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A STUDY OF STUDENT ACHIEVEMENT IN FLORIDA HIGH SCHOOLS
RECEIVING DEPARTMENT OF EDUCATION SMALLER LEARNING
COMMUNITY GRANTS: 2006-2009

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Teaching, Learning, and Leadership
in the College of Education
at the University of Central Florida
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Major Professor: Rosemarye Taylor

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ABSTRACT

The focus of this research was to analyze the impact of the United States Department of Education's Smaller Learning Communities (SLC) Grant Program on student achievement in 17 schools in the state of Florida that were issued three-year grants during the school years 2006-2009 as compared to 17 similar schools in the state of Florida that did not receive grant funding. Base-line data for each of the 34 schools consisted of student performance in 2006, one year prior to SLC schools receiving the grant. Student achievement data from the base-line through the three-year grant period for the 17 grant recipients were compared with that of 17 similar Florida schools that were not grant recipients in 2006.

Student data were collected from the Florida Department of Education. The data subjected to analyses were comprised of student achievement on the ninth and tenth grade Florida Comprehensive Assessment Test (FCAT) in the areas of reading and mathematics, the graduation rate, and the dropout rate. The data showed an overall improvement in the SLC schools' student achievement based on the six areas analyzed. The data collected were then compared to the 17 similar schools to identify any significant differences in the achievement gains in those schools.

Although both the SLC schools and the control schools showed overall improvement, no statistically significant relationship was discovered in the achievement of students in SLC schools versus students in similar schools that did not receive the grant dollars during the defined time periods. The overall trend for all 34 schools was similar improvement in student achievement.

This dissertation is dedicated to Jeanette White, who always believed in me.

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It is difficult to put into words the journey that started many years ago now when my good friend, Dr. Rob Anderson, talked me into taking some classes with him in pursuit of our doctoral degrees. Without him, this journey would not have started, nor would it have continued. His encouragement and persistence continued to motivate me throughout the years to this point of completion. My heartfelt thanks also go out to Dr. Rosemarye Taylor, my chair, whose patience and dedication to my success could not be equaled. She was the reason that I never quit believing. I am especially grateful to my committee members, Dr. George Pawlas, Dr. Jeffrey Kaplan and Dr. Lee Baldwin for their guidance and support throughout the process.

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To my co-workers who did what they could to free up the time that I needed to do what I needed to do. Assistant principals, Laura Beusse, Mary Bridges, Cheri Godek and George Morse, without whose support and sacrifice this would not have been possible, to you I say, “thank you from the bottom of my heart.”

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CHAPTER 1 THE PROBLEM AND ITS CLARIFYING COMPONENTS

Introduction

The argument has been made in the literature on school reform that schools could seek ways to create successful learning environments for students through the development of smaller learning communities (SLC) and eliminate dysfunctional work environments for teachers by creating professional learning communities (PLC). Both SLC and PLC models have had two things in common: personal relationships and connectivity with others in the school building. There have been many examples of both concepts being implemented throughout the United States in both large and small schools and in elementary, middle, and high schools.

The intent of this research was to analyze the accomplishments of Florida high schools that were awarded three-year, federally funded Smaller Learning Communities Grants during the school years 2006-2009. The purpose was to determine to what extent these models were successful in improving student achievement during the three years of the initial grant. Base line data from the 2005-2006 school year was compared to the three years of the grant (2006-2009) with analysis of the school results for the following areas: (a) Florida Comprehensive Assessment Test (FCAT) results for grades nine and 10 reading and mathematics, (b) dropout rate, and (c) graduation rate. Results were then compared with the results of 17 similar Florida high schools that did not receive grants to identify any significant statistical relationships between grant and non-grant high schools.

Conceptual Framework

Two distinct, yet interactive, concepts were studied as they related to establishing school culture. The first was that of creating a collaborative culture, or a professional learning community, that allowed previously isolated teachers the opportunity to work with and through their peers and become interdependent as opposed to being independent. The second concept focused on the student and the idea that the disadvantage of anonymity in large high schools for the average student could be overcome by organizing those high schools into smaller learning communities. In both instances, the focus was on interaction and relationships among those in the building and the impact on developing a positive school culture which could lead to fewer dropouts and more graduating students. The review of the literature conducted for the present study allowed the researcher to present some examples of collaboration and the positive effect such collaboration has had on the psychological success of employees. This resulted in being able to determine the attitudes of employees toward their jobs and the impact of working with peers to create student achievement gains. Literature was also reviewed to provide background and history related to the idea of creating connections for all students within a large high school and ensuring more personal connections in schools. School culture as defined by Wagner (2006) is:

The shared experiences both in school and out of school (traditions and celebrations) that create a sense of community, family, and team membership. People in any healthy organization must have agreement on how to do things and what is worth doing. Staff stability and common goals permeate the school. Time is set aside for schoolwide recognition of all school stakeholders. Common agreement on curricular and instructional components, as well as order and discipline, are established through consensus. Open and honest communication is

encouraged and there is an abundance of humor and trust. Tangible support from leaders at the school and district levels is also present. (p. 42)

Bolman and Deal (1997) described four frames or lenses through which organizations could be viewed at any given time. Of the four frames described, (structural, human resource, political and symbolic), the symbolic frame has been inextricably linked with the idea of school culture. Using the research of Selznick, Blumer, Clark, Corwin, March, Olsen, Meyer, Rowan, Weick, Davis and others, Bolman and Deal stated that the symbolic frame contained several core assumptions:

1. What is most important about any event is not what happened but what it means.
2. Activity and meaning are loosely coupled: events have multiple meanings because people interpret experience differently.
3. Most of life is ambiguous or uncertain-what happened, why it happened, or what will happen next are all puzzles.
4. High levels of ambiguity and uncertainty undercut rational analyses, problem solving, and decision making.
5. In the face of uncertainty and ambiguity, people create symbols to resolve confusion, increase predictability, provide directions, and anchor hope and faith.
6. Many events and processes are more important for what is expressed than what is produced. They form a cultural tapestry of secular myths, rituals, ceremonies, and stories that help people find meaning, purpose and passion. (p. 217)

There are several key organizational symbols that have been of assistance to organizations in finding meaning in chaos and confusion. Myths, fairy tales, stories, rituals, ceremonies, metaphor, humor, and play, according to Bolman and Deal (1997), have been helpful in defining an organization and in establishing the real purpose or meaning of the organization.

In an interview with the Apple Learning Exchange, Petersen (2009) shared criteria for a school culture:

First of all, there needs to be a widely shared sense of purpose and values that is consistent and shared across staff members. Without this, you have fragmentation and often times, a conflict. Secondly, we find that there are group norms of continuous learning and school improvement that the group reinforces the importance of staff learning and a focus on continuous improvement in the school. The third one is kind of an interesting one, which is a sense of responsibility for a student's learning. And, I think we always assume that the staff really believes and feel responsible for student learning. But, in some schools they blame the students for not being successful. In a positive school culture, staffs really feel a sense of responsibility for the learning of all students. Fourth, we find collaborative and collegial relationships between staff members. People share ideas, problems and solutions, they work together to build a better school. Finally, in more positive school cultures there's a real focus on professional development, and staff reflection, and sharing of professional practice. These are places where people interact around their craft; they improve their teaching; and they do it as a shared collaborative. (p. 1)

A comparison of the literature regarding the collaborative model included Seyfarth's (2002) six characteristics as being necessary for a productive work environment. The characteristics were as follows:

1. Continuous learning culture.
2. Supportive administrative leadership.
3. Opportunity to work collaboratively with others.
4. Respect for people as individuals.
5. Opportunity to use one's knowledge and skill and to receive feedback on one's performance.
6. Necessary resources to do the job. (p. 185)

The benefits of schools creating small units, in which anonymity has been banished, was also examined in the literature review. According to the National Association of Secondary School Principals (2004), the benefits of creating smaller learning communities included the following results:

- Gives students a sense of belonging and the feeling that someone cares whether they are doing well academically, socially, etc.
- Improves student attitudes, attendance, participation, satisfaction.
- Promotes higher achievement, particularly among females and non-white students.

- Develops stronger peer and student-teacher relationships.
- Teaches social interaction skills.
- Makes students feel safer.
- Provides opportunities for teachers to team with colleagues and develop closer relationships with students. (p. 83)

In the present study, the researcher sought to determine if funding schools to produce smaller learning communities, in which one of the strategies was teaming of teachers had an impact on student achievement.

Purpose of the Study

Florida high schools that were the recipients of the United States Department of Education's three-year Smaller Learning Communities Grants for the school years 2006-2007, 2007-2008, and 2008-2009 were the focus of this research. The study was conducted to determine the extent to which the infusion of dollars and the implementation of smaller learning communities was related to the change of performance of each school in regard to graduation rates, dropout rates and student achievement in grades nine and ten on the reading and mathematics portions of the FCAT. Those results were then compared to the results of 17 similar Florida high schools to determine if there was a significant statistical difference between grant and non-grant high schools as elaborated in Research Questions 1 through 4 which were used to guide the study.

Research Questions

The study was guided by the following research questions:

1. What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by graduation rate of seniors for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?
2. What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by dropout rate of seniors for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?
3. What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by changes in the percentage of students scoring at proficiency in the Florida Comprehensive Assessment Test for ninth and 10th graders in the subject area of reading for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?
4. What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by changes in the percentage of students scoring at proficiency in the Florida Comprehensive Assessment Test for ninth and 10th graders in the subject area of mathematics for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

5. What is the difference, if any, between the Smaller Learning Communities Grant high schools achievement levels and the State of Florida mean average in the six areas of measurement for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

Definitions of Terms

Florida Comprehensive Achievement Test (FCAT): The Florida Comprehensive Assessment Test® (FCAT) is the foundation of the statewide educational assessment and accountability program. The FCAT program includes assessments in the following areas: Writing for students in grades four, eight, and 10; Reading and mathematics for students in grades three through 10; Science for students in grades five, eight, and 11 (Florida Department of Education, 2010a).

FCAT Level 5 Student: This student has success with the most challenging content of the Sunshine State Standards. A student scoring in Level 5 answers most of the test questions correctly, including the most challenging questions (Florida Department of Education, 2008b).

FCAT Level 4 Student: This student has success with the challenging content of the Sunshine State Standards. A student scoring in Level 4 answers most of the test questions correctly, but may have only some success with questions that reflect the most challenging content (Florida Department of Education, 2008b).

FCAT Level 3 Student: This student has partial success with the challenging content of the Sunshine State Standards, but performance is inconsistent. A student

scoring in Level 3 answers many of the test questions correctly but is generally less successful with questions that are the most challenging (Florida Department of Education, 2008b).

FCAT Level 2 Student: This student has limited success with the challenging content of the Sunshine State Standards (Florida Department of Education, 2008b).

FCAT Level 1 Student: This student has little success with the challenging content of the Sunshine State Standards (Florida Department of Education, 2008b).

Florida Drop Out Rate: A dropout is defined in the state of Florida as a student who withdraws from school for any of several reasons cited in statute without transferring to another school, home education program, or adult education program. Dropout withdrawal reasons include voluntary withdrawal from school prior to graduation (e.g., after passing the age of compulsory school attendance); failure to meet attendance requirements due to excessive absenteeism; discontinuance of attendance with whereabouts unknown; failure to enter/attend school as expected after having previously registered; and certain other reasons. The dropout rate is calculated and reported for all children in grades nine through 12 who drop out of school (Florida Department of Education, 2007).

Florida Graduation Rate: The graduation rate in Florida measures the percentage of students who graduate within four years of their first enrollment in ninth grade. Subsequent to their enrollment in ninth grade, exiting transfers and deceased students are removed from the calculation. Entering transfer students are included in the count of the class with which they are scheduled to graduate, based on date of enrollment. Only

recipients of diplomas are counted as graduates (Florida Department of Education, 2008a).

Professional Learning Community: The term *professional learning community* describes a collegial group of administrators and school staff who are united in their commitment to student learning. They share a vision, work and learn collaboratively, visit and review other classrooms, and participate in decision making (Hord, 1997).

Smaller Learning Communities Program: The Smaller Learning Communities (SLC) program was established in response to growing national concern about students too often lost and alienated in large, impersonal high schools, as well as concerns about school safety and low levels of achievement and graduation for many students.

Authorized under the Elementary and Secondary Education Act (Title V, Part D, Subpart 4, Section 5441(b)), the SLC program was designed to provide local education agencies with funds to plan, implement, or expand SLCs in large high schools of 1,000 students or more. The SLC legislation allows local education agencies to implement the most suitable structure or combination of structures and strategies to meet their needs (United States Department of Education, 2008, p.1).

Methodology

There were 72 new grant recipient high schools in the United States in fiscal year 2006 receiving grant dollars from the Smaller Learning Communities (SLC) Program (U. S. Department of Education, 2010). The 17 schools that were awarded SLC grants in the state of Florida comprised the schools of primary interest in this quantitative research

study. The 17 SLC schools were manually matched to 17 non-SLC grant schools for comparison purposes in the analysis of data.

Utilizing the Florida Department of Education's School Indicators Report, data were collected from the 2005-2006, 2006-2007, 2007-2008 and 2008-2009 school years. This established base line data for the year prior to the grants' having been awarded that could be used in a comparison with data collected during the three-year cycle of the grant. Data collected for the 17 SLC schools and 17 non-SLC schools included graduation rates, dropout rates, and FCAT reading and mathematics scores for ninth- and tenth-grade students for all four years.

Limitations of the Study

The study contained the following limitations:

1. The study was limited to Smaller Learning Communities Grant recipient schools in the state of Florida for school year 2006-2007.
2. The study was limited to defining achievement based on graduation rates, dropout rates, and student achievement on the ninth- and 10th-grade FCAT in the areas of reading and mathematics.

Delimitations of the Study

The study contained the following delimitations:

1. The study did not include schools implementing smaller learning communities that were not funded by the U. S. Department of Education.

2. Student achievement data were collected from the Florida Department of Education's School Indicator Report and did not include any surveys or face to face interviews.

Summary

This chapter has provided an overview of the study. The purpose and conceptual framework have been introduced. The methodology, research questions, limitations and delimitations have also been presented. The following four chapters provide a review of the relevant literature and related research, the methods and procedures utilized in the study, the analysis of data, and a summary of the findings.

CHAPTER 2 REVIEW OF LITERATURE AND RELATED RESEARCH

Introduction

This chapter provides a review of relevant literature and research related to smaller learning communities. While there are many articles regarding smaller learning communities, there is not much definitive empirical research currently available. The chapter has been organized to address smaller learning communities and collaboration. Supportive administrative leadership, respect for people as individuals and the opportunity to use one's knowledge and skill and to receive feedback on one's performance are discussed. Finally, having the necessary resources to do the job has been reviewed.

Smaller Learning Communities (SLC)

With the introduction of the No Child Left Behind Act of 2001 (2002), the United States Department of Education chose to provide support to high schools through a series of grants providing schools with the means to meet the legislation. An overview of the grant history and connection to the policy was addressed in a letter from Assistant Secretary Susan Sclafani (2003) received with the 2003 grant application as follows:

Thank you for your interest in the Smaller Learning Communities (SLC) program. The purpose of this program is to support the planning, implementation, or expansion of small, safe, and successful learning environments in large public high schools, through competitive grants to local educational agencies (LEAs). The SLC program is authorized under section 5441 of Subpart 4 of Part D of Title V of the Elementary and Secondary Education Act of 1965 (20 USC 7249), as amended by the No Child Left Behind Act of 2001.

In implementing the No Child Left Behind Act of 2001, the US Department of Education has developed a strategic plan that will serve as the roadmap for all Departmental activities and investments. The plan specifically focuses on, among other areas, improving the performance of high school students and holding schools accountable for raising the academic achievement level of all students. The Department will work with States to ensure that students attain the strong academic knowledge and skills necessary for future success in postsecondary education and adult life. The Department will encourage students to take more rigorous courses, especially in the areas of mathematics and science. In addition, the Department of Education is committed to ensuring that our Nation's schools are safe environments conducive to learning.

One strategy that holds promise for improving the academic performance of our Nation's young people is the establishment of smaller learning communities as components of comprehensive school improvement plans. The Smaller Learning Communities Program was first funded in the Department's FY 2000 Appropriations Act, which included \$45 million for the program. Currently, the Department has awarded 271 three-year implementation grants, and 260 one-year planning grants. Awards were and will again be made to LEAs applying on behalf of large public high schools or large high schools funded by the Bureau of Indian Affairs. For the purposes of this program, a large high school is defined as a school that includes grades 11 and 12 and enrolls at least 1,000 students in grades 9 and above.

For FY 2003, Congress appropriated an additional \$160 million for the Smaller Learning Communities program. Successful applicants will demonstrate that all high schools proposed as participants will become effective and safe environments where all students feel known, supported, and motivated to succeed in college and chosen careers. Competitive applications will identify research-based practices and strategies intended to meet this goal. Under the statute, grant funds may be used to redesign schools into structures such as academies, house plans, schools-within-a-school, and magnet programs. Funds may also be used for personalization strategies that complement or take advantage of smaller learning communities. Examples of such strategies include freshman transition activities, multi-year groupings, alternative scheduling, advisory or advocate systems, and academic teaming. (p. 7)

The focus of the grants was to provide schools with resources to implement smaller learning communities in an effort to “demonstrate that all high schools proposed as participants will become effective and safe environments where all students feel known, supported, and motivated to succeed in college and chosen careers” (p. 7). The goal was for students to feel connected to their school through relationships.

The idea that schools can structure curriculum for enhanced learning can be greatly aided when schools also structure the physical placement of students within a smaller learning community. There are many strategies that can aid the structure of the school and increase connectivity of the students to their school and to their own success. In 2004, the National Association of Secondary School Principals (NASSP) identified 15 strategies as being helpful in creating a personalized environment for students. The following NASSP strategies have been cited as providing ways to reduce the impact of size and the impersonal nature of conditions in large high schools:

- Develop advisories.
- Promote opportunities for student voice.
- Involve students in workshops.
- Implement conferences and meetings in which students take the lead.
- Freshman orientation.
- Looping (students keep teachers rather than changing teachers each year).
- Students remain with same group of peers, rather than an entirely different set of classmates for each course.
- Limit enrollment to self-operating units of no more than 600 students (house plans or clusters can accomplish this without the expense of constructing new buildings; i.e., school within a school).
- Change schedules to allow students to spend a longer time with the same students and the same teachers.
- Lengthen school year or day to allow for staggered schedules so that the school accommodates fewer numbers of students at any one time.
- Peer mentors.
- Personal Adult Advocates.
- Freshmen academies.
- Career academies.
- Transition programs to adult life. (p. 83)

Schoenlein (2001) wrote of the continuing trend toward large high schools during the last half of the 20th century:

The decades-old trend toward larger high schools continues in the United States. More than 70 percent of high school students attend schools with more than 1,000

students, yet the purported advantages of large schools-cost efficiency, a comprehensive curriculum, and increased opportunities for students-remain elusive. (p. 28)

Schoenlein further stated, “Meanwhile, research strongly suggests that smaller schools are more effective than larger ones with respect to safety, accountability, student achievement, student behavior, student attitude, student satisfaction, parent involvement, and dropout prevention” (p. 28). McPartland and Jordan (2001) added that, “Anonymity is endemic in most large high schools, limiting effective discipline and caring relationships. Creating schools-within-schools can decrease anonymity, raise student achievement, and improve attendance and school climate” (p. 28)

As would be expected, there have been challenges to implementing the concept of smaller learning communities. Among the most common challenges, according to the National Association of Secondary School Principals (2004), were the following: (a) scheduling issues, (b) space constraints, (c) inconsistent student attendance at team meetings, and (d) lack of teacher experience with including students in meetings and discussions (p. 83).

Schoenlein (2001) addressed the principal’s role in ensuring the success of making smaller learning communities a reality. He contended that “The principal plays an important role in the success of any initiative to make a large school feel smaller. Such initiatives may not succeed even with the principal’s support, but they will certainly fail without it” (p. 30). Schoenlein also shared some important key responsibilities of the principal. He stated that the principal must:

- make clear that every student and staff member will be treated with dignity and respect.

- model desired behavior every day.
- promote the profession of nurse's aide, for example, as a career worthy of respect and admiration.
- videotape the battle of the bands.
- resist pressure to stack the deck in favor of the advantaged.
- spend time memorizing student names.
- keep a sharp lookout for unrecognized student and staff achievements.
- send handwritten birthday cards to staff members.
- be genuine about the school as a community.
- shift from thinking of the school as an organization to thinking of it as a community for cultivating and nurturing relationships. (p. 30)

Whether building a smaller learning community or trying to implement a professional learning community, the principal's role cannot be underestimated.

Implementing either or both of these models requires active leadership on the part of the principal.

In regard to empirical research concerning SLCs, Fleischman and Heppan stated, "However, the effect of implementing SLCs on student achievement, graduation rates, and postsecondary success has not been definitively established with rigorous research" (p. 1). The authors listed two primary challenges in regard to effectively measuring the impact of SLCs on student achievement. According to Fleischman and Heppan,

First, many of the studies on school size are correlational in design, often based on large national databases. These studies may use sophisticated methods, but they are unable to remove the possible bias that results from the facts that students and teachers self-select, rather than being assigned randomly, into schools and programs and that attrition from these programs is also nonrandom. Second, as noted, SLC is not a single program but rather a term that represents a variety of possible approaches, often in combination with other reform strategies, making it difficult to make overall statements regarding effects. So, although the research suggests that creating smaller learning environments can, indeed, foster more personalization, a definitive link from these changes to effects on student

achievement in SLCs has not been clearly established with rigorous research. (p. 1)

The difficulty in finding empirical data on the effects of SLCs on student achievement had also been shared by the issuer of the SLC grants when the United States Department of Education (2008) remarked in the 2008 final report, “As we noted in our Review of the Literature (Page et al., 2002), although little rigorous research has been completed to date on SLC programs, there is a renewed emphasis on research” (p. 142.)

However, in said report the following data analysis were shared:

As measured by APR data, early changes in schoolwide academic outcomes after receiving SLC funding were modest or neutral, with a good deal of variation between schools. In particular, there were no significant trends in academic achievement, as measured by either scores on statewide assessments or college entrance exams.

Where there is evidence of change, however, trends appear to be moving in the right direction for attainment of academic milestones. For example, the data suggest increases in the percentage of graduating students planning to attend either two- or four-year colleges. Between the pre- and post-grant periods, this percentage increased by about four percentage points, which is statistically significant. The absence of comparative national data, however, makes it difficult to infer whether this is due to receipt of the SLC grant rather than part of a more general national trend. (p. 15)

Turnbo (2008) completed a research study at Robert E. Lee High School in North East Independent School District in San Antonio, Texas in which it was found that both positive influence and no influence on student performance after the implementation of SLCs occurred. Turnbo’s results showed:

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 noneconomically 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. (p. 87)

In analyzing the attendance rates as part of the study Turnbo found that, “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” (p. 99).

In 2009 Campbell conducted a research study on the influence of the implementation of small learning communities on student test outcomes and school attendance in an urban school district. The results yielded mixed conclusions concerning the effects of the SLC on student achievement. Campbell was looking at the difference between math and language arts scores and attendance for ninth graders who had experienced the SLC treatment as compared to the math and language arts test scores and attendance of the same students while seventh graders. Campbell also looked at the effect of the SLC on male and female students and students separated by socio-economic status (p. 12). While some areas showed improvement, other areas had no significant difference. This led the author to state, “The mixed results in this study on student achievement are consistent with previous research studies.” (p. 95).

Kramer (2006) compared the outcome of 20 large high schools in California that received the federally funded SLC grants to 38 similar large high schools using

baseline data before the implementation of the grant and follow-up data approximately three years later to measure the differences that occurred (p. 14). The findings of the research study led Kramer to conclude that “Overall, the analysis found a mix of negative and no effects from smaller learning communities. While treatment schools increased their academic achievement, the comparison group achieved greater increases, resulting in a statistically significant negative net effect of treatment. Effects on dropout rates and preparation for postsecondary education were not statistically significant.” (p. iv)

Current research shows little evidence that ties SLCs to improvement in student achievement and also shares some concern with the concept of SLCs as evidenced in a national study commissioned by the Gates Foundation (Evan et al., 2006,) “Ironically, it appears that SLCs run the risk of inadvertently becoming unofficial tracking systems, with certain historically underserved groups ending up in subunits where there are fewer opportunities to engage with challenging content” (p. 79). This concept of potential tracking along with the current lack of definitive empirical research leads to the need for more empirical research in regard to SLCs and their positive or negative effect on student achievement. Quint (2006) stated it this way, “Implementing small learning communities is likely to improve the climate of schools but will not, in and of itself, increase student achievement. It may help to do so, but the studies do not provide conclusive evidence on this point” (p. ES-4).

Collaboration

Collaboration has been defined as “the act or process of collaborating. . . to work one with another; cooperate” (Random House, 1987, p. 402) When applied to education, the idea of collaboration has taken on a different meaning. According to Schmoker (1999), “Effective collaboration is really action research--carefully conducted experimentation with new practices and assessment of them” (p. 16). DuFour and Eaker (1998) took collaboration to a higher level when they described a professional learning community, “Educators create an environment that fosters mutual cooperation, emotional support, and personal growth as they work together to achieve what they cannot accomplish alone” (p. xii). “Professional learning community” has been used by DuFour and Eaker (1998) to describe the separate elements of a collaborative environment in schools. They defined community as, “educators creating an environment that fosters mutual cooperation, emotional support, and personal growth as they work together to achieve what they cannot accomplish alone” (p. xii). Whitaker, Whitaker, and Lumpa (2000) wrote, “As the professionalism of educators increases and the expectations placed on school leaders continue to compound, principals have looked to involve more people in the decision-making process of a school” (p. 50). Conzemius and O'Neill (2001) cited several factors as being visible in a collaborative environment. “Groupings are open, and borders between groups are easily crossed. Parents, students, teachers, support staff, administration, board members, and community members use a common vocabulary to describe what they are trying to achieve together” (p. 67). Additionally, Whitaker et al. observed that, “The influx of site-based management schools has also added to the need

for a higher level of participation by the teaching staff. This is commonly referred to as participative management” (p. 51).

It is important to realize that one cannot achieve a productive work environment if left on one’s own. Schmoker (1999), sharing Little’s research, found a strong relationship between the right kind of collegiality and improvements for both teachers and students including:

- Remarkable gains in achievement.
- Higher-quality solutions to problems.
- Increased confidence among all school community members.
- Teachers’ ability to support one another’s strengths and to accommodate weaknesses.
- The ability to examine and test new ideas, methods, and materials.
- More systematic assistance to beginning teachers. An expanded pool of ideas, materials, and methods. (p. 12)

Maxwell (2001) added that, “A team isn’t supposed to be a bunch of people being used as a tool by one individual for selfish gain. Members of a team must have mutually beneficial shared goals” (p. 17). It is not enough to assemble a group of individuals and hope that they will become collaborative. Conzemius and O’Neill (2001) wrote that shared responsibility “requires time, hard work, lots of skill development, good structures and processes for teaming, and leaders who believe the job is to bring out the best in others” (p. 66). These authors expressed the belief that it was important for a school to formalize collaboration and to make it fit within the needs of the school in order for it to become a priority of the school and part of the culture. Schmoker (2001) concurred in the following statement: “Without a formal schedule or an explicit commitment to a result, collaboration devolves into just another option or mere talk” (p. 11).

With appropriate attention, a school can expect to see tremendous results. Using Adlai Stevenson High School in Chicago, Illinois as an example of a school in which the culture of a professional learning community and the structure of a smaller learning community was in place, the following three routines and requirements were presented by Schmoker (2001):

1. Teamwork is scheduled and structured.
2. Teamwork is focused on improving teaching strategies that promote better results on the common end-of-course assessments.
3. Teamwork is focused on the development and refinement of the end-of-course assessments. (p. 11)

According to Schmoker (2001), Adlai Stevenson High School used frequent, focused, data-driven teamwork; high-quality, carefully-aligned lessons, instructional units, and end-of-course assessments--all the product of teamwork; and recognition and praise for the individuals and teams whose contributions have helped them to achieve their vision: that of an indisputably world-class school and district. Not only did Adlai Stevenson increase the number of students taking the highly challenging AP exams more than eightfold, they also increased the percentage of students passing. The percentage of students receiving A and B grades rose from 48% in 1985 to 74% in 1996. Students at Adlai Stevenson saw an increase in ACT composite scores from 21.9 in 1985 to 24.2 in 1996. Other data included the Advanced Placement Participation/Achievement rates which rose from 162 students participating in 1985 with a pass rate of 83% to 1375 students participating in 1996 with an 88% pass rate (p. 9).

According to DuFour and Eaker (1998), “learning suggests ongoing action and perpetual curiosity” (p. xii). They continued with, “The school that operates as a

professional learning community recognizes that its members must engage in the ongoing study and constant practice that characterize an organization committed to continuous improvement” (p xii). Barth (2001) said it another way, “Schools exist to promote learning in all their inhabitants. Whether we are called teachers, principals, professors, or parents, our primary responsibility is to promote learning in others and in ourselves” (p. 12).

In a collaborative model, shared knowledge becomes the key to success. DuFour and Eaker (1998) listed six characteristics of professional learning communities:

1. Shared mission, vision and values.
2. Collective inquiry.
3. Collaborative teams.
4. Action orientation and experimentation.
5. Continuous improvement.
6. Results orientation. (p. 25)

The concept of collective inquiry has been further defined as working together in a community which allows everyone the ability to question the status quo, seek and test new methods, and reflect on the results. Using a group allows the process to be a collective one and increases the learning gains for the participants. DuFour and Eaker (1998) stated that, “Collective inquiry enables team members to develop new skills and capabilities, which in turn lead to new experiences and awareness. . . and make significant changes in the culture of the organization” (p. 26).

According to Lambert (2002) schools with a high level of instructional leadership had several factors in common. The first was that “Principal and teachers, as well as many parents and students, participate together as mutual learners and leaders in study groups, action research teams, vertical learning communities and learning-focused staff

meetings” (p. 37). Conzemius and O'Neill (2001) provided several factors that have been visible in a collaborative environment including a sense of purpose in which “colleagues visit each other frequently, connecting, observing, and learning from one another. Meetings are energized and productive-and the real meetings happen in the meetings, not in the hallways afterward” (p. 67).

Simply moving toward a collaborative model will not ensure a continuous learning culture if safeguards are not put in place. A school must establish expectations for team learning. School system leadership must send a clear message that distractions such as discussions about tardiness and lunch schedules should not take over the time needed to discuss learning. Hirsh (2002), in regard to maintaining focus, listed three questions that should be answered if teams are to remain on task: “What standards are addressed in the upcoming units of study? What assessments can all team members create and/or use to determine if students are achieving those standards? What content knowledge do students need in order to meet the standard” (p. 3)? By having a structure and format, time can be devoted to learning. Effective principals create a culture of continuous learning for adults tied to student learning and other school goals (National Association of Elementary School Principals, 2002, p. 42).

Supportive Administrative Leadership

Supportive administrative leadership is another component of creating a productive work environment. Barth (2001) wrote, “It has been said that running a school is about putting first things first; leadership is determining what are the first

things; and management is about putting them first” (p. 11). Whitaker et al. (2000) stated that, “Principals must keep this in mind when deciding upon the vision, mission, or goals of the building. Everyone has a part to play, everyone can make their personal contribution, and everyone must feel that their contribution is important” (p. 44).

Seyfarth (2002) listed four types of leadership behaviors:

1. Directive Leadership: The leader spells out expectations to subordinates.
2. Supportive Leadership: The leader treats subordinates as equals and shows concern for their well-being.
3. Participative Leadership: The leader involves subordinates in advising about or actually making decisions concerning their work.
4. Achievement-Oriented Leadership: The leader identifies challenging work-related goals and communicates to subordinates confidence in their ability to achieve them. (p. 186)

A good leader recognizes the importance of each type of leadership behavior and in what situation it should be used. In building a collaborative culture, principals’ leadership behaviors are typically dictated by circumstances. According to the National Association of Elementary School Principals (2002) effective principals used the styles to create a different school culture through the following actions:

- Provide time for reflection as an important part of improving practice.
- Invest in teacher learning.
- Connect professional development to school learning goals.
- Provide opportunities for teachers to work, plan and think together.
- Recognize the need to continually improve principal’s own professional practice. (p. 42)

For collaboration to be effective, it is important that the role of the administrator change from that of an authoritarian leader to one of listener and facilitator. The traditional roles of leader/follower will not be successful in creating a collaborative environment. Teachers’ voices must be heard, and the principal must be willing to honor

different opinions. Gideon (2002) shared, “The principal must resist the temptation to take charge of group decisions and must provide the time and space for faculty members to process their thoughts, to explore resources and barriers, and to come to their own conclusions” (p. 44). When implemented effectively, the collaborative model allows for employees to experience supportive administrative leadership.

Lambert (2002) emphasized the importance of eliminating the single leader model for students as well as teachers.

The old model of formal, one-person leadership leaves the substantial talents of teachers largely untapped. Improvements achieved under this model are not easily sustainable; when the principal leaves, promising programs often lose momentum and fade away. As a result of these and other weaknesses, the old model has not met the fundamental challenge of providing quality learning for all students. (p. 37)

DuFour and Eaker (1998) have commented on the importance of leaders modeling supportive leadership as they invest their energy in the very important objective of developing a collaborative vision for the school. They wrote that it is important for a school to ask itself why it exists.

The mission question challenges members of a group to reflect on the fundamental purpose of the organization, the very reason for its existence. . . Why do we exist? What are we here to do together? What is the business of our business? The focus is not on how the group can do what it is currently doing better or faster, but rather on why it is doing it in the first place. (p. 58)

Maxwell (2001) concurred in regard to the importance of vision: “Everything starts with vision. You need to have a goal. Without one you cannot have a real team” (p. 20).

Whitaker et al. (2000) noted that although schools have often been effective in coming together and creating the vision for the future in a well written format, they have encountered problems during the implementation phase.

The part that is often neglected is the follow-up to the vision. Educational leaders must regularly reflect upon the vision to make this vision a reality for the members of the learning community. Are they nourishing the vision properly and continuously now that it is planted? (p. 48)

DuFour and Eaker (1998) shared that, “An effective vision statement articulates a vivid picture of the organization’s future that is so compelling that a school’s members will be motivated to work together to make it a reality” (p. 62). The idea of vision in building a supportive environment for both the culture of a professional learning community and the structure of a smaller learning community has been viewed as extremely important. Barth (1990) spoke to the power of the vision in his statements that “Vision unlocked is energy unlocked. . . To become a good school requires a change of vision from within (p. 151).” He further stressed the significance of vision with statements such as “A school without vision is a vacuum inviting intrusion. . . In schools, treading water is no longer an option. School people must either propel themselves in some direction, be towed, or sink (p. 152).” To further reinforce the importance of vision, Barth referred to the Old Testament stating that the Old Testament states “A People without a vision shall perish.” The same can be said about schools and school people without visions. It might also be said that schools full of vision will flourish (p. 160).

DuFour and Eaker (1998) summarized the continual challenge of building a vision and stressed the need for administrators to provide essential supportive leadership for employees in professional learning communities.

A vision will have little impact until it is widely shared and accepted and until it connects with the personal visions of those within the school. Building a shared vision is the ongoing, never-ending, daily challenge confronting all those who hope to transform their schools into learning communities. (p. 65)

Respect for People as Individuals

Respect for people as individuals can be exhibited in many ways in schools. Facilitating effective meetings, managing conflict and the precious commodity of time are three basic challenges in schools. According to Hirsh (2002), “No one looks forward to attending a poorly run meeting. Effective meetings send a message that the teachers who participate are respected and valued by the school. Teacher leaders invest in developing the knowledge and skills associated with effective and productive meetings” (p. 3). Setting guidelines and implementing steps to ensure productive meetings has been discussed as a necessary part of successful collaboration and is a sign of respect for all individuals.

Hirsh (2003) cited a simple conflict resolution strategy presented originally by the National Staff Development Council. He believed that giving team members tools such as this could assist them in being productive and was a sign of respect for the team:

1. Clarify the problem. Ensure everyone understands what they are arguing about. Write it down. Get agreement on it.
2. Separate positions from interests. Clarify individuals’ interests. Interests are characterized by an individual’s needs, desires, or fears. Position is represented by their solution to the problem-key words that may trigger someone who is discussing their position are “more,” “less,” or “get.” Focus on interests and indicate that solutions will be addressed later.
3. Identify criteria for a win/win resolution. Seek answers to these questions: What must the outcome achieve? What will an acceptable resolution accomplish? Look at the interests to provide criteria for the resolution. List criteria for solutions that will be acceptable to all parties.
4. Brainstorm potential solutions without judgments. List solutions as they are suggested.
5. Evaluate each solution against the criteria. Craft a matrix to see which solution meets the most criteria.
6. If more than one solution meets all the criteria, then discuss which solution to accept. Choose the best solution. (p. 3)

Hirsh (2003) also wrote of the need to deal directly with conflict resolution as important to achieving the new vision:

By embracing conflict as an opportunity to pursue better solutions, you'll be closer to arriving at the new vision for professional learning advocated by NSDC and closer to convincing colleagues that daily collegial learning is essential for advancing the performance of every teacher and student. (p. 3)

In addition to adopting conflict management strategies, Conzemius and O'Neill (2001) suggested the establishment of ground rules for groups in regard to attendance, promptness, equal opportunity to participate, interruptions, conversational courtesies, assignments, decision making, confidentiality, and meeting evaluation. These authors also discussed other ways to give respect to people as individuals, addressing the important element of time. They stressed the need to create an environment in which the process can happen during the normal school day and for individuals to have the time they need to be a part of the solution and share in equal opportunities to participate. Conzemius and O'Neill (2001) said, "There is simply no getting around the need to set aside concentrated amounts of time for school staffs to come together--away from the distractions of classrooms and cell phones--to develop shared vision and learn new skills" (p. 69). They believed that expecting teachers to find time on their own was ineffective, but they also advocated for school staffs to be a part of the process of finding time. As an example of the power of collaboration, Conzemius and O'Neill (2001) used Monona Grove High School as one example in which a five-minute brainstorming session by faculty produced the following time-saving suggestions.

- Combine individual planning time into collaborative time.
- Rearrange specials schedules so that each grade is at specials together.
- Have previous grade teachers take back their class every two weeks.

- Move the academic start time back one hour and plan meaningful student activities during that time (supervised by non-credentialed staff).
- Create sectionals where support staff take charge of students and discuss issues such as safety, custodial concerns, and cafeteria and food related topics.
- Hold monthly career exploration days where community members present to students in a large assembly.
- Create an enrichment team of specials and special education/TAG teachers to work with classrooms of students on a rotating basis. (p. 70)

Seyfarth (2002) approached furthering respect for individuals from a broader perspective focused on enabling employees to perform their jobs effectively and to experience psychological success in their work. He believed that it was important for employees to have the opportunity to use their knowledge and skills and to receive feedback on their performance. In citing one example, Onick (2003) credited a Milwaukee team of middle school principals with using their collaborative energy toward strengthening feedback and empowering teachers. In forming the Milwaukee Public Schools Middle School Principals' Collaborative, these principals:

- developed a model for teamwork, communications, and decision making.
- mobilized and orchestrated resources for effective teaching and learning.
- identified and addressed such crucial issues as staffing, alternative performance assessments, curriculum and instruction, teacher professional development, and student support systems.
- empowered teachers and students to become self-directed in the teaching and learning process.
- created processes for using data to monitor student progress. (p. 46)

Adequacy of Resources

Lieberman (as cited in DuFour & Eaker, 1998) described the changing image of the principal in this way,

The 1990's view of leadership calls for principals to act as partners with teachers, involved in a collaborative quest to examine practices and improve schools.

Principals are not expected to control teachers but to support them and to create opportunities for them to grow and develop. (p. 184)

With the idea of collaboration comes the shared decision making necessary to allocate resources where those resources can do the most good. Using the collaborative model, principals in professional learning communities lead through shared vision and values rather than through rules and procedures. Principals involve faculty members in their schools' decision-making processes and empower individuals to act. They provide staff with information, training, and parameters needed to make good decisions (DuFour & Eaker, 1998). This allows the best use of available resources as determined by the team. It also permits restructuring concepts such as smaller learning communities to be collectively considered in a group setting and problem solved within the existing culture of the school, allowing more buy-in from the staff.

According to Lambert (2002), learning and instructional leadership become fused into professional practice in schools with high leadership capacity. Such schools have some important features in common:

- Principal and teachers, as well as many parents and students, participate together as mutual learners and leaders in study groups, action research teams, vertical learning communities and learning-focused staff meetings.
- Shared vision results in program coherence. Participants reflect on their core values and weave those values into a shared vision to which all can commit themselves. All members of the community continually ask, "How does this instructional practice connect to our vision?"
- Inquiry based use of information guides decisions and practice. Generating shared knowledge becomes the energy force of the school. Teachers, principal, students, and parents examine data to find answers and to pose new questions. Together they reflect, discuss, analyze, plan, and act.
- Roles and actions reflect broad involvement, collaboration, and collective responsibility. Participants engage in collaborative work across grade levels through reflection, dialogue, and inquiry. This work creates the sense that "I share responsibility for the learning of all students and adults in the school."

- Reflective practice consistently leads to innovation. Reflection enables participants to consider and reconsider how they do things, which leads to new and better ways. Participants reflect through journaling, coaching, dialogue, networking, and their own thought processes.
- Student achievement is high or steadily improving. Student achievement in the context of leadership capacity is much broader than test scores; it includes self-knowledge, social maturity, personal resiliency, and civic development. It also requires attention to closing the gap in achievement among diverse groups of students by gender, race, ethnicity and socioeconomic status. (p. 38)

These features (skillful participation, vision, inquiry, collaboration, reflection, and student achievement) interact to create the new task of shared instructional leadership (Lambert, 2002).

In order to see if a collaborative school model is an effective alternative to running a school and providing a productive work environment, a review of Seyfarth's (2002) six characteristics is necessary:

1. Continuous learning culture.
2. Supportive administrative leadership.
3. Opportunity to work collaboratively with others.
4. Respect for people as individuals.
5. Opportunity to use one's knowledge and skill and to receive feedback on one's performance.
6. Necessary resources to do the job. (p. 185)

When a comparison is made between the benefits of a school moving toward a collaborative model, and the needs of the employee, one cannot help but realize that this is a viable approach to creating such an environment in schools. When this culture of collaboration through a professional learning community is implemented and a vision for connecting students to schools through smaller learning communities is put forward, the relationships of the adults transcend into relationships with the students. The very process of collaboration makes the transition to a school vision of connectivity for students through smaller learning communities seem like a logical path rather than a new

initiative. Combining the culture and the structure allows positive relationships to be built, ensuring a higher success rate for more students. The professional learning community will move schools forward in achieving the No Child Left Behind legislation and will aid in meeting the goals of the Smaller Learning Communities Grant as spelled out in the application by the U.S. Department of Education (2008):

The Smaller Learning Communities program provides financial incentives to encourage large high schools to undertake the planning, implementation, and expansion of smaller learning communities through research-based restructuring. Such strategies include establishing small learning clusters, “houses”, career academies, magnet schools or other approaches to creating schools within schools; block scheduling; personal adult advocates, teacher-advisory systems and other mentoring strategies; reduced teaching loads; and other innovations designed to create a more personalized high school experience for students and improve student achievement. Examples of downsizing activities that restructure large high schools include:

1. Creating academies or sub-groups;
2. Creating house plans either across grade levels or by grade levels;
3. Creating schools-within-a-school; and,
4. Creating magnet programs.

Additionally, funds can be used to support strategies that complement or take advantage of restructured environments in order to create a more personalized learning environment for students. Examples of strategies that make schools “feel” smaller include:

1. Freshman transition activities;
2. Multi-year groups;
3. Alternative scheduling;
4. Adult advocate or advisory systems; and,
5. Academic teaming. (p. 9)

Ultimately, positive, connected relationships between the adults and the students in the school will help to dictate the success of all those inside the building.

Summary

This chapter provided a review of relevant literature and research related to smaller learning communities. It was organized to address smaller learning communities and collaboration. Supportive administrative leadership, respect for people as individuals and the opportunity to use one's knowledge and skill and to receive feedback on one's performance were also discussed. Finally, having the necessary resources to do the job was been reviewed. The following three chapters provide the methods and procedures utilized in the study, the analysis of data, and the summary of the findings.

CHAPTER 3 METHODOLOGY

Introduction

This chapter has been organized to present the methods and procedures used to conduct the study. Contained in the chapter are a statement of the purpose and descriptions of the population and sample. Also addressed are the instrumentation, the research questions, and the procedures used in the data analysis.

Purpose of the Study

Florida high schools that were the recipients of the United States Department of Education's three-year Smaller Learning Communities Grants for the school years 2006-2007, 2007-2008, and 2008-2009 were the focus of this research (Appendix A). The study was conducted to determine the extent to which the infusion of dollars and the implementation of smaller learning communities were related to any changes in performance of each school in regard to graduation rates, dropout rates and student achievement in grades nine and 10 on the reading and mathematics portions of the FCAT. Those results were then compared to the results of 17 similar Florida high schools (Appendix B) to determine if there was a significant statistical difference between grant and non-grant high schools for Research Questions 1 through 4.

Population and Sample

The population for the present study was comprised of the 72 new grant recipient high schools in the United States from the Smaller Learning Communities (SLC)

Program in fiscal year 2006. Grant dollars were awarded to these schools through the 2008-2009 school year (U. S. Department of Education, 2010).

The 17 schools (Appendix A) that were awarded SLC grants in the state of Florida during the 2006-2007 school year comprised the target sample of schools that were of primary interest in this quantitative research study. Using the 2005-06 Florida Department of Education's School Indicators Report, the 17 SLC schools were manually matched to 17 non-SLC grant schools (Appendix B). Primary key variables for matching included six variables: graduation rate, dropout rate, Florida Comprehensive Assessment Test (FCAT) reading and mathematics scores for 9th and 10th grade students.

Instrumentation and Sources of Data

Data concerning the variables of interest were gathered using the Florida Department of Education's School Indicators Report. This publically available report was released for each year pertaining to the study and contained results for all of the variables in the study for both the Florida high schools awarded Smaller Learning Communities (SLC) grants for school years 2006-2009 and for the matching non-SLC high schools. Once collected, the data were organized into an SPSS dataset.

Data Collection

Using the 2005-06 report, baseline data were established for the pre-SLC year for the 17 SLC schools. Each of the SLC schools were then manually matched to 17 non-SLC grant schools. Primary key variables for matching included the six variables:

graduation rate, dropout rate, and Florida Comprehensive Assessment Test (FCAT) reading and mathematics scores for ninth- and tenth-grade students.

The threshold for matching all variables was five percentage points in either direction where possible. The exception was in the dropout rate where the threshold was set at two percentage points where possible. Secondly, it was desirable to match the SLC schools against non-SLC schools having received the same school grade and within the same county. However, if there were no schools met the matching criteria as previously stated, the rules were relaxed to include (a) the next nearest letter grade, other than an A grade, or (b) a county with a similar population size. All schools were selected in a completely blind fashion as only the aforementioned variables were present in the selection dataset. Performance in subsequent years was not considered. Data gathered were used to answer the following research questions:

Research Questions

The following research questions were used to guide the study.

1. What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by graduation rate of seniors for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?
2. What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and

change in student achievement as measured by dropout rate of seniors for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

3. What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by changes in the percentage of students scoring at proficiency in the Florida Comprehensive Assessment Test for ninth and tenth graders in the subject area of reading for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?
4. What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by changes in the percentage of students scoring at proficiency in the Florida Comprehensive Assessment Test for ninth and tenth graders in the subject area of mathematics for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?
5. What is the difference, if any, between the Smaller Learning Communities Grant high schools achievement levels and the State of Florida mean average in the six areas of measurement for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

Analysis of the Data

All five research questions addressed the relationship between implementation of Smaller Learning Communities (SLC) and the change in a student achievement metric for

the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009. Research Question 1 was concerned with changes in graduation rate. Changes in dropout rate were addressed in Research Question 2. Research Questions 3 and 4 addressed changes in Florida Comprehensive Assessment Test (FCAT) reading and mathematics scores for 9th and 10th grade students. Research Question 5 sought to investigate differences, if any, between SLC high school achievement levels and the State of Florida mean average in the six areas of measurement between the baseline year, 2005-2006, and the third grant year, 2008-2009. In order to measure these changes over time, a repeated measures ANOVA was employed to identify significant changes in performance over the three-year grant period. Though the repeated measures ANOVA was useful in detecting changes over time, it could not be used in attributing changes to SLC implementation. To further investigate the extent to which changes in achievement were attributable to SLC implementation, the matching non-SLC high schools were used as a control group. A repeated measures ANOVA with one between-subjects factor was performed.

Summary

This chapter has been organized to present the methodology and procedures used in the analysis of the data for this study. The purpose of the study, description of the population and sample and research questions were presented. Information was provided regarding the instrumentation used to gather data for the variables of interest and analysis of the data. Chapter 4 presents a summary of the analysis of the data for the five research questions and associated variables.

CHAPTER 4 ANALYSIS OF DATA

Introduction

This chapter contains the data analysis for the five research questions which guided this study. The establishment of baseline data is explained and displayed followed by the results for each of the research questions using tables and supporting narrative statements.

Purpose of the Study

Florida high schools that were the recipients of the United States Department of Education's three-year Smaller Learning Communities Grants for the school years 2006-2007, 2007-2008, and 2008-2009 were the focus of this research (Appendix A). The study was conducted to determine the extent to which the infusion of dollars and the implementation of smaller learning communities were related to any changes in performance of each school in regard to graduation rates, dropout rates and student achievement in grades nine and 10 on the reading and mathematics portions of the FCAT. Those results were then compared to the results of 17 similar Florida high schools (Appendix B) to determine if there was a significant statistical difference between grant and non-grant high schools for Research Questions 1 through 4. Question 5 compared the results of the SLC schools to all public high schools in the state of Florida

The Establishment of Baseline Data

Prior to analyzing changes in any one of the student achievement metrics for the 2006-2007, 2007-2008, and 2008-2009 school years, a baseline year was established using data obtained for 2005-2006 from the Florida Department of Education's School Indicators Report. These data were accessed for the 17 SLC high schools and the 17 non-SLC high schools which served as a control group in the analysis.

Table 1 displays a comparison of means, standard deviations, and the results of a series of independent *t*-tests between the 17 SLC high schools and the control group of 17 non-SLC high schools. The results indicated no significant differences in achievement levels between the two groups. These tests provided sufficient evidence to proceed with the analysis of research questions using the selected comparison schools as a control group.

Table 1

Descriptive Statistics and T-Tests Comparing Baseline Data for Smaller Learning Community (SLC) and Control Schools

Variable	SLC (<i>n</i> = 17)		Control (<i>n</i> = 17)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Reading Grade 9	26.35	12.36	27.06	12.90	0.87
Reading Grade 10	20.53	10.65	20.82	10.74	0.94
Mathematics Grade 9	43.12	14.66	44.71	14.06	0.75
Mathematics Grade 10	49.59	14.44	49.71	14.58	0.98
Graduation percentage	63.22	16.27	61.99	16.23	0.83
Dropout percentage	6.03	5.33	5.31	3.59	0.65

p* < .05. *p* < .01.

Research Question 1

What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by graduation rate of seniors for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

This question sought to determine differences in graduation rate from 2005 through 2008 that could be attributed to the implementation of the SLC grant. A repeated measures ANOVA with one between-subjects factor was utilized in an attempt to isolate the effects, if any, of SLCs and time on graduation rates and to identify any interaction between SLCs and time in their effect on graduation rates.

The reliability of the repeated measure ANOVA is dependent upon the degree to which the compared populations are homogenous in terms of variance and covariance. These assumptions regarding the relevant populations were examined statistically prior to running the ANOVA tests. Mauchly's Test of Sphericity was used to address homogeneity of covariance, and Levene's test was utilized for testing homogeneity of

variance. The results of both tests supported these assumptions; therefore, the subsequent ANOVA results could be viewed as reliable.

Results of the ANOVA testing are presented in Table 2, and corresponding descriptive statistics are shown in Table 3. The first portion of the analysis addressed between-subjects results and analyzed differences in graduation rates between the SLC group and control group without regard to the within-subject variable of time. The test, $F(1, 32) = 0.01, p = .98$, indicated that there was no significant difference in overall graduation rates between SLC and control group schools. Furthermore, the eta-squared value of .01 reinforced the minimal practical significance of grant status as a potential factor to explain variability in graduation rate.

The next portion of testing involved within-subjects results. Differences in graduation rates over time without regard to the between-subjects variable of grant status were analyzed. The results of this test, $F(3, 96) = 25.14, p < .01$, indicated that graduation rates changed significantly over time. Additionally, the eta-squared value of .44 indicated that approximately 44% of the variability in graduation rate could be explained by the variable of time alone.

The final portion of testing involved the interaction effects between grant status and time. A significant interaction effect would indicate that graduation rates changed over time at different rates for the SLC and control groups. The test, $F(3, 96) = 0.22, p = .88$, implied that there was no interaction between grant group and time with respect to graduation rates. Additionally, the eta-squared value of .01 indicated a lack of

practical significance for the interaction effect, as only 1% of the variability in graduation rates could be explained by interaction.

Table 2
Repeated Measures ANOVA for Graduation Rate Between Time and School Group

Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Between subjects				
Grant	1	0.01	—	.98
Subjects within-group error	32	(753.67)		
Within Subjects				
Time	3	25.14**	.44	.01
Time x Grant	3	0.22	.01	.88
Time x Subjects within-group error	96	(36.14)		

Note. Value enclosed in parentheses represents mean square error.

p* < .05. *p* < .01

Table 3
Descriptive Statistics for Graduation Rate by School Group

Group and Statistic	2005	2006	2007	2008	Total D
Control (<i>n</i> = 17)					
<i>M</i>	61.99	65.56	68.55	73.21	11.22
<i>SD</i>	16.23	13.76	13.85	10.53	
SLC (<i>n</i> = 17)					
<i>M</i>	63.22	64.90	68.08	73.67	10.45
<i>SD</i>	16.27	15.49	15.69	13.31	

Note. D = difference

In both the SLC and control groups, a significant increase in graduation rates over time was observed. However, this increase could not be related to the application of the

SLC grant. Clearly, an external factor positively impacted student performance over time as measured by graduation rate, but this positive factor was not captured in this analysis.

Research Question 2

What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by dropout rate of seniors for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

This question sought to determine differences in dropout rate from 2005 through 2008 that could be attributed to the implementation of the SLC grant. A repeated measures ANOVA with one between-subjects factor was utilized in an attempt to isolate the effects, if any, of SLCs and time on dropout rates and to identify any interaction between SLCs and time in their effect on dropout rates.

The reliability of the repeated measure ANOVA is dependent upon the degree to which the compared populations are homogenous in terms of variance and covariance. These assumptions regarding the relevant populations were examined statistically prior to running the ANOVA tests. Mauchly's Test of Sphericity was used to address homogeneity of covariance, and Levene's test was utilized for testing homogeneity of variance. The results of both tests supported these assumptions. Therefore the subsequent ANOVA results could be viewed as reliable.

Results of the ANOVA testing are shown in Table 4, and corresponding descriptive statistics are displayed in Table 5. The first portion of the analysis addressed between-subjects results. Differences in dropout rates between the SLC group and control group without regard to the within-subject variable of time were analyzed. The test, $F(1,$

32) = 0.29, $p = .60$, indicated that there was no significant difference in overall dropout rates between SLC and control group schools. Furthermore, the eta-squared value of .01 reinforced the minimal practical significance of grant status as a potential factor to explain variability in dropout rate.

The next portion of testing involved within-subjects results. Differences in dropout rates over time without regard to the between-subjects variable of grant status were analyzed. The results of this test, $F(1.65, 52.90) = 14.40$, $p < .01$, indicated that dropout rates changed significantly over time. Additionally, the eta-squared value of .31 indicated that approximately 31% of the variability in graduation rate could be explained by the variable of time alone.

The final portion of testing involved the interaction effects between grant status and time. A significant interaction effect would indicate that graduation rates changed over time at different rates for the SLC and control groups. The test, $F(1.65, 52.90) = 0.68$, $p = .49$, implied that there was no interaction between grant group and time with respect to dropout rates. Additionally, the eta-squared value of .02 indicated a lack of practical significance for the interaction effect, as only 2% of the variability in dropout rates could be explained by interaction.

Table 4

Repeated Measures ANOVA for Dropout Rate Between Time and School Group

Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Between subjects				
Grant	1	0.29	.01	.60
Subjects within-group error	32	(739.99)		
Within Subjects				
Time	1.65	14.40**	.31	.01
Time x Grant	1.65	0.68	.02	.49
Time x Subjects within-group error	52.90	(6.73)		

Note. Value enclosed in parentheses represents mean square error. Greenhouse-Geisser adjustment used due to lack of homogeneity of covariances.

* $p < .05$. ** $p < .01$.

Table 5

Descriptive Statistics for Dropout Rate by School Group

Group and Statistic	2005	2006	2007	2008	Total D
Control ($n = 17$)					
<i>M</i>	5.31	4.09	3.39	2.85	-2.46
<i>SD</i>	3.59	3.02	2.95	2.33	
SLC ($n = 17$)					
<i>M</i>	6.03	5.30	3.49	2.92	-3.11
<i>SD</i>	5.33	3.08	2.73	2.52	

In both the SLC and control groups, a significant decrease in drop-out rates over time was observed. However, this decrease could not be associated with the application of the SLC grant. Though an external factor positively impacted student performance over time as measured by dropout rate, this positive factor was not captured by this analysis.

Research Question 3

What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by changes in the percentage of students scoring at proficiency in the Florida Comprehensive Assessment Test for ninth and tenth graders in the subject area of reading for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

This question sought to determine differences in FCAT reading proficiency rates from 2005 through 2008 that could be attributed to the implementation of the SLC grant. Reading proficiency rates were separated by grade levels 9 and 10. A repeated measures ANOVA with one between-subjects factor was utilized in an attempt to isolate the effects, if any, of SLCs and time on reading proficiency rates and to identify any interaction between SLCs and time in their effect on reading rates.

The reliability of the repeated measure ANOVA is dependent upon the degree to which the compared populations are homogenous in terms of variance and covariance. These assumptions regarding the relevant populations were examined statistically prior to running the ANOVA tests. Mauchly's Test of Sphericity was used to address homogeneity of covariance, and Levene's test was utilized for testing homogeneity of variance. The results of both tests supported these assumptions. Thus, the subsequent ANOVA results could be viewed as reliable.

Results of the ANOVA testing for grade nine reading proficiency rates are displayed in Table 6, and corresponding descriptive statistics are presented in Table 7. The first portion of this testing addressed between-subjects results. Differences in grade 9 reading proficiency rates between the SLC group and control group without regard to the within-subject variable of time were analyzed. The test, $F(1, 32) = 0.04, p = .84$,

indicated that there was no significant difference in overall grade 9 reading proficiency rates between SLC and control group schools. Furthermore, the eta-squared value of .01 reinforced the minimal practical significance of grant status as a potential factor to explain variability in grade 9 reading proficiency rate.

The next portion of the analysis involved within-subjects results/ Differences in grade 9 reading proficiency rates over time without regard to the between-subjects variable of grant status were analyzed. The results of this test, $F(3, 96) = 43.07, p < .01$, indicated that grade 9 reading proficiency rates changed significantly over time. Additionally, the eta-squared value of .57 indicated that approximately 57% of the variability in grade 9 reading proficiency rate could be explained by the variable of time alone.

The final portion of testing involved the interaction effects between grant status and time. A significant interaction effect would indicate that grade 9 reading proficiency rates changed over time at different rates for the SLC and control groups. The test, $F(3, 96) = 0.43, p = .73$, implied that there was no interaction between grant group and time with respect to grade 9 reading proficiency rates. Additionally, the eta-squared value of .01 indicated a lack of practical significance for the interaction effect, as only 1% of the variability in grade 9 reading proficiency rates could be explained by interaction.

Table 6

Repeated Measures ANOVA for Grade 9 Reading Proficiency Rate Between Time and School Group

Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Between subjects				
Grant	1	0.04	.01	.84
Subjects within-group error	32	(687.84)		
Within Subjects				
Time	3	43.07**	.57	.01
Time x Grant	3	0.43	.01	.73
Time x Subjects within-group error	96	(9.82)		

Note. Value enclosed in parentheses represents mean square error.

* $p < .05$. ** $p < .01$.

Table 7

Descriptive Statistics for Grade 9 Reading Proficiency Rate

Group and Statistic	2005	2006	2007	2008	Total D
Control ($n = 17$)					
<i>M</i>	27.06	28.35	32.76	34.82	7.76
<i>SD</i>	12.90	13.19	13.64	13.45	
SLC ($n = 17$)					
<i>M</i>	26.35	28.00	30.82	34.18	7.83
<i>SD</i>	12.36	13.62	13.97	13.91	

This question sought to determine differences in FCAT reading proficiency rates from 2005 through 2008 that could be attributed to the implementation of the SLC grant. A repeated measures ANOVA with one between-subjects factor was utilized in an attempt to isolate the effects, if any, of SLCs and time on reading proficiency rates and to identify any interaction between SLCs and time in their effect on reading rates.

The reliability of the repeated measure ANOVA is dependent upon the degree to which the compared populations are homogenous in terms of variance and covariance. These assumptions regarding the relevant populations were examined statistically prior to running the ANOVA tests. Mauchly's Test of Sphericity was used to address homogeneity of covariance, and Levene's test was utilized for testing homogeneity of variance. The results of both tests supported these assumptions. Thus, the subsequent ANOVA results could be viewed as reliable.

Results of the ANOVA testing for grade 10 reading proficiency rates are located in Table 8, with corresponding descriptive statistics located in Table 9. The first portion of this testing addressed between-subjects results. Differences in grade 10 reading proficiency rates between the SLC group and control group without regard to the within-subject variable of time were analyzed. The test, $F(1, 32) = 0.14, p = .71$, indicated that there was no significant difference in overall grade 10 reading proficiency rates between SLC and control group schools. Furthermore, the eta-squared value of .01 reinforced the minimal practical significance of grant status as a potential factor to explain variability in grade 10 reading proficiency rate.

The next portion of testing involved within-subjects results. Differences in grade 10 reading proficiency rates over time without regard to the between-subjects variable of grant status were analyzed. The results of this test, $F(3, 96) = 17.56, p < .01$, indicated that grade 10 reading proficiency rates changed significantly over time. Additionally, the eta-squared value of .35 indicates that approximately 35% of the variability in grade 10 reading proficiency rate could be explained by the variable of time alone.

The final portion of testing involved the interaction effects between grant status and time. A significant interaction effect would indicate that grade 10 reading proficiency rates changed over time at different rates for the SLC and control groups. The test, $F(3, 96) = 0.59, p = .62$, implied that there was no interaction between grant group and time with respect to grade 10 reading proficiency rates. Additionally, the eta-squared value of .01 indicated a lack of practical significance for the interaction effect, as only 1% of the variability in grade 10 reading proficiency rates could be explained by interaction.

Table 8
Repeated Measures ANOVA for Grade 10 Reading Proficiency Rate Between Time and School Group

Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Between subjects				
Grant	1	0.14	.01	.71
Subjects within-group error	32	(494.26)		
Within Subjects				
Time	3	17.56**	.35	.01
Time x Grant	3	0.59	.02	.62
Time x Subjects within-group error	96	(8.71)		

Note. Value enclosed in parentheses represents mean square error.

* $p < .05$. ** $p < .01$.

Table 9
Descriptive Statistics for Grade 10 Reading Proficiency Rate

Group and Statistic	2005	2006	2007	2008	Total D
Control ($n = 17$)					
<i>M</i>	20.82	21.88	25.41	25.59	4.77
<i>SD</i>	10.74	10.46	12.18	12.46	
SLC ($n = 17$)					
<i>M</i>	20.53	20.29	23.65	23.53	3.00
<i>SD</i>	10.65	10.79	11.76	12.01	

In both the SLC and control groups, a significant increase in grade 9 and grade 10 reading proficiency rates over time was observed. However, this increase could not be associated with the application of the SLC grant. Clearly, an external factor positively impacted student performance over time as measured by grade 9 and grade 10 reading proficiency rates, but this positive factor was not captured by this analysis.

Research Question 4

What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by changes in the percentage of students scoring at proficiency in the Florida Comprehensive Assessment Test for ninth and tenth graders in the subject area of mathematics for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

This question sought to determine differences in FCAT mathematics proficiency rates from 2005 through 2008 that could be attributed to the implementation of the SLC grant. Mathematics proficiency rates were separated by grade levels 9 and 10. A repeated measures ANOVA with one between-subjects factor was utilized in an attempt to isolate the effects, if any, of SLCs and time on mathematics proficiency rates and to

identify any interaction between SLCs and time in their effect on mathematics proficiency rates.

The reliability of the repeated measure ANOVA is dependent upon the degree to which the compared populations are homogenous in terms of variance and covariance. These assumptions regarding the relevant populations were examined statistically prior to running the ANOVA tests. Mauchly's Test of Sphericity was used to address homogeneity of covariance, while Levene's test was utilized for testing homogeneity of variance. The results of both tests supported these assumptions. Thus, the subsequent ANOVA results could be viewed as reliable.

Results of the ANOVA testing for grade 10 mathematics proficiency rates are presented in Table 10, and corresponding descriptive statistics are displayed in Table 11. The first portion of this testing addressed between-subjects results. Differences in grade 10 mathematics proficiency rates between the SLC group and control group without regard to the within-subject variable of time were analyzed. The test, $F(1, 32) = 0.13, p = .71$, indicated that there was no significant difference in overall grade 9 mathematics proficiency rates between SLC and control group schools. Furthermore, the eta-squared value of .01 reinforced the minimal practical significance of grant status as a potential factor to explain variability in grade 9 mathematics proficiency rate.

The next portion of testing involved within-subjects results. Differences in grade 10 mathematics proficiency rates over time without regard to the between-subjects variable of grant status were analyzed. The results of this test, $F(2.36, 75.39) = 63.17, p < .01$, indicated that grade 9 mathematics proficiency rates changed significantly over

time. Additionally, the eta-squared value of .66 indicates that approximately 66% of the variability in grade 9 mathematics proficiency rate could be explained by the variable of time alone.

The final portion of testing involved the interaction effects between grant status and time. A significant interaction effect would indicate that grade 9 mathematics proficiency rates changed over time at different rates for the SLC and control groups. The test, $F(2.36, 75.39) = 0.01, p = .99$, implied that there was no interaction between grant group and time with respect to grade 9 mathematics proficiency rates.

Additionally, the eta-squared value of .01 indicated a lack of practical significance for the interaction effect, as only 1% of the variability in grade 9 mathematics proficiency rates could be explained by interaction.

Table 10
Repeated Measures ANOVA for Grade 9 Mathematics Proficiency Rate Between Time and School Group

Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Between subjects				
Grant	1	0.13	.01	.71
Subjects within-group error	32	(772.66)		
Within Subjects				
Time	2.36	63.17**	.66	.01
Time x Grant	2.36	0.01	—	.99
Time x Subjects within-group error	75.39	(24.19)		

Note. Value enclosed in parentheses represents mean square error. Greenhouse-Geisser adjustment used due to lack of homogeneity of covariances.

* $p < .05$. ** $p < .01$.

Table 11
Descriptive Statistics for Grade 9 Mathematics Proficiency Rate

Group and Statistic	2005	2006	2007	2008	Total D
Control ($n = 17$)					
<i>M</i>	44.71	47.12	53.35	57.88	13.17
<i>SD</i>	14.06	14.53	13.19	13.77	
SLC ($n = 17$)					
<i>M</i>	43.12	45.35	51.41	56.12	13.00
<i>SD</i>	14.66	15.55	14.77	14.56	

This question sought to determine differences in FCAT mathematics proficiency rates from 2005 through 2008 that could be attributed to the implementation of the SLC grant. A repeated measures ANOVA with one between-subjects factor was utilized in an attempt to isolate the effects, if any, of SLCs and time on mathematics proficiency rates and to identify any interaction between SLCs and time in their effect on mathematics proficiency rates.

The reliability of the repeated measure ANOVA is dependent upon the degree to which the compared populations are homogenous in terms of variance and covariance. These assumptions regarding the relevant populations were examined statistically prior to running the ANOVA tests. Mauchly's Test of Sphericity was used to address homogeneity of covariance, while Levene's test was utilized for testing homogeneity of variance. The results of both tests supported these assumptions. Thus, the subsequent ANOVA results could be viewed as reliable.

Results of the ANOVA testing for grade 10 mathematics proficiency rates are shown in Table 12, and corresponding descriptive statistics are presented in Table 13.

The first portion of this testing addressed between-subjects results, which analyzed differences in grade 10 mathematics proficiency rates between the SLC group and control group without regard to the within-subject variable of time. The test, $F(1, 32) = 0.01$, $p = .90$, indicated that there was no significant difference in overall grade 10 mathematics proficiency rates between SLC and control group schools. Furthermore, the eta-squared value of .01 reinforced the minimal practical significance of grant status as a potential factor to explain variability in grade 10 mathematics proficiency rate.

The next portion of testing involved within-subjects results. Differences in grade 10 mathematics proficiency rates over time without regard to the between-subjects variable of grant status were analyzed. The results of this test, $F(3, 96) = 61.45$, $p < .01$, indicated that grade 10 mathematics proficiency rates changed significantly over time. Additionally, the eta-squared value of .66 indicated that approximately 66% of the variability in grade 10 mathematics proficiency rate could be explained by the variable of time alone.

The final portion of testing involved the interaction effects between grant status and time. A significant interaction effect would indicate that grade 10 mathematics proficiency rates changed over time at different rates for the SLC and control groups. The test, $F(3, 96) = 0.08$, $p = .97$, implied that there was no interaction between grant group and time with respect to grade 10 mathematics proficiency rates. Additionally, the eta-squared value of .01 indicated a lack of practical significance for the interaction effect, as only 1% of the variability in grade 10 mathematics proficiency rates could be explained by interaction.

Table 12

Repeated Measures ANOVA for Grade 10 Mathematics Proficiency Rate Between Time and School Group

Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Between subjects				
Grant	1	0.01	—	.90
Subjects within-group error	32	(739.99)		
Within Subjects				
Time	3	61.45**	.66	.01
Time x Grant	3	0.08	.01	.97
Time x Subjects within-group error	96	(10.19)		

Note. Value enclosed in parentheses represents mean square error.

* $p < .05$. ** $p < .01$.

Table 13

Descriptive Statistics for Grade 10 Mathematics Proficiency Rate

Group and Statistic	2005	2006	2007	2008	Total D
Control ($n = 17$)					
<i>M</i>	49.71	50.53	56.00	58.82	9.11
<i>SD</i>	14.58	14.14	14.86	12.55	
SLC ($n = 17$)					
<i>M</i>	49.59	49.76	55.24	58.12	8.53
<i>SD</i>	14.44	13.97	14.16	12.10	

In both the SLC and control groups, a significant increase in grade 9 and grade 10 mathematics proficiency rates over time was observed. However, this increase could not be associated with the application of the SLC grant. Though an external factor positively impacted student performance over time as measured by grade 9 and grade 10 mathematics proficiency rates, this positive factor was not captured by this analysis.

Research Question 5

What is the difference, if any, between the Smaller Learning Communities Grant high schools achievement levels and the State of Florida mean average in the six areas of measurement for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

For the last research question, one-sample *t*-tests were conducted for the 2005 and 2008 years with each of the grant schools in order to determine any significant difference between the SLC averages for each metric and the statewide averages. These tests were conducted in Excel.

Table 14 contains the means and standard deviations, the state average, and the *t*-tests with significance indicators. In comparing SLC school averages and state averages, the SLC schools had FCAT reading and mathematics scores that were significantly lower than were the state averages in grades 9 and 10 for both the 2005 and 2008 years.

Though the SLC schools maintained significantly lower performance levels in these areas compared to the state averages in both 2005 and 2008, the movement of the standardized *t*-scores toward zero indicated that the gap was narrowing. The exception to this trend was in grade 10 reading, where there appeared to be the possibility of an increasing gap. In contrast, graduation and dropout rates for SLC schools were not significantly different from the state average in 2005 and provided even less evidence of significance in 2008.

Table 14

Descriptive Statistics and T-Tests Comparing Baseline Data for Smaller Learning Community (SLC) and State Data (N = 17)

Variable	2005				2008			
	State <i>M</i>	SLC <i>M</i>	<i>SD</i>	<i>t</i>	State <i>M</i>	SLC <i>M</i>	<i>SD</i>	<i>t</i>
Reading								
Grade 9	40.00	26.35	12.36	-4.55**	47.00	34.18	13.91	-3.80**
Grade 10	32.00	20.53	10.65	-4.44**	37.00	23.53	12.01	-4.62**
Mathematics								
Grade 9	59.00	43.12	14.66	-4.47**	68.00	56.12	14.56	-3.36**
Grade 10	65.00	49.59	14.44	-4.40**	69.00	58.12	12.10	-3.71**
Graduation Rate	71.00	63.22	16.27	-1.97	78.60	73.67	13.31	-1.53
Dropout Rate	3.50	6.03	5.33	1.96	2.30	2.92	2.52	1.01

Summary

This chapter has provided a summary of the analysis of the data collected from the Florida Department of Education's School Indicator's Report. The analysis included comparing SLC grant schools to non-grant schools in the areas of graduation rates, dropout rates and grade 9 and grade 10 reading and mathematics proficiency scores. The SLC grant schools were also compared to the state average in all four areas.

CHAPTER 5 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter contains a review of the purpose of the study, data collection methods, a summary and discussion of the findings presented in Chapter 4, and conclusions reached in the research. Implications and recommendations for future research have also been offered.

Statement of the Problem

Florida high schools that were the recipients of the United States Department of Education's three-year Smaller Learning Communities (SLC) Grants for the school years 2006-2007, 2007-2008, and 2008-2009 were the focus of this research. The study was conducted to determine the extent to which the infusion of dollars and the implementation of smaller learning communities were related to a change of performance of each school in regard to graduation rates, dropout rates and student achievement in grades 9 and 10 on the reading and mathematics portions of the FCAT. Those results were then compared to the results of 17 similar Florida high schools (Appendix B) to see if there was a significant statistical difference between grant and non-grant high schools.

Data Collection

Data were collected from the Florida Department of Education's School Indicators Report based on those Florida schools awarded the Smaller Learning Communities Grant for school years 2006-2009 (See Appendix A). Once collected, the

information was organized into an SPSS dataset. Using the 2005-06 report as the baseline pre-SLC year, the 17 SLC schools were each manually matched to 17 non-SLC grant school (Appendix B).

Primary key variables for matching included all FCAT variables: reading, grades 9 and 10; mathematics, grades 9 and 10, graduation rate, and dropout rate. The threshold for all variables was five percentage points in either direction where possible with the exception of dropout rate where the threshold was held to within two percentage point where possible. Secondly, it was desirable to match an SLC school and a school with the same school grade and within the same county. However, if there were no reasonable schools for matching, these criteria were relaxed to include the next nearest letter grade, other than and A grade or a county with a similar population size. All schools were selected in a completely blind fashion as to their performance in subsequent years. These data were then analyzed using the appropriate data sources and several statistical procedures to answer the research questions.

Summary and Discussion of Findings

The purpose of the study was to determine the extent to which the infusion of dollars and the implementation of smaller learning communities had a relationship to the change of performance of each grant funded school in regards to graduation rates, dropout rates and student achievement in grades nine and ten on the reading and mathematics portions of the FCAT over the course of the three-year grant cycle when compared to the baseline data prior to the grant receipt. Those results were then

compared to the results of 17 similar Florida high schools to see if there was a significant statistical difference between grant and non-grant high schools for Research Questions 1 through 4.

Research Question 1

What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by graduation rate of seniors for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

The results of the analysis for Research Question 1 showed that in both the Grant and Control groups, a significant increase in graduation rates over time was observed. However, this increase cannot be connected to the application of the SLC grant, nor to any interaction between the variables of grant and time. Clearly, something was positively impacting student performance over time as measured by graduation rate, but this positive factor was not captured by this analysis.

Research Question 2

What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by dropout rate of seniors for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

For Research Question 2, the results showed that in both the Grant and Control groups, a significant decrease in dropout rates over time was observed. However, this decrease cannot be connected to the application of the SLC grant, nor to any interaction between the variables of grant and time. Clearly, something was positively impacting

student performance over time as measured by dropout rate, but this positive factor was not captured by this analysis.

Research Question 3

What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by changes in the percentage of students scoring at proficiency in the Florida Comprehensive Assessment Test for ninth and tenth graders in the subject area of reading for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

The results of the analysis of data for Research Question 3 indicated that in both the Grant and Control groups, a significant increase in reading proficiency rates over time was observed. However, this increase cannot be connected to the application of the SLC grant, nor to any interaction between the variables of grant and time. Though there was a positive impact on student performance over time as measured by reading proficiency rates, it was not captured by this analysis.

Research Question 4

What relationship, if any, exists between the implementation of the United States Department of Education's Smaller Learning Communities Grant and change in student achievement as measured by changes in the percentage of students scoring at proficiency in the Florida Comprehensive Assessment Test for ninth and tenth graders in the subject area of mathematics for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

The results of the analysis for Research Question 4 showed that in both the grant and control groups, a significant increase in mathematics proficiency rates over time was observed. However, this increase could not be connected to the application of the SLC

grant or to any interaction between the variables of grant and time. Clearly, something was positively impacting student performance over time as measured by mathematics proficiency rates, but this positive factor was not captured by this analysis.

Research Question 5

What is the difference, if any, between the Smaller Learning Communities Grant high schools achievement levels and the State of Florida mean average in the six areas of measurement for the school years 2005-2006, 2006-2007, 2007-2008, and 2008-2009?

In comparing averages for SLC schools and the state averages, the SLC schools were significantly lower than the state in FCAT reading and mathematics in grades 9 and 10 for both the 2005 and 2008 years. Though the SLC schools maintained significantly lower performance levels in these areas compared to the state averages in both 2005 and 2008, the movement of the standardized *t*-scores toward zero indicated that the gap was closing, with the exception of Grade 10 reading which there appeared to be a possibility of an increasing gap. On the other hand, graduation and dropout rates for SLC schools did not differ significantly from the state averages in 2005 and provided even less evidence for significance as of 2008.

Discussion of Findings

In 2001 Schoenlein stated, “Meanwhile, research strongly suggests that smaller schools are more effective than larger ones with respect to safety, accountability, student achievement, student behavior, student attitude, student satisfaction, parent involvement, and dropout prevention” (p. 28). The findings of this study did not corroborate this

statement nor did they confirm the large body of research on the positive attributes of smaller learning communities and positive student achievement.

Sclafani (2003) stated as part of the 2003 SLC grant application that, “One strategy that holds promise for improving the academic performance of our Nation’s young people is the establishment of smaller learning communities as components of comprehensive school improvement plans” (p.7). Other research continues to show the benefit of creating smaller learning communities for students. Schoenlein (2001) stated, “Meanwhile, research strongly suggests that smaller schools are more effective than larger ones with respect to safety, accountability, student achievement, student behavior, student attitude, student satisfaction, parent involvement, and dropout prevention” (p. 28). McPartland and Jordan (2001) added that, “Anonymity is endemic in most large high schools, limiting effective discipline and caring relationships. Creating schools-within-schools can decrease anonymity, raise student achievement, and improve attendance and school climate” (p. 28).

The findings in this research study, while showing positive gains for students in the areas of graduation rates, dropout rates, reading proficiency, and mathematics proficiency in those schools with SLC grants, also showed the same gains for similar schools that were not SLC grant recipients during the same time frame. However, there was no verification as to whether any of those schools were utilizing smaller learning communities as part of their school improvement, despite not having grant funding. Likewise, there was no verification that those schools who did receive the SLC grant were implementing smaller learning communities with fidelity. Identified schools that

received the grant, may not have fully implemented SLCs by the time that the grant funding stopped. To qualify for this study, identified schools had simply qualified for and received the grant. No follow-up was conducted to see the depth of implementation at any school and would be a recommendation for future studies. The findings of this study support the notion that more data associated with SLCs needs to be studied in order to see the real impact of implementing SLCs in schools versus similar non-SLC schools.

After reviewing the literature and analysis of data in this study, the researcher believes that future studies should include on-site observations, anecdotal records and in-depth interviews with teachers, students and principals in both the SLC and non-SLC schools identified in the study. These findings could serve to augment the quantitative data collected through the Florida School Indicators Report. This multifaceted approach may further explain the real impact of SLCs on student performance. This type of analysis would allow the researcher to observe how each school developed and implemented the SLC and whether or not non-SLC grant schools were using similar strategies to decrease anonymity in schools. Other suggestions for future research studies are included in the Recommendations for Future Research section below.

Conclusions

Based on the review of literature and the data analysis the following conclusions were made:

1. Graduation rates during the school years 2006 through 2009 showed a positive upward trend in the 17 Florida high schools awarded Smaller Learning

Communities grants by the United States Department of Education. However, a similar growth was seen in 17 similar Florida high schools that were not awarded the grant. Implementation of an SLC grant neither negatively nor positively impacted a school's increase in graduation rates when compared to those who did not have the SLC grant. The grant, in and of itself, was not enough to impact student achievement in a three-year period in the area of graduation rate when compared to similar non-grant schools.

2. Dropout rates during the school years 2006 through 2009 showed a positive downward trend in the 17 Florida high schools awarded a Smaller Learning Communities grant by the United States Department of Education. However, a similar downward trend was seen in the 17 matched Florida high schools that were not awarded the grant. Implementation of the SLC grant neither negatively nor positively impacted a school's decrease in dropout rates when compared to those who did not have the SLC grant. The grant, in and of itself, was not enough to impact student achievement in a three year period in the area of dropout rate when compared to similar non-grant schools.
3. Reading proficiency rates of grade 9 and 10 students during the school years 2006 through 2009 showed a positive upward trend in the 17 Florida high schools awarded a Smaller Learning Communities grant by the United States Department of Education. However, similar growth was seen in the 17 matched Florida high schools that were not awarded the grant. Implementation of the SLC grant neither negatively nor positively impacted a

school's increase in reading proficiency rates when compared to those who did not have the SLC grant. The grant, in and of itself, was not enough to impact student achievement in a three-year period in the area of reading proficiency when compared to similar non-grant schools.

4. Mathematics proficiency rates of grade 9 and 10 students during the school years 2006 through 2009 showed a positive upward trend in the 17 Florida high schools awarded a Smaller Learning Communities grant by the United States Department of Education. However, a similar growth was seen by 17 similar Florida high schools that were not awarded the grant. Implementation of the SLC grant neither negatively nor positively impacted a school's increase in mathematics proficiency rates when compared to those who did not have the SLC grant. The grant, in and of itself, was not enough to impact student achievement in a three year period in the area of mathematics proficiency when compared to non-grant schools.
5. When the 17 high schools that were awarded the SLC grant were compared to all high schools in the state of Florida, no significant difference was found in growth between the SLC schools and all high schools in the state. Simply having the funds and implementing the requirements of the grant was no guarantee of improved student performance in graduation rates, dropout rates, reading proficiency and mathematics proficiency, when compared to those schools that did not have the grant.

6. Based on the data analysis in the present study, three years may not provide enough time to see the benefits of implementing school wide change that involves restructuring larger schools into smaller learning communities.
7. Although the results of this research study did not show a significant difference in those schools implementing smaller learning communities during the school years 2006 through 2009 as compared to those schools that did not, the results did show that the SLC schools improved at or near the same rate, while undergoing significant change to the school culture that is required through the grant process.

Recommendations for Future Research

Further research is suggested in the following areas:

1. A follow-up study should be conducted with the high schools in this research study to see if a longer amount of time, a minimum of three years, in the SLC model will show a significant difference in student performance between those who transitioned to SLCs starting with the 2006 school year and those who did not.
2. A separate study of high schools across the nation that have been awarded SLC grants over time should be conducted to see if there is a difference in student performance, when compared to comparable traditional large high schools that do not use the SLC strategy. Verification of those schools not

using SLC strategies should occur, as they may be using said strategies even though they have not received a grant.

3. A study should be conducted to investigate the fidelity with which schools implement the SLC models and the resultant impact on student performance.
4. An integral part of the SLC model is teachers talking to teachers. A study should be conducted to see if SLC schools that have also adopted a formal professional learning community model outperform those schools that rely on a less formal structure, e.g., informal teacher meetings.
5. A separate study of the targeted SLC grant schools involving the surveying of teachers and principals regarding positive and negative attributes of implementing SLCs should be conducted.

Summary

This chapter has provided a review and discussion of the findings of the study. Conclusions were drawn based upon those results and the review of literature. Implications and recommendations have also been shared. Positive student performance results were not significant for the grant schools when compared to similar schools over the three-year period, and the results appeared to contradict current literature as to the benefits of reorganizing large high schools into smaller learning communities. Still, the information presented may still be useful to schools pursuing SLC grants from the Department of Education. The data showed that schools undergoing this significant

change did not decline in student performance while undergoing this transformational process.

APPENDIX A
SELECTED SLC SCHOOLS

Smaller Learning Community Grant Recipients

The following schools were awarded the Smaller Learning Community Grant from the United States Department of Education for the school years 2006-2009 in the state of Florida and will be a part of this study:

Lake County:

- Leesburg High School
- Tavares High School

Miami Dade County

- Hialeah-Miami Lakes Senior High
- Miami Carol City Senior High
- Miami Edison Senior High
- Miami Norland Senior High
- Miami Northwestern Senior High
- North Miami Senior High
- South Dade Senior High
- South Miami Senior High
- Southwest Miami Senior High
- William H. Turner Technical Arts High

Orange County

- Maynard Evans High School
- Ocoee High School
- Olympia High School

Osceola County

- Poinciana High School
- Osceola High School

APPENDIX B
SELECTED COMPARISON SCHOOLS

Smaller Learning Community Comparison Schools

The following schools were selected using the baseline, pre-SLC school year used for this study, 2005. The comparison schools were selected from the 2005 Florida Department of Education School Indicators Report. The SLC schools were manually matched to another. Primary key variables for matching included all FCAT variables, reading grade 9 and 10; mathematics grade 9 and 10, graduation rate, and dropout rate. The threshold for all variables was five percentage points in either direction where possible, with the exception of dropout rate where the threshold was within two percentage point where possible. Secondly, it was desirable to match against a school with the same school grade and within the same county. However, if there were no reasonable schools for matching within these criteria, they were relaxed to include the next nearest letter grade, other than 'A' or a county with a similar population size. All schools were selected in a completely blind fashion as to their performance in subsequent years.

Hillsborough County:

Middleton High School

Manatee County

Manatee High School

Miami Dade County

Barbara Goleman Senior High School
Booker T. Washington Senior High School
Dr. Michael M. Krop Senior High School
Homestead Senior High School
Miami Jackson Senior High School
Miami Southridge Senior High School

Orange County

Boone High School
Oak Ridge High School
Apopka High School

Palm Beach County

Glades Central High School
William T. Dwyer High School

Polk County

Fort Pierce Central High School
Haines City High School
Lake Region High School
Ridge Community High School

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