-2003 through 2005-2006 and ethnic group was .671. This is greater than the alpha level 0.05. The null hypothesis was supported indicating that there is no statistical difference in the pattern of math TAKS reading scale scores across the four years of the study when comparing the ethnic subpopulations. That is, the way the subpopulations performed in each year is the same.

The achievement gap in scores between White, African American, and Hispanic students remained virtually the same. African American students scored slightly higher than Hispanic students did the first two years of the study, and the Hispanic students

scored slightly higher than the African American students did the last two years of the study. A relationship between SLCs and the achievement gap may not be inferred.

Table 9 presents data from the post hoc test run on the ANOVA data. The Scheffé, at an alpha level of 0.05, showed that in the ethnic subpopulations, at least one mean was significantly different from at least one other mean. The mean scale scores of the White subpopulation was significantly higher than African Americans and Hispanics on the math TAKS. Thus, a relationship between ethnic subpopulation and math TAKS scores may be inferred.

Table 9. Scheffé by Ethnicity with Three Subpopulations: African American, Hispanic, and White, Number of Students (N) and Subsets 1 and 2 for Math TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Ethnicity (3 subpopulations)	N	Subset	
		1	2
African American	75	2074.15	
Hispanic	1532	2082.06	
White	302		2197.25

Alpha = 0.05

Analysis of Research Question Two

The second research question addresses the relationship between SLCs and student performance as reported on the AEIS for TAKS in reading and math for economically disadvantaged and special education subpopulations at Robert Lee High School ninth grade academy in North East Independent School District. Analysis of this question consists of four parts. Part One examined student performance on reading

TAKS by economically disadvantaged and non-economically disadvantaged populations. Part Two examined student performance on math TAKS by economically disadvantaged and non-economically disadvantaged populations. Part Three examined student performance on reading TAKS by special education and regular education populations. Part Four examined student performance on math TAKS by special education and regular education populations.

Descriptive statistics and an inferential statistic, a two-way Analysis of Variance (ANOVA) are presented to describe the degree of impact SLCs had on student performance, defined by economically disadvantaged and special education populations. The ANOVA was applied to data from each subpopulation by year with all test analyses disaggregated by the content areas of reading and math to determine significant difference. Post hoc tests were run as needed to determine specific means producing significance.

Part One--Economically Disadvantaged Reading TAKS

Table 10 presents the descriptive statistics for economically disadvantaged reading TAKS scale scores during implementation of SLCs in 2002-2003 through 2005-2006.

Table 10. Number of Students (N), Mean Score, and Standard Deviation for Reading TAKS Scale Scores for Economically and Non-economically Disadvantaged Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	Economically Disadvantaged	N	Mean	Standard Deviation
2002-2003	No	197	2212.38	148.602
	Yes	229	2131.77	150.114
	Total number of students	426		
2003-2004	No	193	2283.95	177.339
	Yes	291	2190.43	141.203
	Total Students	484		
2004-2005	No	172	2272.16	177.593
	Yes	343	2211.98	160.230
	Total Students	515		
2005-2006	No	176	2262.83	176.696
	Yes	323	2199.03	178.731
	Total Students	499		

Table 11 Part A presents data for the two-way ANOVA procedure for reading TAKS scale scores by economic status, by year, during the implementation of the SLCs model at Lee High School. The level of significance for test years 2002-2003 through 2005-2006 was <0.001 , which was less than the alpha level of 0.05. As a result, the decision was made to reject the null hypotheses of no difference. Analysis showed that there was a statistical difference in reading TAKS scale scores across the four years of the study, irrespective of economic status. It is inferred that in the population, at least one year's mean score was significantly different from at least one other year's mean. The location of the differences is discussed in the relevant Scheffé section.

Table 11 Part B presents data for the two-way ANOVA procedure of reading TAKS scale scores by economic status, irrespective of year. The level of significance for

differences in reading scale scores, across economic status levels, for all four years combined, was <0.001 . This was less than the alpha level of 0.05. The decision was made to reject the null hypotheses of no difference. It is inferred that at least one economic status group in the population was significantly different than the other group's mean. That difference is discussed in the relevant Scheffé section.

Table 11 Part C presented data for the two-way ANOVA procedure for the interaction of the two variable's reading TAKS scale scores. The level of significance for differences in reading scale scores, across economic status levels, for all four years combined, was 0.386. This was greater than the alpha level of 0.05. The decision was made to fail to reject the null hypotheses of no difference. Failing to reject the null hypothesis for variable interaction indicates that within the economic status subpopulations of this study, the mean scale scores of students in SLCs across each year hold a similar pattern. That is, the way the economic subpopulations performed in each year is the same.

Table 11. ANOVA with Sum of Squares, Degrees of Freedom (df), Mean Squares, F-statistic, and P-value Significance for Reading TAKS Performance for Economically and Non-economically Disadvantaged Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Reading TAKS Performance	Type III Sum of Squares	df	Mean Square	F	p-value
A -Year	1362621.293	3	454207.098	16.994	<0.001
B -Economically Disadvantaged	2481771.043	1	454207.098	92.855	<0.001
C -Interaction	81268.071	3	2481771.043	1.014	0.386

Alpha=0.05

Table 12 presents Scheffé analysis from the post hoc test on the ANOVA data. The Scheffé revealed statistical significance for reading TAKS scale scores by years, with no distinction being made for economic status. Specifically, ninth grade students in the Spring of 2003 scores were significantly lower than ninth grade students in any of the other three years. Student scores in Spring 2004, Spring 2005 and Spring 2006 were all statistically the same.

Table 12. Scheffé by Test Year for Economically and Non-economically Disadvantaged Subpopulations, Number of Students (N), and Subsets 1 and 2 for Reading TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	N	Subset	
		1	2
Spring 2003	426	2168.56	
Spring 2006	499		2220.7
Spring 2004	484		2227.45
Spring 2005	515		2231.95

Alpha = 0.05

Part Two--Economically Disadvantaged Math TAKS

Table 13 presents the descriptive statistics for math TAKS scale scores for economically disadvantaged students during implementation of SLCs at Lee High School in 2002-2003 through 2005-2006.

Table 13. Number of Students (N), Mean Score, and Standard Deviation for Math TAKS Scale Scores for Economically and Non-economically Disadvantaged Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	Economically Disadvantaged	N	Mean Score	Standard Deviation
2002-2003	No	202	2127.77	192.937
	Yes	226	2039.73	160.866
	Total Students	428		
2003-2004	No	185	2170.99	204.893
	Yes	292	2080.48	167.696
	Total Students	477		
2004-2005	No	167	2141.27	190.481
	Yes	341	2078.04	188.999
	Total Students	508		
2005-2006	No	184	2148.09	223.257
	Yes	329	2084.01	191.727
	Total Students	513		
Total	No	738	2146.73	203.557
	Yes	1188	2073.01	180.150
	Total Students	1926		

Table 14 presents data for the two-way ANOVA procedure for yearly performance in math, economic status, and the interaction of the two variable's math TAKS scale scores.

Table 14. ANOVA with Sum of Squares, Degrees of Freedom (df), Mean Square, F-statistic, and P-value Significance for Math TAKS Performance for Economically and Non-economically Disadvantaged Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Math TAKS Performance	Type III Sum of Squares	df	Mean Square	F	p-value
A –Year	422528.71	3	140842.903	3.940	0.008
B –Economic Status	2627922.919	1	2627922.919	73.518	<0.001
C -Interaction	74361.468	3	24787.156	0.693	0.566

Alpha=0.05

Table 14 Part A presents the level of significance for differences in math scale scores, across the four years, irrespective of economic status, was .008. This was less than the alpha level of 0.05, and as a result, the decision was made to reject the null hypotheses of no difference. Rejecting the null hypothesis suggests that within the population, at least one mean score was significantly different from at least one other year's mean. The locations of the differences will be discussed in the relevant Scheffé section.

Table 14 Part B presents data from a two-way ANOVA procedure of math TAKS scale scores by economic status by year, during the implementation of the SLCs model at Lee High School. The level of significance for the economic subpopulations, irrespective of year, was <0.001. This was less than the alpha level of 0.05, and the decision was made to reject the null of no difference. Rejecting the null hypothesis suggests that the means of one of the subpopulations showed statistical difference from another. Scores for economically disadvantaged students were lower than non-economically disadvantaged students each year of the study.

Table 14 Part C presents data from a two-way ANOVA procedure of math TAKS scale scores by economic status by year. The level of significance for interaction between test years 2002-2003 through 2005-2006, and economic subpopulations was .556. This was greater than the alpha level of 0.05. As a result, the decision was made to fail to reject the null hypothesis of no difference. There was no statistical difference in the pattern of math TAKS scale scores across the four years of the study, when comparing the performance of the economic subpopulations.

Table 15. Scheffé by Test Year for Economically and Non-economically Disadvantaged Subpopulations, Number of Students (N), and Subsets 1 and 2 for Math TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	N	Subset	
		1	2
Spring 2003	428	2081.28	
Spring 2005	508	2098.83	2098.83
Spring 2006	513	2107	2107
Spring 2004	477		2115.59

Alpha = 0.05

Table 15 presents data from the Scheffé. The Scheffé provided results showed statistical significance during the study for student performance during the implementation of the SLCs. The level of significance for scale score means across the four years, with all ethnic groups combined, was <0.001. This was less than the alpha level of 0.05, and as a result, the decision was made to reject the null hypotheses of no difference in student performance. Rejecting the null hypothesis indicates that within the entire student population of this study, the mean scale scores of students in the SLCs are

significantly different between years. Specifically, ninth grade students in Spring of 2003 scores were significantly lower than ninth grade students in Spring 2004. Students' scores in Spring 2005 and Spring 2006 showed no difference and were statistically the same.

Part Three--Special Education Reading TAKS

Table 16 presents the descriptive statistics for reading TAKS scale scores for special education and regular populations after implementation of SLCs in the years 2002-2003 through 2005-2006.

Table 16. Number of Students (N), Mean Score, and Standard Deviation for Reading TAKS Scale Scores for Special and Regular Education Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	Special Education	N	Mean	Standard Deviation
2002-2003	Regular Ed	362	2188.25	149.924
	Special Ed	64	2064.02	137.060
	Total Students	426		
2003-2004	Regular Ed	425	2246.09	158.742
	Special Ed	59	2095.37	129.588
	Total Students	484		
2004-2005	Regular Ed	465	2239.03	163.592
	Special Ed	50	2167.42	198.933
	Total Students	515		
2005-2006	Regular Ed	465	2229.05	181.120
	Special Ed	34	2118.71	135.573
	Total Students	499		
Total	Regular Ed	1717	2227.37	165.858
	Special Ed	207	2106.91	156.052
	Total Students	1924		

Table 17 Part A presents data from a two-way the ANOVA procedure of reading TAKS scale scores for special education and regular education subpopulations during implementation of the SLCs model at Lee High School. The level of significance for test years, 2002-2003 through 2005-2006, was <0.001 . This was less than the alpha level of 0.05, and as a result, the decision was made to reject the null hypotheses. Analysis showed that there was a statistical difference in reading TAKS scale scores during the years of the study, irrespective of special education or regular education status. The location of the differences in years is discussed in the relevant Scheffé section.

Table 17 Part B presents data from a two-way ANOVA procedure of reading TAKS scale scores by special education, by year, during the implementation of the SLCs model at Lee High School. The level of significance for the subpopulations, irrespective of year, was <0.001 . This was less than the alpha level of 0.05, and the decision was made to reject the null of no difference. Rejecting the null hypothesis suggests that reading TAKS means of one of the subpopulations showed statistical difference from another. Scores for special students were lower than the scores of regular education students each year of the study.

Table 17 Part C, presents data from a two-way ANOVA procedure of reading TAKS scale scores by special education and regular education status by year. The level of significance for interaction between test years 2002-2003 through 2005-2006, and economic subpopulations was 0.120. This was greater than the alpha level of 0.05. As a result, the decision was make to fail to reject the null hypothesis of no difference. There was no statistical difference in the pattern of reading TAKS scale scores across the four

years of the study, when comparing the performance of the special education and regular education subpopulations.

Table 17. ANOVA with Sum of Squares, Degrees of Freedom (df), Mean Squares, F-statistic, and P-value Significance for Reading TAKS Performance for Special and Regular Education Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Reading TAKS Performance	Type III Sum of Squares	df	Mean Square	F	p-value
A -Year	608533.074	3	202844.358	7.600	<0.001
B -Special Education	2283990.537	1	2283990.537	85.570	<0.001
C -Interaction	156082.011	3	52027.337	1.949	0.120

Alpha level = 0.05

Table 18 presents data from the Scheffé. The Scheffé provided results showed statistical significance for reading TAKS scale scores by years, with no distinction being made for special education and regular education status. The level of significance for reading scale score means across the four years, with special education and regular education combined was 0.120. This was greater than the alpha level of 0.05, and as a result, the decision was made to fail to reject the null hypotheses of no difference in student performance. Rejecting the null hypothesis indicates that within the entire student population of this study, the mean scale scores of students in the SLCs are significantly different between years. Specifically, ninth grade students in Spring of 2003 scores significantly lower than ninth grade students in any of the other three years. Students' scores in Spring 2004, Spring 2005, and Spring 2006 showed no difference and were statistically the same.

Table 18. Scheffé by Test Year for Special and Regular Education Subpopulations, Number of Students (N), and Subsets 1 and 2 for Reading TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	N	Subset	
		1	2
Spring 2003	426	2169.58	
Spring 2006	499		2221.53
Spring 2004	484		2227.72
Spring 2005	515		2232.08

Alpha = .05

Part Four--Special Education Math TAKS

Table 19 presents the descriptive statistics for math TAKS scale scores for special education and regular populations after implementation of SLCs in 2002-2003 through 2005-2006.

Table 20 Part A presents data for the two-way ANOVA procedure of math TAKS scale scores by special education and regular education status, by year, during the implementation of the SLCs model at Lee High School. The level of significance for test years 2002-2003 through 2005-2006 was <0.052 , which was less than or equal to the alpha level of 0.05 (values were rounded up). As a result, the decision was made to reject the null hypothesis of no difference. Analysis showed that there was a statistical difference in math TAKS scale scores across the four years of the study, irrespective of special education and regular education status. It is inferred that in the population, at least one year's mean score was significantly different from at least one other year's mean. The location of the differences is discussed in the relevant Scheffé section.

Table 19. Number of Students (N), Mean Score, and Standard Deviation for Math TAKS Scale Scores for Special and Regular Education Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	Special Education	N	Mean	Standard Deviation
2002-2003	Regular Ed	370	2105.21	174.058
	Special Ed	58	1928.62	156.082
	Total Students	428		
2003-2004	Regular Ed	435	2129.09	185.703
	Special Ed	42	1975.69	153.630
	Total Students	477		
2004-2005	Regular Ed	476	2102.95	191.172
	Special Ed	32	2037.47	190.742
	Total Students	508		
2005-2006	Regular Ed	491	2110.95	207.505
	Special Ed	22	2018.68	135.407
	Total Students	513		
Total	Regular Ed	1772	2112.06	191.266
	Special Ed	154	1976.94	164.897
	Total	1926		

Table 20 Part B presents data for the two-way ANOVA procedure of math TAKS scale scores by special education and regular education status, irrespective of year. The level of significance for differences in math scale scores, across special education and regular education status, for all four years combined, was <0.001 . This was less than the alpha level of 0.05. The decision was made to reject the null hypotheses of no difference. Rejecting the null suggests that the math TAKS means of one of the subpopulations showed statistical difference from another. Special education students scored lower on the math TAKS than regular education students all four years of the study. The special

education average mean score in math was lower than regular education score by 65.48 scale points.

Table 20 Part C presented data for the two-way ANOVA procedure for the interaction of the two variable's math TAKS scale scores. The level of significance for differences in math TAKS scale scores, across levels, for all four years combined, was 0.048. This was less than the alpha level of 0.05. The decision was made to reject the null hypotheses of no difference. Rejecting the null hypothesis for variable interaction indicates that within the subpopulations of this study, the mean scale scores of students in SLCs across each year showed significant difference. That is, the way the special education and regular education subpopulations performed in each year is different. Special education and regular education scores showed a decrease in the gap between the two subpopulations in math TAKS.

Table 20. ANOVA with Sum of Squares, Degrees of Freedom (df), Mean Squares, F-statistic and P-value Significance for Math TAKS Performance for Special and Regular Education Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Math TAKS Performance	Type III Sum of Squares	df	Mean Square	F	p-value
A -Year	275797.961	3	91932.654	2.575	0.052
B -Special Education	1874772.119	1	1874772.119	52.514	<0.001
C -Interaction	282778.964	3	94259.655	2.64	0.048

Alpha level = 0.05

Table 21 presents data from the Scheffé. The Scheffé provided results showed statistical significance for math TAKS scale scores by years, with no distinction being made for special education and regular education status. The level of significance for math scale score means across the four years, with special education and regular education combined was 0.052. This was less than or equal to the alpha level of 0.05, and as a result, the decision was made to reject the null hypotheses of no difference in student performance. Rejecting the null hypothesis indicates that within the entire student population of this study, the mean scale scores of students in the SLCs are significantly different between years. Specifically, ninth grade students' scores in Spring 2003 were significantly lower than the scores of ninth grade students in any of the other three years. Students' scores in Spring 2004, Spring 2005, and Spring 2006 showed no difference and were statistically the same.

Table 21. Scheffé by Test Year for Special and Regular Education Subpopulations, Number of Students (N), and Subsets 1 and 2 for Math TAKS Scale Scores for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Test Year	N	Subset	
		1	2
Spring 2003	428	2169.58	
Spring 2005	508		2221.53
Spring 2006	513		2227.72
Spring 2004	477		2232.08

Alpha = .05

Analysis of Research Question Three

The third research question addressed the relationship between SLCs and student attendance and dropout rates as reported on the AEIS for students in the Robert Lee High School ninth grade academy. The intent of question number three was to determine the degree SLCs influences student attendance and dropouts at Lee High School.

Research question three of this study consists of two parts. Part One examined the relationship of the SLCs on attendance during 2002-2003 through 2005-2006. Part Two examined the relationship of the SLCs on dropout rates.

Part One--Attendance

Table 22 presents descriptive data for attendance by six-week grading cycle for ninth grade students for 2002-2003 through 2005-2006. Table 23 presents the results of a chi-square test used to determine the association between the categorical variables of student attendance. The chi-square procedure only processes whole numbers. Therefore, to take advantage of the decimal precision provided in the raw data, a linear transformation was required. Each value was multiplied by ten to convert it to a whole number. Values were so similar that there was little room for variation showing statistical independence.

Table 22. Student Attendance Cycle Cross Tabulation by Six-Week Periods for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas.

SCHOOL YEAR	COUNT	CYCLE						Total
		1	2	3	4	5	6	
2002-2003	*Expected Count	930.8	916.7	911.8	889.7	900.1	902.9	5452
	% Within School Year	17.1	16.8	16.7	16.2	16.5	16.7	100.0
	% Within Cycle	24.8	24.7	24.7	24.6	24.7	24.9	24.7
	% of Total	4.2	4.2	4.1	4.0	4.1	4.1	24.7
2003-2004	*Expected Count	956.2	941.8	936.7	914.1	924.7	927.5	5601
	% Within School Year	17.0	16.8	16.6	16.5	16.6	16.6	100.0
	%Within Cycle	25.3	25.4	25.2	25.7	25.5	25.4	25.4
	% of Total	4.3	4.3	4.2	4.2	4.2	4.2	25.4
2004-2005	*Expected Count	939	924.8	919.8	897.6	908.1	910.8	5500
	% Within School Year	17.1	16.7	16.8	16.3	16.5	16.6	100.0
	%Within Cycle	25.0	24.8	25.1	25.0	24.9	25.0	25.0
	% of Total	4.3	4.2	4.2	4.1	4.1	4.1	25.0
2005-2006	*Expected Count	935.9	921.8	916.8	894.6	905.1	907.8	5482
	% Within School Year	17.1	16.9	16.8	16.2	16.5	16.4	100.0
	%Within Cycle	24.9	25.1	25.0	24.7	24.9	24.7	24.9
	% of Total	4.3	4.2	4.2	4.0	4.1	4.1	24.9
Total	*Expected Count	3762	3705	3685	3596	3638	3649	22035
	% Within School Year	17.1	16.8	16.7	16.3	16.5	16.6	100.0
	%Within Cycle	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	% of Total	17.1	16.8	16.7	16.3	16.5	16.6	100.0

**Values increased times 10*

Table 23. Pearson Chi-Square Test with Number (N) of Valid Cases, Value, Degrees of Freedom (df), and P-value for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

	Value	df	Asymp. Sig (2 sided)
Chi-Square	.043a	15	1
N of Valid Cases	2205		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 889.74.

Part Two--Dropouts

Table 24 presents descriptive data for dropout rates by each school year for ninth grade students by ethnic population for 2002-2006. A chi-square test was administered, but the values were so small that the results were unusable. The numbers of dropouts were almost identical for each year of the study. Of the 32 cells in the table composed of the 8 groups by 4 years, only one cell had a count of 5. All other cells had a lower count or had no students. Although this was a topic for investigation proposed by the committee in the proposal hearing, the empirical data, once collected would not support meaningful analysis.

Table 24. Dropout Numbers by African American, Hispanic, and White Subpopulations for Ninth Grade Students at Lee High School of the NEISD, San Antonio, Texas

Year	African American		Hispanic		White		TOTALS		
	Male	Female	Male	Female	Male	Female	Male	Female	M/F
2002-2003			3	3	1		4	3	7
2003-2004			3	3	1		4	3	7
2004-2005			1	3	1	1	2	4	6
2005-2006		1	4	3	1	0	5	4	9
Total		1	11	12	4	1	15	14	29

Summary of Findings

The results of this study revealed both positive influence and no influence on student performance after the implementation of SLCs. The analysis of variance (ANOVA) found significant differences in student performance on reading TAKS with an increase of scores over the four years of the study for African American, Hispanic, and White subpopulations. There was no statistical significance found in math TAKS scores for these ethnic subpopulations. The analysis showed that the White subpopulation scored higher than the African American and Hispanic students on both the reading and math TAKS. The analyzed data failed to provide evidence that SLCs reduce the achievement gap in any of these subpopulations on reading or math TAKS.

Economically disadvantaged and special education students' scores showed statistical significant in both reading and math TAKS. Analysis revealed economically disadvantaged and special education subpopulations scored lower than the non-economically disadvantaged and regular education students on the reading and math TAKS. After the implementation of the SLCs, the data analysis showed statistical significance in the achievement gap between special education and regular education students on the math TAKS. Special education students were the only subpopulations to show a decrease in the achievement gap.

Attendance rates showed no statistical significance after the implementation of the SLCs. An analysis of dropout rates was not possible due to low dropout numbers. The empirical data would not support meaningful analysis.

Chapter V will discuss conclusions for this research and recommendations for further study.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The primary goal of this study was to investigate the relationship between SLCs and student performance. This record of study began with a review of current literature to determine possible methods/strategies to improve student achievement on TAKS, increase attendance, and reduce dropouts. Personal interviews with NEISD administrators and instructional leaders influenced the selection of the study and targeted campus. The ninth grade population of Lee High School was identified to be a viable study. Lee is the only high school in NEISD that has fully transitioned from a traditional system to the SLCs model. The population of this study, for the purposes of both school and student performance analysis, included only ninth grade students at Lee High School in NEISD for school years 2002-2003 through 2005-2006.

The first part of Chapter V contains a summary, findings, and conclusions for each research question that was posed for this study. These findings and conclusions are based on data in Chapter IV and a review of literature in Chapter II concerning SLCs. Recommendations for practice and for further research are offered in the second part of the chapter.

Conclusions are presented in reference to the three original research questions that guided this study.

Research Question One

The first question addressed the relationship between SLCs and student performance as reported on the Academic Excellence Indicator System (AEIS) for Texas Assessment of Knowledge and Skills (TAKS) in reading and math for ethnic subpopulations at Robert Lee High School ninth grade academy in North East Independent School District.

Findings

Analysis of data for this study found reading TAKS scale scores showed a statistical significance with increases each year of the study for each ethnic subpopulation. The scores for 2002-2003 through 2004-2005 revealed a steady increase with a slight decline in 2005-2006. This supports the literature review that indicated that the benefits of SLCs include increased achievement for all students (Wallach & Lear, 2003).

White students significantly out-performed African American and Hispanic students on the reading TAKS each year of the study. This may be explained by Toch (2003) when he summarized this pattern:

The disadvantaged and minority students have paid the highest price for the failings of comprehensive secondary schools. They have arrived at the nation's high schools needing the most academic enrichment and the most adult advocacy and routinely they have received the least. (p. 9).

The achievement gap between White, African American, and Hispanic students did not decrease in reading TAKS, even though the reading TAKS scores for each population increased during the study. Wasley et al. (2000) found that minority students

have improved academic achievement when enrolled in small schools that downsize from 1500 to 3000 to serving 100 to 400 students. Duke & Lamar-Duke further (2007) explains that appropriate size is critical for change in high schools.

The second part of question one addresses math TAKS scale scores for ethnic subpopulations of African Americans, Hispanics, and Whites. The math TAKS scale scores did not show that the implementation of the SLCs made a difference during the four years of the study. Even though the scores showed no improvement, the review of literature presented research supporting implementation of SLCs. Hall (2004) conducted a study of at risk students in the 9th grade at a high school in Arizona, and the data determined the SLCs had an impact on math achievement and student engagement in the identified population participating in the study.

Even though no statistical significance was found, math TAKS scale scores increased slightly the first year the SLCs were implemented and they stayed relatively level in 2004 and 2005. Scores on math TAKS experienced a small decrease in 2006. This pattern followed the trend found in the multi-year history for math TAKS scores in Texas. Over the same four-year period, math scores showed an increase in 2004 and then leveled in 2005-2006 statewide (TEA, 2007). This trend statewide on math TAKS scores is mirrored in the SLCs results for Lee High School and may be related to the results found in this study.

The White subpopulation scored higher on the math TAKS than African American and Hispanic students each of the four years of the study. Math TAKS scale scores for Hispanic students and African American students showed little difference.

Similar to the reading TAKS results, the implementation of the SLCs at Lee High School did not show influence in the achievement gap between ethnic subpopulations on the math TAKS.

Conclusions and Implications for Practice

Based on the data from this study, implementations of SLCs do produce increased student performance; however, increases are not guaranteed in all subjects. Positive results were found in reading TAKS scores after the implementation of the SLCs in all subpopulations. Analysis of data showed no improvement in math TAKS scale scores for African American, Hispanic, and White subpopulations.

The findings of this study indicate that it is reasonable to expect that the implementation of SLCs will improve student performance in all ethnic subpopulations on reading TAKS. It is reasonable to expect an increase in student performance if all structures and strategies of the SLCs are fully implemented (Oxley, 2001). Cotton (2000) explains participation in SLCs help students to feel better about themselves, increasing academic achievement. In Chapter II, Oxley (2001) provides possible obstacles that may have prevented greater gains in student performance. The three barriers to SLCs success are identified in the review of literature.

Two of the three barriers were found on the Lee High School campus. The first barrier was adding SLCs to a traditional campus with shared campus services. The SLCs at Lee High School shared administrators, faculty, and staff members with the traditional campus. The second barrier was the operation of the old and new forms of the school structure operating at the same time. The SLCs were located on the same campus as the

traditional program. School rules and policies were the same for both the SLCs and the traditional campus.

The third barrier, instructional practices that ‘continue as usual’, identified by Oxley (2001), was not identified as an obstacle for implementation of the SLCs at Lee High School. Staff development and professional learning communities were a major focus for the campus, and is supported by Wasley et al. (2000), they found that SLCs teachers have a strong sense of professional community and use collaborative teaming to increase student performance. Research shows that one or more of these barriers may prevent the successful implementation of the SLCs, and may result in no improvement in student performance.

In addition, the model selected for the Lee SLCs was based on Oxley’s (2006) five domains of SLCs. The fifth domain addresses campus and district support. During the time of this study, there was a change in the administrative team at Lee High School. The level of support and change in leadership may have influenced the results of the study.

Howley and Bickel (2000) found that school size has figured conspicuously in education equity and effectiveness, and Cotton (2001) states that there is strong evidence that smaller schools can narrow the achievement gap. This was not the case in this study for the ethnic subpopulations on reading and math TAKS scores. The achievement gap between African American and Hispanic populations and the White subpopulation increased in math. Contrary to the research offered in this study, the data for TAKS scale

scores did not support that the SLCs had a positive impact on lessening the achievement gap among African American, Hispanic, and White students in reading and math.

Research Question Two

The second research question addressed the relationship between Small Learning Communities (SLCs) and student performance as reported on the Academic Excellence Indicator System (AEIS) for the Texas Assessment of Knowledge and Skills (TAKS) in reading and math for economically disadvantaged and special education subpopulations at Robert Lee High School ninth grade academy in North East Independent School District.

Findings

Part One of question two provided data that shows statistical significance in the increase of scores on the reading TAKS for economically disadvantaged students. Scores increased on reading TAKS for the first two years of the study, and decreased from 2211.98 in 2004-2005 to 2199.03 in 2005-2006. It can be inferred from the results reported in Chapter IV that student performance improved for economically disadvantaged students in reading. Howley and Bickel (2000) provided insight in Chapter II, stating that mostly poor, ethnic minority students have higher achievement in SLCs. They further state that economically disadvantaged students fair better in small schools when they are from a low economic community.

The data showed significance between the two subpopulations with economically disadvantaged students scoring lower than non-economically disadvantaged students do.

Even though the economically disadvantaged students scored lower on the reading TAKS than did the non-economically disadvantaged students, their scores increased in 2004-2005 while the non-economically disadvantaged students' scores decreased. However, there was not a significant change in the achievement gap between the two subpopulations.

Part Two provides data that proved significance in economically disadvantaged math TAKS scale scores during the four years of the study. The math scores for the economically disadvantaged increased after the implementation of the SLCs. The scale scores for math TAKS slightly increased in 2003-2004, declined in 2004-2005, and leveled out in 2005-2006. Each year of the study, economically disadvantaged student scores were lower than the non-economically disadvantaged students were. The achievement gap between the two groups did not change after implementing SLCs.

Part Three presents data analysis that shows significance in reading TAKS scores for special education students. Reading scale scores increased in subpopulations, special education and regular education, on the reading TAKS. This coincides with the district initiative to move more special education students into regular classrooms, while decreasing the number of students in special education labs. The decrease in special education labs resulted in more students receiving on grade level instruction and support from the team of teachers in the SLCs. SLCs provide a structure that encourages general and special education teachers to work together for the benefit of all students. Friend and Bursack (2006, p. 72) state SLCs are the "key to a reasonable and realistic step toward formalizing the delivery of special education services," and increasing achievement.

The achievement gap between special education students and regular education students revealed significance with a decrease in the gap for the two subpopulations in 2004-2005. Schwartz (2005) supported the inclusion model stating that participation in regular classrooms is essential for special education students in order to decrease the achievement gap. The SLCs at Lee High School provided an inclusive program for special education students, ensuring they received appropriate grade level instruction.

Part Four of this question examined math TAKS scores for special education students during the implementation of SLCs at Lee High School. Math TAKS scale scores improved significantly in math. Scale scores for special education students increased slightly the first three years of the study. The scale scores jumped 90.06 mean points from 2002-2003 to 2005-2006.

The achievement gap between special education and regular education students on math TAKS showed significant decreases after the implementation of the SLCs. The achievement gap decreased in 2004-2005 and then experienced a slight increase in 2005-2006.

Conclusions and Implication for Practice

After the implementation of SLCs at Lee High School, performance increased in both reading and math TAKS for the economically disadvantaged and special education students. In the review of literature, Anderman (2003) states that a sense of belonging can create a wide range of positive academic outcomes including increased academic achievement. SLCs create an atmosphere of belonging for all students, especially economically disadvantaged and special education students.

A number of implications come from the conclusions drawn from the data in Chapter IV and the review of the literature. Based on the findings of this study, implementing SLCs can influence academic performance for economically disadvantaged and special education subpopulations on reading and math TAKS. The influence of SLCs is supported by a report from The American Institutes for Research that analyzed data on state assessments and found a positive impact on student performance in reading for students in small schools (USDOE, 2000). In the review of literature presented in Chapter II, Howley and Bickel (2000) state that economically disadvantaged students fare better in small schools where they can develop positive relationships with their teachers.

Even though special education students scored lower than regular education students in math TAKS, the gap showed significant change between the special education and regular education students. It can also be inferred that special education students' math TAKS scale scores can increase when students are enrolled in a fully implemented and supported SLCs. Raywid (1999) adds that two decades of data from quantitative studies establish that students 'learn more and better' in SLCs.

Schools must consider different structures and strategies to improve student performance for special education students. Implementing SLCs may give the support special education students need to satisfy the requirements set by the NCLB Act of 2001 and the reauthorization of the 2004 Individuals with Disabilities Education Improvement Act (IDEA). This legislation placed more focus on the needs of special education students, and the opportunity for increased student performance for all students,

(Albrecht & Joles, 2003; Money, Denny, & Gunter, 2004) regardless, of their handicapping condition in regular education classroom.

The review of literature for this study indicated that successful SLCs must include elements of all five SLCs domains identified by Oxley (2006), interdisciplinary teaching and learning teams; rigorous, relevant curriculum and instruction; inclusive program and practices; continuous program improvement; and building and district support. The SLCs with the strongest results have faithfully implemented all domains (Heath, 2005). Wasley and Lear (2001) remind us that there is a difference between school size and excellence:

Smallness, by itself, is no guarantee of excellence. There are many poorly performing small schools, in both cities and rural areas. But the goal is not smallness for its own sake. The goal is to create authentic learning and authentic equity. Only then will we have authentic reform and a real shot at eliminating achievement gaps. (p.22)

Research Question Three

The third question of this study addressed the relationship between Small Learning Communities (SLCs) and student attendance and dropout rates as reported on the Academic Excellence Indicator System (AEIS) for Robert Lee High School ninth grade academy in North East Independent School District. The findings of this research and study for question three are divided into two parts.

Findings

Part One of this question examined attendance data for the four years of the study by six-week grading periods. The data revealed no significant change in attendance

rates. The attendance rates were so close in value for each of the grading periods that the analysis showed no difference after the implementation of the SLCs at Lee High School.

Part Two of question three examined data for dropout rates. The sample of dropouts was so small that no statistical difference could be found. Even though there was not a decrease in dropouts, the number of dropouts were low when you consider that dropout rates are reaching up to 50 percent in some urban areas (Cater, 2005) where most students attend large comprehensive high schools. In addition, Mitchell (2000) states that a study of Nebraska state data established the influence of SLCs on student performance citing schools with small enrollments experienced a three percent dropout rate compared to larger schools with a fifteen percent dropout rate.

The dropout demographics for Lee High School ninth grade students mirrored the data for the multi-year history 2003-2006 for Texas schools' dropout rates (TEA, 2007). The state study also showed little change in dropout rates over the four years of this study for Texas students.

Conclusions and Implications for Practice

Based on the findings of this study, there was not a significant relationship between attendance rates and dropout rates for students in SLCs at Lee High School. Implementing SLCs did not influence attendance or dropout rates at Lee High School during the four-year period 2002-2003 to 2005-2006. However, it was noted that the attendance rate averaged in the 90 percentile for most grading periods during the study. The attendance rates for the ninth grade population ranged from a low of 89.4 to a high of 95.62 over the four-year period. Even though the results did not prove significant, the

literature tells us that students and teachers in schools that have implemented SLCs report they experience a more positive and productive learning environment (Arhar, 1990, 1997; Dickinson & Erb, 1997; Lee & Smith, 1993) which increases attendance. Several large-scale studies have demonstrated the positive effects of SLCs teams on student performance (Flowers & Mertens, 2004) in academics, attendance, and dropout rates.

The implementation of SLCs does not guarantee lower attendance rates or fewer dropouts. However, the review of the literature tells us that many students fail to attend school or completely dropout because they lack any meaningful relationship with an adult at school (NMSA, 2004). Reconstructing our high schools by implementing SLCs represents a giant step toward personalizing education, and establishing the right conditions for enhanced student achievement and relationships. Mitchell (2000) cites research that shows that students who transferred from large schools to smaller schools showed marked improvement in attendance and were less likely to drop out of school.

Dropout numbers were minimal resulting in no significance difference in rates for 2002-2003 to 2005-2006. It should be noted, however, that dropout rates did not increase over the period of the study. The lack of an increase of dropouts at Lee High School can be seen as a positive attribute, possibly related to SLCs and the teachers' focus on developing supportive relationships with the students. Schools implementing SLCs need to make sure and implement the five domains for SLCs. Heath (2005, p.1) states that a "well planned SLCs program will produce statistically significant

improvements in the school's climate, student dropout, attendance, and grade completion.”

The increase in school size and the increased accountability standards set by the Texas Education Agency (TEA), as well as, No Child Left Behind (NCLB) have created an urgency to improve student performance, increase attendance rates, and lower dropout rates (Jehlen & Kopkowski, 2006). The review of the literature provides data that SLCs can influence attendance and dropout rates. Sammon (2000) tells us that the ninth grade year is crucial in decreasing the dropout rate. She states that the atmosphere of the school can determine if a student decides to disengage from the entire educational process before finally dropping out of school.

Recommendations for Practice

This study was designed to determine the relationship of small learning communities (SLCs) on student performance as identified by the Academic Excellence Indicator System database for ninth grade students at Lee High School in North East Independent School District. Conclusions have been made as to the degree of influence that SLCs have had on student performance. The two required TAKS tests for ninth grade students, reading and math, as well as performance data on attendance and dropout rates were studied. Certain definable subpopulations have also been studied in addition to ninth grade enrollments. The review of literature, findings for each question of the study, and their subsequent conclusions provide the basis for the following recommendations.

1. It is recommended that district officials support the implementation of SLCs at large comprehensive high schools.
2. District officials may want to recommend that high schools with a high percentage of economically disadvantaged and special education students implement SLCs.
3. It is recommended that campus leadership teams use the five domains of SLCs, as described by Oxley (2006), when structuring and implementing SLCs.
4. When implementing SLCs, it is recommended that close attention be paid to the impact on African American and Hispanic students' scores, especially in the area of math.

Recommendations for Further Research

The scope of this study is limited to the information gathered from a review of the literature and analysis of data from Lee High School of North East Independent School District, San Antonio, Texas. However, the intent of this study was to contribute methodological protocol and additional research-based literature to the broader debate on Small Learning Communities.

The review of the literature, findings from the study of data, and subsequent conclusions provide the basis for the following recommendations for further research:

1. A qualitative study of SLCs and their relationship to student performance is needed.

2. Further research of SLCs and their impact on student performance for African American, Hispanic, and White subpopulations in math is needed.
3. Further research of SLCs and its impact on school climate, culture, and environmental circumstances in relationship to student performance is needed.
4. Further research of SLCs needs to include a longitudinal study of achievement between students in SLCs and traditional programs.
5. A qualitative and quantitative study is needed to determine the influence levels of implementation of the five SLCs domains have on student performance.

The examination of the SLCs model for high school reform must continue beyond this study to provide practitioners sound, empirical reasoning for effective decision making for improving student performance. According to Wallach and Lear (2003), schools must be patient for achievement changes. The demand for instant evidence of success often leads to compromises that may decrease the possibility for long-term success. Sammon (2000, p. 22) states,

Even in high performing schools, the questions are being raised about truly engaging the minds and hearts of students to be life-long learners our mission statements purport them to be. We know that far too often students can drop out mentally even though they may still arrive in our classrooms each day. Developing SLCs structures help ensure that we leave no child behind.

SLCs are not a “panacea” for high school improvement, however, they provide a structure for personalized learning and improved student performance (Jehlen & Kopkowski, 2006).

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