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HOW HIGH SCHOOL SIZE CONFIGURATION
AFFECTS STUDENT ACHIEVEMENT IN THE STATE OF FLORIDA

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the School of Teaching, Learning, and Leadership
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ABSTRACT

The study was conducted to determine if there were any statistically significant differences in student achievement as measured by the 10th-grade Reading and Mathematics Florida Comprehensive Assessment Test (FCAT) at the school level between the configurations of high schools, controlling for the percentage of minority population and SES.

A total of 259 large public high schools within Florida were used in the study; 149 traditional schools and 110 large schools using small learning communities. Because prior researchers have indicated that the number of low SES students and the percentage of minority students can have an effect on student achievement, these covariates were controlled for in this study.

There was a significant difference in the FCAT Mathematics scores of students based on school configuration. Those students who attended traditional high schools scored higher than those in the smaller learning communities. There was a similar finding in the FCAT Reading scores, but it was only marginally significant. The interaction between the percentage of the minority population and low SES population was also evaluated, but no significant interaction was found.

A qualitative survey was also sent to administrators at schools who were involved in the study. In direct contradiction to the quantitative study results, the vast majority of respondents thought that the use of a small learning community would increase student achievement. With the advent of Common Core in Mathematics and Language Arts, this

research lends itself to be expanded on a national level to determine if a larger sample size would yield the same or differing results.

I dedicate this to my parents
who always supported and encouraged me in whatever I attempted to do.
I wish they had lived to realize it with me.

I also dedicate this to my loving and patient wife, Susan.
Without her love and support, foregoing vacations and weekends of relaxation,

I could not have completed this.
Although my name will be on the diploma, I will need to add her name.

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I am fully aware that although only my name will appear on the diploma, the work and efforts of many must be recognized. I need to thank my wife, Susan, for her continuous years of support, love and assistance during this process. Thanks, also, to those who knew about my involvement in this degree and offered words of encouragement and advice.

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CHAPTER 1 THE PROBLEM AND ITS CLARIFYING COMPONENTS

Introduction

Schools in the United States started out as one-room schoolhouses where children of all levels were taught at the same time, with more advanced students helping less advanced students. From the time that the State of Massachusetts enacted its General School Act of 1647 (Spring, 2005) that required towns with a population of over 100 families to establish a school, communities have been involved in education. School systems remained largely unorganized, controlled by local governments, and were usually reserved for the affluent (Active USA Center, 2007). It was believed by the early founders of the United States that an “educated person without ignorance would be a more productive citizen” (Educational Timeline, 2006).

Massachusetts educational reformer, Horace Mann, also believed that an educated population was required for a republic to survive. As a state legislator, Mann began calling for public education systems for all. In 1835; he helped establish the precursor of the first public school board, the Massachusetts Commission to Improve Education. Mann, the first secretary of this board, took the disorganized collection of poor public schools and put them under the direct control of the state board of education (Antioch University, 2003).

Education was now being provided for those who wanted it, but school attendance continued to be low. In 1852, Massachusetts passed the first compulsory attendance law. Enrollment in secondary education remained low, however. In 1870, only 2% of 14- to

17-year-olds graduated from high school. This enrollment rose to 10% by 1900, but most students were still from wealthy families. By 1900, 31 other states required 8- to 14-year-olds to attend school. As a result, by 1910, 72% of American children attended school and half of the nation's children attended one-room schools. By 1918, every state required students to at least complete elementary school (Cremin, 1970).

By the late 19th century, efforts were made to create schools in the image of the factory model. In *The Principles of Scientific Management* (1911), Frederick Taylor said that “one best system” could be used to solve any organizational problem. Taylor’s model required “centralization, standardization, hierarchical top-down management, a rigid sense of time, and accountability based on adherence to the system” (DuFour & Eaker, 1998, p.17). There was a previous trend in American education to consolidate smaller schools into larger schools in an effort to reduce costs and follow Taylor’s factory model. As the size of the typical school increased, so did enrollment in individual classes.

The move to larger schools to fit the Taylor model reduced the number of school districts across the United States from 127,531 in 1932 to 16,960 in 1973. The number of small one-room schoolhouses also dropped during this time period, from 130,000 in 1932 to less than 400 in 2007 (Ellis, 2007; Tyack & Cuban, 2001). Early in the twentieth century the typical high school enrolled 100 students. By 1986, this number had risen to more than 1,000 students. The total number of high schools during this time frame was relatively unchanged at around 24,000, but the number of high school graduates increased from 592,000 to 3,021,000 (National Center for Educational Statistics, 2006; Tyack &

Cuban, 2001). In 1956, 63% of high schools in the United States had an enrollment of more than 3,000 students. By 1966, this number had risen to 75%. These changes reflected the population shift from rural communities to urban communities (Ferriss, 1969). It was this shift from a rural environment and the introduction of strict child labor laws in the early 20th century that caused the number of high schools and graduates to skyrocket. Most states also passed laws during the early 20th century which increased the age for compulsory attendance from 14 to 16 (Cremin, 1990). In 2003, over 61% of students attending a public high school attended schools that had at least 1,000 students in attendance (Bill and Melinda Gates Foundation, 2008).

The formation of the mega-school was instituted as a cost-saving device to take advantage of economies of scale--that, bigger was better and cheaper (Lawrence et al., 2002). Although the push was to create these mega-schools, researchers have indicated that smaller schools produce better results. The smaller school (less than 400 students) spends on average only 5% more per students than a larger school (more than 2, 000 students). It was found that small schools spend less than large schools per graduate, because the smaller schools have a higher percentage of students that graduate (Ark, 2002; Cushman, 1999; Duke & Trautvetter, 2001, Toch, 2003). In a 1996 National Association of Secondary School Principals report, Cutshall (2003) concluded that “creating smaller schools was an essential part of making them (schools) better” (p.24).

Statement of the Problem

Under No Child Left Behind (NCLB), Public Law 107 – 110 (U.S. Department of Education, 2002), student achievement became the highest priority of schools in the United States. In the hopes of increasing student achievement, different school configurations have been utilized. With budgets for education being reduced every year, schools have only had money necessary to fund programs that were the most productive in increasing student achievement. Therefore, identifying the best configuration for a school, which provides the greatest opportunity for student achievement, must be determined so that communities can receive the highest return for the available educational dollars.

Conceptual Framework

There was a previous trend in American education to consolidate smaller schools into larger schools in an effort to reduce costs and follow Taylor’s factory model (Taylor, 1911). As the size of the typical school increased, so did the enrollment in individual classes. With this increase in enrollment, the focus of high school education changed also. Instead of trying to just educate the future professionals and leaders of America, the focus shifted to educating all students to make them useful members of society. John Dewey thought that this change in focus to a “child-centered” theory of learning would encourage the schools to develop their curriculum around the students’ daily lives. In 1918, the National Education Association established a Commission on the

Reorganization of Secondary Education. This Commission published a report titled the

“Cardinal Principles of Secondary Education. This report had seven main objectives:

1. Health
2. Command of fundamental processes (literacy skills)
3. Worthy home-membership
4. Vocation
5. Citizenship
6. Worthy use of leisure
7. Ethical character (Toch, 2003, p. 2)

These principles gave rise to the larger comprehensive school that would address the principles of the report.

There has been some research that suggests that positive relationships of students with the school and their teachers lead to greater academic achievement and more positive psychological adjustment (Ryzin, 2011). Although the importance of this “connectedness” with the school has been shown to be important, the best way to implement it has not been determined. Students who believe that the school and its teachers are less supportive of their psychological needs are more likely to have behavioral, motivational and psychological problems. Students have a need to have some measure of self-control over the decisions that they make, whether these decisions involve their personal life or educational choices. This need for self-determination has three different components: (a) the need for autonomy or the extent to which students actually get to control their education; (b) the need for belonging, i.e., students need to believe that they are a part of the school and that they are supported by their teachers and peers; and (c) the need for competence. Students need to be recognized for their efforts and be treated fairly by their teachers and their peers (Ryzin, 2011).

This move to smaller schools would also foster the better development of social interactions between student peers and their teachers, a main focus of the Social Learning Theory developed by Bandura (1977). Bandura believed that the culture or environment that students learn is an important aspect in learning. Students will model the behavior of those around them. A small school tends to have a more concise and socially interacting population in which to foster these positive and desired actions (Bandura, 1977).

In 1999, the U.S. Department of Education launched the Smaller Learning Community Program to support schools with more than 1,000 students to implement small learning community structures. To encourage this reduction of school size in 2000, the U.S. Congress authorized \$45 million distributed by the Department of Education, to fund section 10105, the creation of smaller learning communities (United States Department of Education, 2001). This annual funding was gradually increased, and in 2004, this fiscal award was raised to \$174 million. The purpose of this funding was only to produce smaller learning communities in existing schools and not the creation of stand-alone small school (United States Department of Education, 2004).

With the scarcity of educational funding, some critics have posited that the push for smaller learning communities and/or small schools might be based on the availability of funds rather than because it was the best educational option for students. Hendrie (2004a) questioned whether dividing a large school into several smaller autonomous units would yield the same results as creating small stand-alone schools.

Research Questions

The following research questions guided this study:

1. Are there any statistically significant differences of student achievement as measured by the 10th-grade Reading and Mathematics FCAT assessment at the school level between the configurations of high schools, controlling for the percentage of minority population and SES? If yes, what are the differences?
2. Is there any relationship between socioeconomic status and student achievement, as determined by student performance (measured at the school level) on 10th-grade Reading and Mathematics FCAT assessment, depending on configuration patterns? If yes, what is the relationship?
3. Is there any relationship between the percentage minority population and student achievement, as determined by student performance (measured at the school level) on 10th-grade Reading and Mathematics
4. FCAT assessment, depending on school configuration patterns? If yes, what is the relationship?

Table 1 provides additional information related to the design of the study.

Displayed are the research questions, variables, data sources, and methods of analysis.

Table 1

Research Questions, Variables, Data Sources and Methods of Analysis

| Research Questions | Variables | Data Sources | Method Of Analysis |
|---|--|--|-------------------------------|
| 1. Are there any statistically significant differences of student achievement as measured by the 10 th -grade Reading and Mathematics FCAT assessment at the school level between the configurations of high schools, controlling for the percentage of minority population and SES? If yes, what are the differences? | School configuration (Independent) | School contact via email/telephone | MANCOVA with repeated measure |
| 2. Is there any relationship between socioeconomic status and student achievement, as determined by student performance (measured at the school level) on 10 th -grade Reading and Mathematics FCAT assessment, depending on configuration patterns? If yes, what is the relationship? | FCAT Reading scores (Dependent) | Florida Department of Education website | MANCOVA with repeated measure |
| | Socioeconomic status (Covariant) | Florida Department of Education website (Schools' percentages of free/reduced lunch) | Pearson correlation |
| 3. Is there any relationship between the percentage minority population and student achievement, as determined by student performance (measured at the school level) on 10 th -grade Reading and Mathematics FCAT assessment, depending on school configuration patterns? If yes, what is the relationship? | FCAT Mathematics scores (Dependent) | Florida Department of Education website | MANCOVA with repeated measure |
| | Schools' percentages of minority population (Covariant) | Florida Department of Education website | Pearson correlation |

Definition of Terms

American Indian or Alaska Native: A person having origins in any of the original peoples of North and South America, including Central America, and who maintains tribal affiliation or community attachment (NCES, 2007b).

Asian: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam (NCES, 2007b).

Black or African American: A person having origins in any of the black racial groups of Africa (NCES, 2007b).

Career Academy: A school-within-a-school that focuses on a broad occupational area, such as biotech, engineering, or health services, where the curriculum directs students' attention to the application of school-based learning by including work-based learning experiences (Sparger, 2005).

Conversion School: A traditional large high school that is converted into a school with smaller learning communities, usually over the summer break (Hartmann et al., 2009).

Florida Comprehensive Assessment Test (FCAT): A criterion referenced test mandated in the state of Florida to be administered to all students in grades three through ten covering the areas of reading, writing and mathematics. For purposes of this study,

the school average score for the 10th-grade Reading and Mathematics Sunshine State Standards sections are used (Sparger, 2005).

Graduation rate: The percentage of students who graduated within four years of entering Grade 9 for the first time as reported by the state. Students who transfer to another school or district or who enroll in adult-education programs are removed from the group of students. Students who transfer into a school or district are included in the count of their graduating class and are tracked accordingly. (Florida Department of Education, 2007)

Hispanic or Latino: A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race (NCES, 2007b).

House: A school-within-a-school configuration that focuses on the use of academic teaming of a core group of students with instruction by the same core group of teachers (Smaller Learning Communities, 2002).

Large traditional high school: For this study, schools with a population over 1,000 students that did not utilize any type of smaller learning community structure.

Large traditional high school with a smaller learning community: For this study, high schools with a population of over 1,000 students that utilized some type smaller learning community where that students were placed into smaller groups that interact within themselves as a separate unit within the larger school.

Native Hawaiian or Other Pacific Islander: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands (NCES, 2007b).

School Configuration: Term used to differentiate how students were arranged for instruction at a particular school used in this study.

School Level: Term used to report data that were collected from the FLDOE website about the different schools. These data are reported as an aggregate of all of the students who attended the school during the report year, as opposed to individual scores of each school.

School-Within-A-School (SWAS): Operates within a larger “host” school with its own self-selected personnel and programs and can either be the only SWAS or one of many (Sparger, 2005).

Smaller Learning Community (SLC): Any separately defined, individualized learning unit within a larger school setting where students and teachers are scheduled together and have a common area of the school in which to hold most, or all, of their classes (Sparger, 2005).

Smaller Learning Community School Configuration: Any school that utilizes some type of pupil assignment in an attempt to reduce the effect of size. This may be accomplished through the use of Houses, School-within-a School, or Career Academies.

Socioeconomic Status (SES): Commonly conceptualized as the social standing or class of an individual or group. It is often measured as a combination of education, income and occupation (American Psychological Association, 2014). For this study a measurement of the percentage of free/reduced lunch was used as an indicator of the schools’ SES.

Stand-Alone-School (SAS): Any school that does not utilize a Smaller Learning Community, School-Within-A-School, or a Career Academy as an organizational tool within the school (Smaller Learning Communities, 2002).

Student Membership: Annual headcount of students enrolled in school on October 1 or the school day closest to that date (NCES, 2007a).

Traditional School Configuration: A school that is separated into either a traditional school that utilizes all the students going to regular classes with no attempt at reducing the large feeling of the school.

White: A person having origins in any of the original peoples of Europe, the Middle East, or North Africa (NCES, 2007b).

Assumptions

1. The use of the FCAT as a means of determining a student's achievement assumed that the FCAT was a reliable method of student achievement evaluation.
2. It was assumed that the data provided by the different districts in which the study schools were located, was accurate and reliable.

Limitations and Delimitations

1. This study may not be able to obtain a complete cross-section of student nationality/culture for all of Florida from the limited sample size.

2. Other variables may influence student achievements that were not accounted for in this study, i.e., gender, special education status.
3. The survey responses regarding smaller learning communities were delimited to the perceptions of principals.

Significance of the Study

Educational professionals, researchers and governing boards have agreed that there are problems with the current educational system (Cotton 2001; Oxley 2001; Sparger 2005). Since the No Child Left Behind Act of 2001 was passed the main focus has been on student achievement as measured by test scores. The creation of the Smaller Learning Community has been an attempt to promote student achievement by the creation of smaller communities within the larger traditional schools. It was hoped that the smaller community would instill a more personalized environment where the students and administration would be able to notice and correct deficiencies before it was too late (Cotton 2001).

Several different methods of school configurations have been used in an attempt to create smaller learning environments with differing degrees of success. Many of these initiatives have been studied using qualitative research methods. There have been few actual comparisons of quantitative data (Cotton 2001; Oxley 2001; Sparger 2005). This research was conducted to investigate significant differences in student achievement based on the school's FCAT scores and the particular school's configuration.

At the time of the present study, most educational success was being measured using standardized testing and quantitative results. This research used the mandated Florida FCAT test for 10th-grade Reading and Mathematics as a measure of student achievement and was compared to the school's configuration. Data were examined to determine if there was actual benefit of one type of configuration over another as it related to student achievement. If there is evidence that one pattern is better than another, that would provide direction for school leaders. Thus, the results of this study may be of value to educational leaders in planning future schools or school consolidation to better meet students' needs, and promote higher levels of student achievement.

Organization of the Dissertation

This dissertation is presented in five chapters. Chapter 1 has provided an overview of the research project as well as its rationale. Chapter 2 contains a thorough review of the relevant research for both of the two different configuration models of interest in the study. Each model was reviewed separately to ensure a balanced review. Chapter 3 focuses on the design of the study and the methodology used. Additionally, specific detailed statistical operations are discussed along with the procedures used to analyze and collect the data. Chapter 4 consists of a detailed analysis of the results of the study. Chapter 5 focuses on an interpretation of the data collected. Conclusions are linked to relevant literature and research in the field, and recommendations are made for further research in this area.

CHAPTER 2 REVIEW OF THE LITERATURE

History of Testing in Florida

In order to adequately understand the use of standardized testing in Florida some background knowledge is required. Florida began standardized testing before the mandated No Child Left Behind [NCLB] Act of 2001 law was passed in 2002. In 1971, the state of Florida passed the Educational Accountability Act (Title XVI, Chapter 229). This Act had as its mandates the following which have been restated in the *FCAT Handbook* (Florida Department of Education, 2005):

the establishment of basic, specific, uniform statewide educational objectives for each grade level and subject area, including, but not limited to, reading, mathematics, and writing; and the development and administration of a uniform and regularly administered statewide assessment to determine pupil status, pupil progress, and the degree to which pupils had achieved established educational objectives. (p. 7)

This Act only covered minimum requirements using a criterion-based reference test so that performance on Florida specific objectives could be determined. The test was originally administered in Grades 2 and 4 as an initial field test in 1971 and was called the State Student Assessment Test (SSAT). In 1972, the test was expanded to include Grades 3, 6, and 9. In 1974, the need for school-based and student specific data was realized, and the Accountability Act was revised to require the testing of reading, writing and mathematics by 1976.

In 1976, The Educational Accountability Act was revised to include tests in Grades 3, 5, 8 and 11. This revision also required the administration of the country's first high school graduation test, a functional literacy test to be administered during the 11th grade. The Act also required the organization's educational objectives used in test development called Minimum Student Performance Standards (MSPS). These standards were also used for curriculum and instructional planning. In 1981, the Grade 11 graduation test became the State Student Assessment Test, Part II (SSAT-II) and was changed to testing in the 10th grade to allow students more chances to pass the exam. This provision was challenged in 1981 with *Debra P. v. Turlington*. The courts found that although the State did have a legal right to require the test, that students did not have suitable due process. Thus, the court allowed the test to be used as a remediation tool. The requirement of using the test as a graduation requirement was reexamined in 1983, the same year that all students would have attended a racially integrated school from Grade 1 on. The Eleventh Circuit upheld the constitutionality of the test requirement, and the courts also found that there was no causal link between the performance of Black students and the effects of past discrimination (Zang, 2011). In 1984, after several revisions, the name of the test was changed to the High School Competency Test (HSCT) and in 1992 was moved back to being tested in the 11th grade. Also in 1992, the Florida Writing Assessment Program was introduced as a single extended writing task based on a prompt. This assessment was first administered in Grade 4. In 1993, Grade 8 was added; and in 1994, Grade 10 was also added. 1992 also saw the introduction of a 10th-grade

norm-referenced test in reading comprehension and mathematics called the Grade 10 Assessment Test (GTAT). This test was discontinued in 1996.

In response to the School Improvement and Accountability Act of 1991, the Florida Commission on Educational Reform defined seven innovative and challenging goals that were presented in *Blueprint 2000*. Goal 3 of this blueprint dealt with improving students' performance and included 10 different standards. The first four standards dealt specifically with reading, writing, mathematics, and thinking skills. In 1995, the Florida Commission on Education Reform and Accountability created the Florida Comprehensive Assessment Design (FCAD) group to develop a new statewide assessment system. This new assessment, the Florida Comprehensive Assessment Test (FCAT), was based on the first four standards of *Blueprint 2000's* Goal 3.

The FCAD also created the *Sunshine State Standards* (Florida Department of Education [FLDOE], 2012) which were a set of learning expectations in seven different content areas (language arts, mathematics, science, social studies, health and physical education, foreign languages, and the arts) and in four instructional grade ranges (PreK–2, 3–5, 6–8, and 9–12). These *Sunshine State Standards* were based on skills and knowledge called benchmarks that were determined to be essential for all Florida students. They became the foundation of items tested on the FCAT.

The FCAT was administered to students in 1997 as a census field test which meant that all students in the test groups were tested. The initial test was in Grade 4 (reading), Grade 5 (mathematics) and grades 8 and 10 (reading and mathematics). Test questions included multiple-choice, gridded response (mathematics) and performance

tasks (short- and extended-response) items. Within a few years, the existing Florida Writing Assessment Program (FWAP) was incorporated into the FCAT and became known as FCAT Writing.

In 1999, the Florida Legislature approved the A+ plan (*FCAT Handbook*, 2005, p. 10) for education which expanded Florida's assessment program to include assessments in reading and mathematics in Grades 3-10 and a science assessment (FCAT science) administered in Grade 11. This new assessment system allowed for the evaluation of specific student academic growth over time. This revision also required that students pass the Grade 10 FCAT SSS in Reading and Mathematics in order to graduate, replacing the HSCT. In 2001, NCLB required the assessment of all students in Grades 3-8 in Reading and Mathematics. Because Florida already had an assessment system in place, i.e., FCAT, that tested for adequate yearly progress (AYP), no additional testing was required for Florida students (*FCAT Handbook*, 2005).

School Configurations

This section of the review was used to report on literature and related research focused on two different school configurations (traditional large schools, and large schools with smaller learning communities). Traditional large schools were considered those with over 1,000 students. Some school districts have been using smaller learning communities in an effort to make their large traditional schools function as a small school within the larger framework of the larger school.

Large Traditional School

Cremin (1970) described a large high school to be any school that contained more than 1,000 students. Howley (1997) indicated that large mega-schools can be effective, but their success was dependent on the socioeconomic status of the students attending the school. The more affluent students did better at a large traditional school, but the poor and impoverished students suffered. Howley, in reporting his research, indicated that the achievement gap widened as the differences in socioeconomic classes increased. The larger the school the more likely it was that a larger group of students in the larger school would all be competing for the same scarce resource, additional tutoring. The affluent students at a large or even a small school were more likely to have the financial resources to obtain professional academic tutoring than a student of low economic status. A less affluent student might also have to obtain some type of after school employment in order to financially help out the family, thereby reducing academic study time.

In a large traditional school, the organizational structure often gets in the way of teachers knowing and caring about students. Some huge schools offer a limited or distorted curriculum, because there is not enough student interest in the more diverse and challenging classes to maintain the larger class sizes that are typical of a large school (Roellke, 1996).

Large traditional schools have typically been organized so that teachers have as many as 200 different students in a school day. Students are scheduled into six or seven different, unrelated, classes every day. These conditions, coupled with large numbers of students in large traditional schools, “make it easy for some students to get lost in the

shuffle, to drift through high school unnoticed, and for too many, to drop out or fail” (Lambert & Lowry, 2004, p. 1). The students that do succeed in large traditional schools usually find a way to make connections. These students are often high-performing students in classes with challenging curricula, talented athletes who are carefully coached, and students in select school activities such as band, orchestra, the school paper, and drama. These students, through their interests in sports or specialized activities or academic pursuits, experience the benefits of personalization in their special programs and are able to achieve success in the larger schools (Lambert & Lowry, 2004).

One of the effects that supports the use of larger schools, is the economy of scale that allows larger schools to share the resources among several different users at a large school. It has been found, though, that as the school gets larger, the bureaucracy that is needed to run the larger school can diminish any monetary savings. In rural settings, there would also be the added cost of transporting students to centralized locations (Lee & Smith, 1997). It has also been found that although larger schools have a lower cost per student, they have a higher cost to graduate than a smaller school (U.S. Department of Education, n.d.).

Initial research using the Comprehensive Test of Basic Skills (CTBS) in New Mexico was used to test whether there was any correlation between school size and academic achievement. The research was conducted over three different grade levels, Grades 5, 8, and 11 from 1978 to 1981. The research looked for a simple correlation using students’ scores. Significant correlations were found for Grade 5 for the years 1979 and 1980. A correlation was found for all four years in Grade 11. No significant

correlation was found with Grade 8 during any of the test years. No further research was conducted by the researchers to determine if these were positive or negative correlations (Edington & Martellaro, 1989).

Schreiber (2002) did find an increase in student achievement with an increase in school size, at least in mathematics. His results were based on the results of the Third International Mathematics and Science Study Population 3 Cohort (TIMSS). He believed that the increase in student achievement had to do with the availability of more teachers of advanced mathematics that would be available to more students in a larger high school.

Michael Klonsky (2002), the director of the small school workshop in Chicago, believes that large schools do not have the close relationships with their students that can be found in small schools (Bandura, 1977; Ryzin, 2011). This lack of a relationship makes it difficult for the teachers to connect the curriculum to their students' lives. Also, in a large high school, many of the teachers do not live within the school community boundaries, further reducing the relationship they have with students, parents and the community (Mesa, 2005). Klonsky also found that there was an increased chance of violence in larger schools. Those schools with over 1,000 students were found to be eight times more likely to report a serious violence problem than a small school of less than 300 students.

Miller-Whitehead (2003) researched class size and student achievement in Tennessee and found that when a school's size increased, the class size usually also increased as did classroom size. The increase in class size led to an increase in the size of

the classroom and school and reduced the amount of student achievement (Miller-Whitehead, 2003).

In some states, the governing policy pertaining to maintenance, renovation, and construction of schools promotes the consolidation into larger schools. Some states even require specific enrollment sizes for the construction of new buildings in order for the district to qualify for funding. Americans have a cultural preference for things that are new and big; this tends to put older schools, which tend to be small, at risk. “American’s are trained by a culture of consumerism to think that not only is bigger better, but that just being new is a virtue” (Lawrence et al., 2002, p. 5).

Large Schools with Smaller Learning Communities (SLC)

Much of the push for smaller schools has been influenced by the greater amount of accountability with the No Child Left Behind (NCLB) Act of 2001 (U. S. Department of Education, 2002) and its subsequent reauthorization in 2007. Schools were not making the required progress and something needed to change. States, districts and school leaders were looking for a solution. Could smaller schools be a solution? Another influencing factor was the grant process established by Microsoft founder, Bill Gates, supporting the creation of smaller schools (Jehlen & Kopkowski, 2006). The Bill and Melinda Gates Foundation believed that the SLC could instill the students with “3 new R’s, Rigorous academic coursework, meaningful Relationships with instructors who can help students meet high standards, and Relevant learning opportunities through

internships and community partnerships” (Bill and Melinda Gates Foundation, 2008, p. 4).

The term, smaller learning communities (SLC), refers to a subdivision of large school populations into smaller, autonomous groups of students and teachers. These communities typically are grouped geographically within a larger building and are served by instructional staff who are assigned only to a unique group of classes and students (Bernstein, Millsap, Schimmenti, & Page, 2008). According to Ongaga and Thompson (2011), “In a basic sense, small learning communities are rooted in ethics of care, particularly in terms of a focus on close, reciprocal relationships between students and teachers and the personalization of the school environment” (pp.43-44). They explained that researchers have demonstrated that smaller learning communities can create greater equity in access to academically challenging courses and support more productive teacher collaboration and innovation.

Federal guidelines have also authorized the awarding of grants to schools for implementing or continuing the use of SLC in schools with enrollments of more than 1,200 students. In addition to the implementation of the SLC, the federal government has made it one of the priorities of an SLC for teachers to have common planning times and has allocated additional funding for this purpose. (U.S. Department of Education, n.d.).

The state of Florida even enacted law F.S. 235.2157 addressing the fact that Florida schools were among the largest in the country and that:

Smaller schools provide benefits of reduced discipline problems and crime, reduced truancy and gang participation, reduced dropout rates, improved teacher

and student attitudes, improved student self-perception, student academic achievement equal to or superior to that of students at larger schools, and increased parental involvement (Florida Statutes, 2000).

The original classification for a high school was 900 students, but this was later increased to 1,200 students. The statute actually required that school districts try to reach these levels by not building any new schools that will accommodate a student population larger than these size limits (there are also size limits on elementary and middle schools). The Florida legislature actually recommended the utilization of the school-within-a-school program to reach these size restrictions. This statute was adjusted in 2001 under changes to statute 235.2157, because it was thought that school size and facility management should be under local school board control (Online Sunshine, 2001). In 2009, the Superintendent of the Philadelphia school district said that “There is no record of large inner city neighborhood high schools anywhere that have been turned around while serving the same student population without some reorganization into smaller, autonomous units” (Mezzacappa, 2009).

The SLC is not a new concept. Goodlad wrote about the school-within-a-school program in 1984. He believed that a school should be divided into different houses, not based simply on grade level, but more on academic interests. Students would stay within the same house throughout their high school careers. His concept took advantage of existing structures retrofitted to make houses of no more than 100 students per grade level. It is important to note that he believed that buildings needed to be retrofitted to make the houses completely separate from each other. They would be allowed to share

some of the more expensive facilities, e.g., media center, gym, fully equipped laboratories, but only as a house and not interacting with other houses. One of his main differences between other house concepts was that he believed that students should be able to rise vertically within particular subject matter and not have to wait for other students in their grade level. He posited that this would foster a desire to keep learning because students would not be slowed in their learning based on the academic year (Goodlad, 1984).

In the mid-90s some large cities, i.e., Philadelphia and New York, started the systematic process of breaking down some of their largest underperforming urban schools into smaller learning communities. They established their SLCs based on the elite model of private schools and the belief that “large urban schools were a threat to the intellectual and emotional well-being of students, teachers and parents’ (Fine & Somerville, 1998, p.7).

According to Myatt (2004), the main difference in a small school setting is the connectedness of the students, faculty, and staff. This could still be accomplished, although to a lesser degree, by having smaller learning communities based inside larger schools. In an effort to restore this connectedness with the school and the community, some schools have experimented with smaller learning communities (SLC) that place selected students in a group that interacts within themselves as a separate unit within a larger school (Myatt, 2004).

Maroulis and Gomez (2008) explained that there is a great deal of research supporting the notion that ideas such as “social capital” and “social support” yield

positive results for students (p. 1992). In their study, they described how both dense, highly connected networks within communities and more loosely connected and broader horizon-expanding networks act as sources of potential positive impact to student achievement. This occurs as students bond closely in an atmosphere that values achievement and/or gain exposure to successful peers outside their normal social group. The goal should be to leverage “dense, norm-enforcing networks” in which students “may reap the benefits of increased trust, conformity, and belonging” while, when applicable, connecting students in heterogeneous communities in which students “may reap the benefits of increased diversity of information and autonomy” (Maroulis & Gomez, 2008, p. 1924).

Although this configuration does create a smaller community for the students, the overall size of the school does not change. The use of a smaller learning community, according to Oxley (2001) did show a small level of increased student achievement, but it was inconclusive. Cushman (2000) reported that the smaller environment and increased cooperation of the instructional and support staff of an SLC allows increased individualized attention not only to the students’ academic needs but also to behavioral issues. In SLCs, the team or house leader becomes the first line of communication with parents. Because the lead teacher has a more personalized relationship with students, parents are more receptive to interventions and behavior modifications that might help their children, thus reducing behavior problems before they escalate to more serious infractions (Cushman, 2000).

As researchers with the National Northwest Regional Educational Laboratory, Clarke and Kohn (2002) conducted a meta-analysis of more than 100 studies and evaluations of student achievement and concluded that academic achievement in small schools was often superior to that of large schools. They found attendance was better in small schools and students tended to drop out at a lower rate than those at larger schools.

Some researchers (Quint, Miller, Pastor & Cryton, 1999) suggested that the longer a group of students stays within the same SLC the greater their academic success will be. The SLC concept first came into prominence with a group of students who stayed in the same SLC for their entire four years of high school. In this study, the SLC teachers moved with the students when they entered a new grade level so they already had a working knowledge of the students and what prior knowledge they had. Thus, they could build directly on that existing knowledge without trying to bring some students up to the same level as the other students. Some studies of SLCs that are utilized only for the transitional ninth grade year showed some positive though modest effects on students' academic outcomes (Quint et al., 1999).

In a similar report by Funk and Bailey (1999), smaller schools in Nebraska outperformed larger schools in both the percentage of students graduating and the percentage going on to post-secondary schools. The state's graduation rate averaged 85%. School districts with larger high schools (> 600 students) had an average graduation rate of only 80%. For those school districts that had high schools with fewer than 100 students, the average graduation rate was 97%. Funk and Bailey concluded that the additional cost of educating students in a smaller school setting had to be weighed

against the more positive educational outcomes. “The so-called inefficiencies of small schools are greatly reduced when calculated on the basis of cost to graduate, and virtually disappear when the substantial social costs of non-graduates and the social impact of college-educated citizens are considered” (Funk & Bailey, 1999, p. 3).

A report was issued in 2006 on the success of Boston Pilot Schools that used SLCs (Center for Cooperative Education, 2006). They found that these schools outpaced the district averages on student performance and engagement indicators such as attendance, suspensions, and graduation rates (French, Atkinson, & Rugen, 2007). Stiefel, Berne, Iatarola, and Fruchter (2000) also completed research on evaluating school size versus cost in 128 New York schools. It was determined that schools with a student population of fewer than 600 students would cost approximately \$52,000 to graduate each student. A larger mega-school, with a student population of more than 2,000 students, would cost approximately \$50,000 per student to graduate. Stiefel et al. concluded that if the actual cost of graduation rates and reduced violence and discipline problems were factored in at a smaller school, smaller schools were the more economically sound investment in a child’s educational future (Stiefel et al., 2000).

Wasley et al. (2000), in their two-year study completed on small schools in Chicago, came to the same conclusion as other researchers—that reconfiguring large urban schools into smaller schools could have a positive impact on student performance and school climate. Student achievement, graduation rates, and performance were stronger in the small schools, and standardized test scores improved markedly. The benefits of small schools were not just evident in the students; adults were positively

affected also. Based on the results of a survey, the parents were more satisfied with the school. The teachers in the small schools were more likely to collaborate freely with colleagues, engaged more regularly in professional development activities, and built and utilized more cross-curriculum educational programs that were more focused. The teachers also reported being more satisfied with their work (Wasley et al., 2000).

Many smaller learning communities make use of what is called a conversion school. A conversion school is a traditional high school that closes at the end of the school term and then reopens for the new school year as a school with a smaller learning community, often with the same facilities and staff. These conversion schools often lack the required amount of time and preparation to be fully functional as a smaller learning community when they reopen. Although there has been some increase in student achievement in these schools, it does not approach the level that has been obtained with a stand-alone small school setting for several years (Hartmann et al., 2009). Sometimes there are multiple types of regulations and/or policies that control how these conversion schools can utilize the funds that they have been awarded. When the schools cannot meet these policies or try to meet them without the proper background and experience needed to operate the conversion school, the school underperforms, does not meet expectations, and the funding is withdrawn (Klonsky & Klonsky, 2008).

Some conversion schools have reopened with a house setting in which groups of students take all of their core classes together. The house structure is utilized in many settings to make use of existing structures without the increased cost of building new separate communities. Even though the cost is minimal, some expense is required to

ensure that each house can have its own unique and separate setting (Duke & Trautvetter, 2001).

Toch (2003) wrote about the Julia Richman Educational Complex in Manhattan, New York, suggesting that one way to create smaller schools, particularly in the urban setting, was to locate these small schools in office buildings and other spaces that are more readily available than building new smaller schools. They believe that this network of smaller schools could share centrally located sports, arts, and music facilities. It is important to make sure that these new smaller schools have distinctive and focused educational programs. This would promote a sense of community when the teachers, parents and students are able to select their school based on their own personal interests. These small schools would also need to have their own autonomy and the freedom to hire and fire staff, define their own budgets, and set their own instructional strategies (Toch, 2003).

In a well-designed SLC program, students choose their inclusion in a particular SLC based on their curricular interest regardless of their past history of academic achievement. A well designed SLC team will include not only the teachers of the standard curriculum but an educational specialist who will collaborate with students and their parents to tailor a specific instructional path for all SLC students. In reality, SLCs are often formed as advanced career academies for the advanced and gifted students, often ignoring the special education and low SES students who would benefit the most from such a program.

Many evaluations of schools that have implemented SLCs have found that this implementation is often incomplete and does not take into account the importance of the structure of smaller learning communities as being stand-alone units that have their own administration with teachers teaching a common core of a small group of students. This leads to not seeing the desired results in student outcomes and behavior. A leadership team that is not specific to just the SLCs will not have the background knowledge of all the students within that SLC, and the desired effect of bolstering a feeling of community and belonging will be lost. Often times teachers within the SLC do not share common planning times and only a portion of their students. These improper and incomplete implementations of SLCs have led several teachers to become resentful and reluctant to try again (Oxley, 2008).

One of the problems associated with trying to create a smaller learning community is the source of funding. Though several different types of grants have been available, they often come attached to unreasonable timelines and/or requirements of administration changes. If these timelines are not met, the funding organization could withhold funding, leaving a school that is in the middle of a conversion process without the promised funding, to revert to a traditional large high school (Klonsky & Klonsky, 2008).

One of the ways that has been discussed to help the continuity of education with students is the concept of looping. A total of 23% of elementary schools and 15% of secondary schools use this technique which involves the teacher progressing with students into the next grade so that all can build on the teacher/student relationship that

was created the prior year. This works well in elementary schools. However, as students progress into secondary school, the background knowledge of the teacher must change to encompass the new curriculum, and this can be difficult in some subjects such as mathematics and science (Delavan, 2009).

Low Social Economic Status and Academic Achievement

A student's socioeconomic status is one of the most common predictors of academic success (Coleman et al., 1966). Students who come from low income homes and have parents with little or no formal education are much more likely to have low academic achievement than those students who come from high income homes and have parents with advanced education levels themselves. This pattern has led many educators and policy makers to give preference to school reform that will improve the educational outcomes for these disadvantaged students (The College Board, 1999).

There are many different ways to calculate a person's SES, and this has led to some ambiguity and difficulty in comparing research results (White, 1982). Social class and SES have been sometimes used interchangeably by different researchers to indicate the social and/or the economic characteristics of students. Typically, "SES describes an individual's or a family's ranking on a hierarchy according to access to or control over some combination of valued commodities such as wealth, power, and social status" (Sirin, 2005, p. 418). Although the conceptual meaning of SES varies among different researchers, there is agreement that the tripartite nature of SES incorporates parental

income, parental education and parental occupation as the three main components of SES.

Parental income as an indicator of SES reflects the potential for social and economic resources that are available to the student. The second traditional SES component, parental education, is considered one of the most stable aspects of SES because it is typically established at an early age and tends to remain the same over time. Moreover, parental education is an indicator of parent's income because income and education are highly correlated in the United States (Hauser & Warren, 1997). The third traditional SES component, occupation, is ranked on the basis of the education and income required to have a particular occupation (Hauser, 1994). Occupational measures such as Duncan's Socioeconomic Index (1961) produce information about the social and economic status of a household in that they represent information not only about the income and education required for an occupation but also about the prestige and culture of a given socioeconomic stratum (Sirin, 2005, p. 419).

Researchers who plan to use SES data in their research need to determine what type of SES data to use and whether it will be based on a student's individual SES or whether it will be based on the combined SES data of all the students in the school of attendance. School SES has usually been based on the percentage of students who participate in the federally funded free and reduced program administered by the Department of Agriculture. Students from families with incomes at or below 130% of the poverty level are eligible for free meals. Those with incomes between 130% and

185% of the poverty level are eligible for reduced-price meals (U.S. Department of Agriculture, 2011). The present study used the combined SES data of the school-based on percentage of free/reduced lunch.

This low test performance not only is with low socioeconomic classes. It has been shown that even those minority classes of Blacks, Hispanics and Native American students that come from a family with a higher socioeconomic status (middle and professional class parents) still lag behind their White and Asian counterparts in their grade level (The College Board, 1999).

This pattern was found in the twelfth-grade results for the NAEP Reading test. At all parent education levels, African Americans and Latinos had much lower average reading scores than Whites. Moreover, the Black-White gap was much larger for students with a parent who had a college degree than for students with no parent who had a high school diploma. (The College Board, 1999, p. 9)

SES has not only been related to academic achievement. It is also linked to other multiple interacting factors such as ethnic and racial background, school and neighborhood location, and the student's grade level. According to Dika and Singh (2002), a family's income will largely determine where the family will reside and that will contribute to the school in which the student is zoned and the neighborhood interactions that can help form different societal norms and values, e.g., the importance of education.

Researchers have found that poverty, more than ethnicity, was an indicator of academic achievement and dropout rates. A total of 84% of the nation's lowest

performing schools had high poverty rates as reported by the Alliance for Educational Excellence in 2010.

White's 1982 review of the research showed a trend that the grade level of the student also had an effect on the importance of a student's SES. As the student gets older, the effect of SES seems to diminish. There are two proposed explanations for this: (a) the equalizing experiences that the schools provide diminishes the effect of family SES and student achievement; and (b) more students from lower SES tend to drop out of school, thereby, reduce the amount of correlation (White, 1982). Different longitudinal studies have not shown this diminishing of the achievement gap between high and low SES students as the students' progress through the different grades (Sirin, 2005).

It has been argued that rather than focusing on racially integrated schools, the focus should be on integrating schools based on the family's economic status. Kahlenberg (2012) observed that low SES students who are placed in a middle-class school (less than 50% free or reduced lunch) typically are surrounded by peers who are, on average, more academically focused. Their parents are able to be more involved in the school and community activities, and teachers have higher expectations of their students. Some people believe that economic integration will adversely affect the gains that were obtained by *Brown v. Board of Education*, that forced schools to integrate based on race (Kahlenberg, 2012). Caldas & Bankston (1998) showed that race and social economic class are closely related.

Along with the push for smaller schools, some people have also advocated for smaller class sizes. Delavan, (2009) believed that the best class size is 12 students. His

conclusion was based on the National Research Council (2004, p 160), that advocated for no more than 20 students in secondary school classes and preferably no more than 17 students. He further believed that for those students who are more at risk for failure, i.e., low SES and minority students, that the class size be even smaller. Educational disadvantages, whether associated with poverty, race or some other type of social disadvantage, often result from insecure attachments and insufficient positive adult interactions.

High Minority Schools and Academic Achievement

For the purpose of this study, the researcher used the same classification standard as did the Center for Educational Statistics; a minority is any student that is not classified as being White, non-Hispanic (NCES, 2007b). Though the lowest performing high schools differ in size and geographic location, they have been found to uniformly have a prevalence of minority and low socioeconomic students. Minority students make up 75% of the student population at the nation's lowest performing schools, almost double the national average. Minority students are six times more likely to attend a low performing school than their White counterparts.

The Alliance for Educational Excellence, in a 2010 issue brief, commented that students of color make up the majority of dropouts in the nation's schools, and a large portion of these dropouts come from the nation's lowest performing schools. These students of color drop out at a much greater rate than non-minority students. It has been estimated that 58% of Blacks and 50% of Hispanic students drop out of these low

performing schools. In 2008, Florida had 164 schools that were considered to be among the lowest performing schools, and 36% of Florida students attended one of these schools (Alliance for Educational Excellence, 2010).

The proportion of adults who received high school diplomas increased from 1990 to 2005 in all racial groups, but minorities still lagged. The gap between the percentage of Whites and Blacks who graduated narrowed from 15% in 1990 to only 9% in 2005. Hispanic students did not see this same closing of the educational gap with 32% graduating in 1995 and 31% graduating in 2005 (NCES, 2007b).

Most racial differences found in the public school also follow a social economic trend, meaning minorities tend to have a lower SES than non-minority students. This lower SES is believed to be the primary reason that minority schools tend to have lower student academic achievement. Coleman et al. (1966), in their report, stated that the cultural background of a student's classmate was more important than school spending, curriculum or quality of teachers. This is why people thought that desegregation would be good for minority students. With desegregation, minority students would be attending school with White middle-class students. Based on this assumption, Caldas & Bankston (1998), did research in Louisiana to determine if SES was more important than race in student achievement. They used the results of the Louisiana Grade 10 graduation test. Their results showed that schools with a high African-American rate (greater than 50%) had significantly lower scores on the test. When the results were controlled for SES, it was found that a variance of only 19% could be attributed to African-American students' SES. The same study showed that students' being African-American accounted for a

variance of 30%. This result does contradict Coleman's thinking that it is SES that is more influential in student achievement than race. It is important to note that Caldas and Bankston's research was conducted using only White students and African-American students. No other classification of minorities were studied.

Students of color often seem to be placed in schools that are understaffed and overpopulated. Hispanics and Blacks have been more likely to attend public schools with the most students and the highest student-teacher ratios. These same large schools also tend to have larger classes. The smaller schools, however, show a lack of continuity of teachers, and these teachers are more likely to leave the profession or transfer to a new school. This leaves minority students without the chance to establish and maintain a meaningful relationship with their teachers. This positive relationship with adults is often what is already missing in minority students' lives. This lack of positive adult relationships correlates closely with the poverty level that accompanies many minority students. Many of the parents of these students must work for minimum wages, without benefits, and long hours just to make enough to support their families. The parents cannot foster a meaningful student/adult relationship because they need to be working (Delavan, 2009).

CHAPTER 3 METHODS

Introduction

This chapter contains a description of the methods and procedures used to conduct the study. The purpose of the study is restated, and the population and sample are described. The remainder of the chapter contains information regarding the data resources accessed to complete the study. A general description of the data analysis is followed by the research questions which guided the study. The chapter concludes with a description of the methods and procedures used in the analysis for each of the research questions and the principal survey.

Purpose of the Study

This research was conducted to examine if there were any statistically significant differences in student achievement based on school configuration models. The scores of students who attended large, traditional high schools of over 1,000 students were compared to those of students in large high schools utilizing a smaller learning community (SLC) format that had student populations of at least 1,000 students.

Population

The population for the study consisted of students in the state of Florida attending two different types of Florida public high schools based on their configuration model (large traditional and large SLC schools). The 10th-grade student scores that were used in the study were obtained for students enrolled in high schools that served only Grades 9-

12 students. All selected high schools had been using their current configuration model for at least two years. School configuration models were based on size of school determined by student membership data submitted to the Florida Department of Education as part of each school's data report. For this study, large traditional high schools had over 1,000 students. Large high schools that utilized a smaller learning community (SLC) configuration had a total population of over 1,000 students, but students were placed in smaller groups that interact within themselves as a separate unit within the larger school.

Sample

The sample for this research was one of convenience because the researcher was in search of large traditional high schools and large SLC high schools over 1,000 students within the state of Florida. Although convenience sampling was utilized to search for the size of schools, each participating high school had to meet the requirement of having been in one of the two configurations for at least two years.

Instrumentation

Because the state of Florida uses the Florida Comprehensive Assessment Test (FCAT) to determine the level of learning being accomplished in public schools, 10th-grade FCAT Reading and Mathematics scores for the 2007-2008 and 2008-2009 school years were used as measures of student achievement. The scores of 10th-grade students were used because it has been in that year that the state of Florida requires students to

pass the FCAT in order to receive a Florida high school diploma. The effect of high minority and high free/reduced lunch was also examined.

The reliability of the FCAT test has often been questioned. The Florida Department of Education (2007) described the FCAT as a test that “meets all professional standards of psychometric quality traditionally associated with standardized achievement tests” (p. 37). The most common means of measuring reliability has been the use of the internal consistency reliability coefficient. Internal consistency reliabilities for the FCAT have been reported using Cronbach’s Alpha (FLDOE, 2007, p. 37). Cronbach’s Alpha and the KR-20 coefficients are based on classical test theory. Cronbach’s Alpha coefficient is often considered more appropriate to use with the FCAT because it also measures items that are scored on a scale as are some items on the FCAT. The KR-20 is used when the items on the test are dichotomously (correct or incorrect) scored items. For Grade 10 Reading, measures for Cronbach’s Alpha have measured 0.89 and 0.85 from 2005-2006. Measures of 0.92 and 0.91 have been reported using the KR-20. For Grade 10 Mathematics, measures for Cronbach’s Alpha have measured 0.94 and 0.88 from 2005-2006. Measures of 0.87 and 0.90 have been reported using the KR-20 (FLDOE, 2007).

Data Collection

Schools were selected based on data obtained from the Florida Department of Education. The FCAT data was first collected for each four-year high school (Grades 9-12) in Florida that had a population over 1,000 students. A total of 259 schools were

selected for the research. Of these, 149 of the schools were traditional high schools, and 110 of the schools utilized some type of smaller learning community. Once the student enrollment was determined, all schools were contacted to ascertain whether they were traditional schools or if they were utilizing some type of SLC.

The first contact was attempted via email. The letter of introduction that was sent to all prospective participants is included in Appendix A. When there was not a significant response to the emails, each school was contacted via telephone.

The school's data for their percentage of free/reduced lunch and the percentage of the minority enrollment were obtained from the Florida Department of Education website. A common measurement of poverty is 40% or more free and reduced lunch, and this is the percentage that was used in this study (Alliance for Educational Excellence, 2010). High minority schools were those schools with a population greater than 47.8% of minority students in public high schools for the 2007-08 year (FLDOE, 2009). The raw data for the study are displayed in Appendix B.

A short five-question survey was also utilized to collect qualitative data so as to study the school administrators' beliefs and opinions in the effects of using the SLC configuration with their traditional students and minority and low SES students. These survey questions were created by the researcher and reviewed by a professor of measurement and evaluation to gain the face validity, that is, the data to be collected through the survey questions measured what was proposed to be measured. The first two questions were used to categorize the responses based on which county the responses came from and whether the school was a traditional school or one utilizing a smaller

learning community. The next three questions dealt with the administrators' beliefs about the use of smaller learning communities and student achievement, low SES students, and minority students. A copy of the survey is presented in Appendix C. The different Florida school districts were contacted, and permission was secured as required at the district level. Surveys were distributed only to principals who had been selected to be in the research study. To ensure the confidentiality of the survey respondents, the surveys were completed using the web-based SurveyMonkey. Once approval from the different counties was obtained, the survey link (survey was administered using SurveyMonkey) was sent to the principals of the schools within the county that were included in the study. The surveys were anonymous and only identified the county in which the schools were located in to ensure a valid cross section of results.

Prior to initiating the study, approval was granted by the University of Central Florida's Institutional Review Board to conduct the research. The study was determined to be exempt (Appendix D).

Research Questions

The following research questions guided this study:

1. Are there any statistically significant differences of student achievement as measured by the 10th-grade Reading and Mathematics FCAT assessment at the school level between the configurations of high schools, controlling for the percentage of minority population and SES? If yes, what are the differences?

2. Is there any relationship between socioeconomic status and student achievement, as determined by student performance (measured at the school level) on 10th-grade Reading and Math FCAT assessment, depending on configuration patterns? If yes, what is the relationship?
3. Is there any relationship between the percentage minority population and student achievement, as determined by student performance (measured at the school level) on 10th-grade Reading and Math FCAT assessment, depending on school configuration patterns? If yes, what is the relationship?

Data Analysis

The data were analyzed using standard statistical methods of Multivariate Analysis of Covariance (MANCOVA). The independent variable for the research was the type of school, traditional and smaller learning community. The dependent variables were the FCAT Mathematics and FCAT Reading school level scores. There were also two covariates: SES, levels based on the percentage of free and reduced lunch with a higher percentage of free or reduced lunch indicating school with a higher SES (U.S. Department of Agriculture, 2011) and the percentage of minority students at each school.

Descriptive statistics included frequencies and percentages for nominal (categorical) data and means/standard deviations for continuous (interval/ratio) data. Standard deviation measures statistical dispersion or the spread of values in a data set. If the data points are all close to the mean, the standard deviation is close to zero.

The variables were controlled for socioeconomic status and ethnicity by purposely selecting schools with similar characteristics for evaluation. These variables were also used to examine any group effects or between-group effects (Lomax, 2001).

The research questions were elevated using a MANCOVA with repeated measures. The independent variables were the school configurations (referred to the cohorts in the SPSS data). The dependent variables were the reading and mathematics scores of each school. The covariates were the SES levels based on the percentage of free and reduced lunch and the percentage of minority students at each school.

Data Analysis for Principal Survey

The principal survey was sent to selected schools that were already part of the study based on the prior criteria of size and student population configuration. The counties that were chosen for the survey included only those counties that had ten or more schools included in the study. The surveys were analysis and categorized based on the responses to questions to reinforce the results from the quantitative data.

CHAPTER 4 ANALYSIS OF THE DATA

Introduction

This study was developed to investigate the effect that a school's configuration has on student achievement. There has been much debate as to the impact of small school configurations on student achievement.

Population and Demographic Characteristics

The population consisted of 259 high schools located in 38 different Florida school districts. Schools were divided into (a) those using a traditional high school configuration (149 schools) or (b) those that used some type of smaller learning community configuration (110 schools).

Research Questions

The following research questions guided this study:

1. Are there any statistically significant differences of student achievement as measured by the 10th-grade Reading and Mathematics FCAT assessment at the school level between the configurations of high schools, controlling for the percentage of minority population and SES? If yes, what are the differences?
2. Is there any relationship between socioeconomic status and student achievement, as determined by student performance (measured at the

school level) on 10th-grade Reading and Math FCAT assessment, depending on configuration patterns? If yes, what is the relationship?

3. Is there any relationship between the percentage minority population and student achievement, as determined by student performance (measured at the school level) on 10th-grade Reading and Math FCAT assessment, depending on school configuration patterns? If yes, what is the relationship?

Variables

MANCOVA tests were used to answer the research questions. The independent variables were the school configurations. The dependent variables were the reading and mathematics scores of each school. The covariates were the SES levels based on the percentage of free and reduced lunch with a higher percentage of free or reduced lunch indicating school with a higher SES (U.S. Department of Agriculture, 2011) and the percentage of minority students at each school. For the MANCOVA, the different school configurations were entered, with the value of 1 being assigned to traditional schools and the value of 2 being assigned to those schools using a smaller learning community. Two years of data (2007 and 2008) were used for the MANCOVA to cross validity the analyses results.

Upon running the MANCOVA, the assumption of homogeneity of variance-covariance's matrices, was violated for data from both Year 2007 and 2008 as assessed by Box's $M = 18.73$, $F(3, 7033953.36) = 6.19$, ($p < .001$) for Year 2007 and Box's $M =$

199.99, $F(3, 7033953.36) = 66.09$, ($p < .001$) for Year 2008. Thus, Pillai's Trace value was selected to be reported because it is robust to the violation of homoscedasticity. Two different years of FCAT data were used to ensure that the data results were consistent. Table 2 shows the descriptive statistics for the scores of mathematics and reading of Year 2007 and 2008

Table 2

Estimated Marginal Means of Cohorts: 2007 and 2008

| Test | School Pattern | Mean | Standard Deviation | N |
|------------------|----------------|--------|--------------------|-----|
| 2007 Reading | Traditional | 306.82 | 16.66 | 148 |
| | SLC | 291.05 | 19.25 | 111 |
| | Total | 300.06 | 19.43 | 259 |
| 2007 Mathematics | Traditional | 323.26 | 18.29 | 148 |
| | SLC | 303.96 | 22.30 | 111 |
| | Total | 314.99 | 22.23 | 259 |
| 2008 Reading | Traditional | 312.82 | 17.73 | 148 |
| | SLC | 297.49 | 21.58 | 111 |
| | Total | 306.25 | 20.87 | 259 |
| 2008 Mathematics | Traditional | 327.22 | 16.67 | 148 |
| | SLC | 306.73 | 33.53 | 111 |
| | Total | 318.44 | 27.22 | 259 |

Note. SLC = Small Learning Community

MANCOVA of School Configurations

There was a statistically significant difference between the school configurations on the combined dependent variables of mathematics and reading, $F(2, 254) = 4.77, p < .009$ for Year 2007 and $F(2, 254) = 3.74, p < .025$ for Year 2008. Table 3 displays the multivariate tests for 2007 and 2008.

Table 3

Multivariate Tests^a for Year 2007 and 2008

| Year | Effect | Pillai's Value | F | Hypothesis df | Error df | <i>p</i> |
|------|----------------------|----------------|------------------------|---------------|----------|----------|
| 2007 | Intercept | .994 | 24069.024 ^b | 2 | 254 | >.001 |
| | School Configuration | .036 | 4.765 ^b | 2 | 254 | .009 |
| | % free lunch | .562 | 162.901 ^b | 2 | 254 | .000 |
| | %minority | .036 | 4.765 ^b | 2 | 254 | .009 |
| 2008 | Intercept | .992 | 15811.541 ^b | 2 | 254 | >.001 |
| | School configuration | .029 | 3.738 ^b | 2 | 254 | .025 |
| | % free lunch | .440 | 99.875 ^b | 2. | 254 | .000 |
| | %minority | .024 | 3.112 ^b | 2 | 254 | .046 |

a. Design: Intercept + schpattern+ pcntfreelunch + pcntminority

b. Exact statistic

There was a statistically significant difference for both mathematics and reading scores in Year 2007, $F(1, 255) = 5.92, p = .016$ for reading and $F(1, 255) = 8.63, p = .004$

and for Year 2008 when compared by school configuration. As presented in Table 2, it is apparent that those in large traditional schools tended to have higher reading scores ($M_1 = 306.82$, $SD = 16.66$) than those in smaller learning communities ($M_2 = 291.05$, $SD = 19.25$) and mathematics scores ($M_1 = 323.26$, $SD = 18.29$) for large traditional schools had higher scores than those in smaller learning communities ($M_2 = 303.96$, $SD = 22.30$).

There was a significant difference between the mathematics scores when compared by school configuration for Year 2008 with $F(1, 255) = 7.20$, $p = .008$. There is no statistically significance on reading scores with $F(1, 255) = 1.36$, $p = .243$. As shown in Table 4, those in large traditional schools had marginally significant higher mathematics scores ($M_1 = 327.22$, $SD = 16.67$) compared to those in smaller learning communities ($M_2 = 306.73$, $SD = 33.53$).

Table 4

Univariate Tests for Years 2007 and 2008

| Dependent Variable | Sum of Squares | df | Mean Square | F | Sig. |
|--------------------|----------------|-----|-------------|-------|------|
| 2007 Reading | | | | | |
| Contrast | 549.550 | 1 | 549.550 | 5.916 | .016 |
| Error | 23687.071 | 255 | 92.890 | | |
| 2007 Mathematics | | | | | |
| Contrast | 958.004 | 1 | 958.004 | 8.631 | .004 |
| Error | 28302.397 | 255 | 110.990 | | |
| 2008 Reading | | | | | |
| Contrast | 182.864 | 1 | 182.864 | 1.367 | .243 |
| Error | 34112.609 | 255 | 133.775 | | |
| 2008 Mathematics | | | | | |
| Contrast | 3010.783 | 1 | 3010.783 | 7.195 | .008 |
| Error | 106701.825 | 255 | 418.439 | | |

Evaluation of Covariates

Socioeconomic Status (SES)

Because the minority percentage and SES of a school has been known to contribute to the student achievement of a school (Coleman et al., 1966, The College Board, 1999, Dika & Singh, 2002, Sirin, 2005, White, 1982), these covariates were controlled for in the analysis. These covariates were analyzed to see if they did have a significant effect on the scores. This study used the combined SES data of the school based on percentage of free/reduced lunch; the higher free/reduced lunch indicated lower school SES.

There was a strong correlation between SES of the school and FCAT Mathematics scores for both of the study years, 2007 and 2008 that were significant for both the large traditional school and the SLC. The results for the large traditional school were $r = -.830, p < .001$ for 2007 data; and $r = -.807, p < .001$ for 2008 data. The SLC had similar significant results for the FCAT Mathematics scores: $r = -.854, p < .001$ for 2007 data; and $r = -.495, p < .001$ for 2008 data. This analysis indicated that there were negative correlations between students' SES measured by free or reduced lunch and FCAT Mathematics scores in both the large traditional school and the SLC in 2007 and 2008. Therefore, the relationship between socioeconomic status and student achievement, as determined by student performance (measured at the school level) on 10th-grade FCAT Mathematics scores, depend on school configuration pattern with higher school SES scores having higher students achievement in math in year 2007 and 2008.

There was also a strong correlation between SES of the school and FCAT Reading scores at both types of school configuration patterns. The large traditional school values were $r = -.876, p < .001$, for 2007; and $r = -.857, p < .001$ for 2008. The SLC values were also significant for both study years, $r = -.801, p < .001$ for 2007; and $r = -.742, p < .001$ for 2008. These results revealed that there were negative correlations between students' SES measured by free or reduced lunch and FCAT Reading scores in both the large traditional schools and the SLCs in 2007 and 2008. Therefore, the relationship between socioeconomic status and student achievement, as determined by student performance (measured at the school level) on 10th-grade FCAT Reading scores, depend on school configuration pattern with higher school SES scores having lower students achievement in reading in year 2007 and 2008.

Percentage of Minority School Enrollment

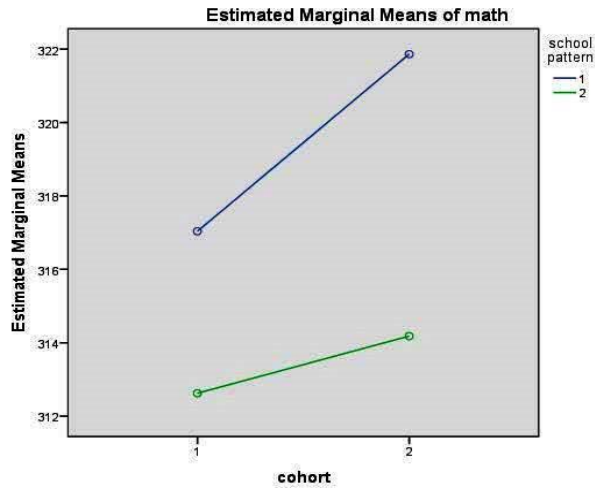
There was also a significant correlation between minority school enrollment of the school and FCAT Mathematics scores at both school types. The large traditional school values were $r = -.586, p < .001$ for 2007; and $r = -.588, p < .001$ for 2008. Once again, the SLC schools had similar significant results: $r = -.781, p < .001$ for 2007; and $r = -.416, p < .001$ for 2008.

There was also a relation between minority school enrollment of the school and FCAT Reading scores. Traditional school values were: $r = -.595, p < .001$ for 2007; and $r = -.594, p < .001$ for 2008. The results were similar for the SLC schools: $r = -.652, p < .001$ for 2007; and $r = -.656, p < .001$ for 2008.

These results showed that there were negative correlations between the percentage of minority school enrollment and FCAT Mathematics and Reading scores in both the large traditional schools and the SLCs in 2007 and 2008. Therefore, the relationship between the percentage of minority school enrollment and student achievement measured at the school level on 10th-grade FCAT Mathematics scores did not depend on school configuration pattern.

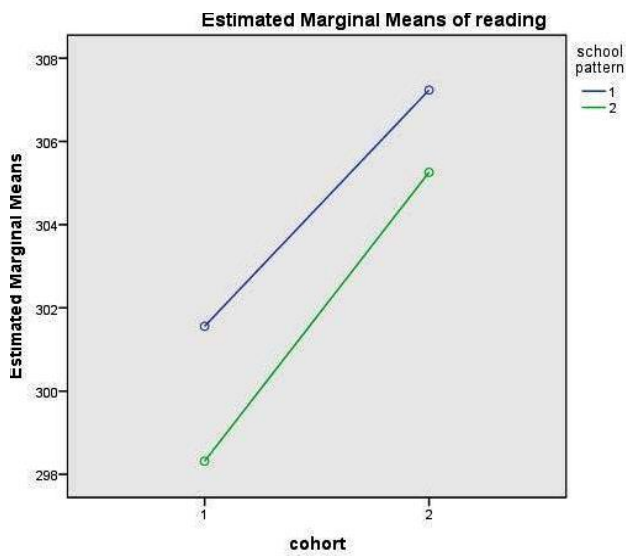
FCAT Score Trends

Traditional schools and smaller learning community schools both demonstrated a trend of increasing scores in mathematics and reading scores. These trends are shown in Figures 1 and 2, respectively.



Note. Covariates appearing in the model are evaluated at the following values: % free = 39.98, % min = 51.21.

Figure 1. Mean Mathematics Scores for the Two Study Years by School Configuration.



Note. Covariates appearing in the model are evaluated at the following values: % free = 39.98, % min = 51.21.

Figure 2. Mean Reading Scores for the Two Study Years by School Configuration

Principal Survey Results

The qualitative data were cross-validated by one of the researcher's advisors. She double checked each original response and the themes. A total of 22 surveys were completed from five different school districts.

The completed surveys were compared, and similar themes were found. Of the returned surveys, four respondents believed that the use of a smaller learning community would have no effect on student achievement. Three respondents used the same response for all three questions (or wrote "see previous answer"). The first respondent stated "Administrative monitoring is the difference at schools with socio-economic challenges." The second respondent wrote, "The biggest impact on student achievement is the instructor." The third respondent indicated having worked in both environments (a traditional school and a smaller learning community) and based on his experience, shared that "It is not the structure that dictates success. [It is] however the level of support, commitment, and buy-in to what structure exists" and "The staff dictates the success through their concerted effort toward the school's structure and goals". The last respondent in this theme provided different answers based on the survey question. For the first survey question as to belief that the structure (traditional versus smaller learning communities) had an effect on student achievement as measured by the FCAT mathematics and reading test, the respondent stated "No, because students that need support are not always identified." For the second survey question inquiring about belief that the structure (traditional versus small learning communities) had an effect on student

achievement of lower SES students as measured by the FCAT Mathematics and Reading tests, the respondent stated

Yes and no, it depends on the home support. If the student has strong home support they do better because they are in a smaller group. If they have little or no support, they need more one-on-one or alternative support.

For the final survey question as to beliefs that the structure (traditional versus smaller learning communities) had an effect on student achievement of minority students as measured by the FCAT Mathematics and Reading tests, this respondent answered “Yes and No. I believe it depends on their home support and the importance that the family and student place on getting a good education.”

Of the respondents who believed smaller learning communities did have an effect on student achievement, two respondents indicated that the use of a smaller learning community would have an effect on student achievement but did not give a reason for their belief. Seven respondents reported that the use of a smaller learning community would foster a sense of a community with the students and, therefore, raise student achievement. One respondent believed that the use of a smaller learning community would increase student achievement only for low SES students because it offered a sense of community. Six respondents cited the use of a smaller learning community as offering a chance to collaborate more with their colleagues and provide more focused instruction that would raise student achievement. One respondent suggested that instead of a smaller learning community that there should be small pullout groups of five students or less, positing that this would raise student achievement and decrease behavioral problems.

One respondent looked at student differences, supporting the use of a smaller learning community to increase student achievement based on his experience with AVID students.

Six respondents shared their beliefs that the use of a smaller learning community allows “personalization” with the students and a “focus on relationship development.” One respondent also stated that this personalization would occur as a result of “more accountability” and that “teachers can keep up with the students easier.” Another respondent stated that SLCs can build “ownership of the teachers and students” in the curriculum. Along these same lines, another respondent stated that this personalization, would “allow more frequent opportunities for interventions.” In general, these results were not in agreement with the results of the quantitative study. The results are summarized and discussed in Chapter 5.

CHAPTER 5 SUMMARY, DISCUSSION, AND RECOMMENDATIONS

Statement of the Problem

Under No Child Left Behind (NCLB), Public Law 107 – 110 (United States Department of Education, 2002), student achievement became the highest priority of schools in the United States. In the hopes of increasing student achievement and meeting the NCLB goals, school districts have utilized different school configurations. With budgets for education being reduced every year, schools have only had the money necessary to fund programs that are the most productive to increase student achievement. Therefore, identifying the most advantageous configuration for a school to encourage higher student achievement has been one way that school districts have tried to ensure that communities receive the highest return for the available educational dollars.

Population and Sample

The population of this research was comprised of 10th-grade students in the state of Florida attending two different types of large Florida public high schools: (a) traditional and (b) smaller learning community (SLC) schools. Only high schools serving Grades 9-12 were included in the study. All selected high schools had been using their current configuration model for at least two years. School configuration models were based on size of school determined by student membership data submitted to the Florida Department of Education as part of the school's data report. Large traditional high schools had over 1,000 students. Large high schools that utilized a smaller learning

community (SLC) configuration had a total population of over 1,000 students, but students were placed in groups that interacted as separate units within the larger school. It has been discussed in prior research (Coleman et al., 1966, Delavan, 2009; Dika & Singh, 2002) that the percentage of minority and SES students can affect school student achievement. These covariates were controlled for in the MANCOVA analysis.

Data Resources

FCAT data were first collected for each public, Grade 9-12 high school in Florida with a population over 1,000 students. A total of 259 schools were selected for the research. Of these, 149 of the schools were traditional high schools and 110 of the schools utilized some type of smaller learning community. Once the student enrollment data were collected, each school was contacted to determine if the school was traditional school or if some type of SLC was being utilized. The first contact was attempted via email. When there was not a robust response to the emails, each school was contacted via telephone. The school's data for its percentage of free/reduced lunch and the percentage of the minority enrollment were obtained from the Florida Department of Education website. A qualitative on-line questionnaire was also administered to principals at the study schools using SurveyMonkey in order to evaluate their beliefs about the use of smaller learning communities and student achievement.

Study Years

To ensure that the pattern between the two years of data was consistent, the total data for reading and mathematics were analyzed for significant differences using the means for the two years (Table 2). Although both the mathematics and reading scores increased between 2007 and 2008, there was a significant difference only in the reading scores between the two years. This could be attributed to the introduction of required statewide intensive reading programs for students based on prior FCAT scores for all students who do not receive at least a 3 on their FCAT reading (Justreadflorida, n.d.). No such equivalent program was currently available for mathematics at the high school level.

Summary of the Findings

The following summary of the findings of this study, which resulted from the quantitative analyses performed, have been organized around the five research questions which guided the study. The results of the qualitative analysis of the survey data are also summarized and discussed.

Research Question 1

Are there any statistically significant differences of student achievement as measured by the 10th-grade Reading and Mathematics FCAT assessment at the school level between the configurations of high schools, controlling for the percentage of minority population and SES? If yes, what are the differences?

The evaluation, using a MANCOVA, showed that there was a significant difference in the FCAT Mathematics scores between traditional and smaller learning community schools. Traditional schools had higher mean scores than those in smaller learning communities. There was a marginally significant difference in the FCAT reading scores with traditional schools performing slightly better than smaller learning community schools.

Research Question 2

Is there any relationship between socioeconomic status and student achievement, as determined by student performance (measured at the school level) on 10th-grade Reading and Math FCAT assessment, depending on configuration patterns? If yes, what is the relationship?

There was a strong correlation between SES of the school and FCAT Mathematics scores for both of the study years, 2007 and 2008, that were significant for both the large traditional school and the SLC. The results for the large traditional school were $r = -.830, p < .001$ for 2007 data; and $r = -.807, p < .001$ for 2008 data. The SLC had similar significant results for the FCAT Mathematics test, (2007), $r = -.854, p < .001$ for 2007 data; and $r = -.495, p < .001$ for 2008 data. Therefore, the relationship between socioeconomic status and student achievement, as determined by student performance (measured at the school level) on 10th-grade FCAT Mathematics scores, did not depend on school configuration pattern.

There was also a strong correlation between SES of the school and FCAT Reading scores at both types of school configuration patterns. The large traditional school values were: $r = -.876, p < .001, p = .01$ for 2007; and $r = -.857, p < .001$ for 2008. The SLC values, which were also significant for both study years, were: $r = -.801, p < .001$ for 2007; and $r = -.742, p < .001$ for 2008. Therefore, the relationship between socioeconomic status and student achievement, as determined by student performance (measured at the school level) on 10th-grade FCAT Reading scores, did not depend on school configuration pattern.

Research Question 3

Is there any relationship between the percentage minority population and student achievement, as determined by student performance (measured at the school level) on 10th-grade Reading and Math FCAT assessment, depending on school configuration patterns? If yes, what is the relationship?

There was also a significant correlation between minority school enrollment of the school and FCAT Mathematics scores at both school types. The large traditional school values were: $r = -.586, p < .001$ for 2007; and $r = -.588, p < .001$ for 2008. SLC schools had similar significant results: $r = -.781, p < .001$; and $r = -.416, p < .001$ for 2008.

There was also a relationship between minority school enrollment of the school and FCAT Reading scores. Traditional school values were: $r = -.595, p < .001$ for 2007; and $r = -.594, p < .001$ for 2008. Results were again similar for SLC schools with the

following values: $r = -.652, p < .001$ for 2007; and $r = -.656, p < .001$ for 2008.

Therefore, the relationship between the percentage of minority school enrollment and student achievement measured at the school level on 10th-grade FCAT Mathematics scores did not depend on school configuration pattern.

Ancillary Results

Survey Question 1

Do you believe that the structure (traditional versus smaller learning communities) has an effect on student achievement as measured by the FCAT Mathematics and Reading test?

The results of the principal survey provided support for the belief of many school administrators that the use of a smaller learning community will increase student achievement based on personalization with the students and a focus on relationship development.

Survey Question 2

Do you believe that the structure (traditional versus smaller learning communities) has an effect on student achievement of your lower SES students as measured by the FCAT Mathematics and Reading test?

There was a general theme in the responses to this question. Principals expressed the belief that the use of smaller learning communities would increase student

achievement of low SES students due to the increased sense of community that could be fostered in the smaller and more intimate environment of the SLC.

Survey Question 3

Do you believe that the structure (traditional versus smaller learning communities) has an effect on student achievement of your minority students as measured by the FCAT Mathematics and Reading test?

In response to this question, principals generally reinforced their responses to the previous two questions, indicating that the use of smaller learning communities would increase student achievement due to the increased sense of community that it would foster. There was also a belief that the use of a smaller learning community would allow for more collaboration among colleagues, thereby allowing an increased focus on instruction that would lead to an increase in student achievement.

Discussion

The current trend in education is to look to hard data to provide supportive evidence that one alternative is superior to another in increasing student achievement. The entire purpose of this study was to determine if the claims regarding smaller learning community high schools as being more advantageous to student achievement than traditional high schools were supported when the data were examined.

The results of the quantitative data analysis indicated that there was a significant difference in student achievement based on school configuration, but in the present study,

it was the larger traditional school that had higher student achievement. This goes against the popular belief that a smaller school will increase student achievement. A smaller learning community school, however, is not the equivalent of a small school.

Originally, the researcher was going to investigate different size schools, but there were only eight schools in the entire state of Florida that qualified as small schools based on Cremin's (1970) definition of a small school having an enrollment of under 500 students. Thus, the study was modified to look at smaller learning communities as representations of small schools. As Sparger observed in his 2005 dissertation, the implementation of smaller learning communities in the State of Florida is not consistent, uniform, or complete. This lack of uniformity could cause discrepancies in the data.

There was also a discrepancy in the pattern of the baseline data. The reading scores increased significantly between the two study years. Whether this growth pattern could be attributed to the configuration of schools or other conditions such as the introduction of mandatory remedial intensive reading classes for those students who did not score at least a 3 on the preceding year's Reading FCAT remains a question.

There have been numerous studies that show the effect of both minority and low SES enrollment negatively affecting student achievement (Coleman et al., 1966, Delavan, 2009; Dika & Singh, 2002) that the percentage of minority and SES students can affect school student achievement. This researcher concurred with the findings of these researchers. The interesting finding, in the present study, however, was that there was no significant interaction between low SES students and school configuration. Their scores negatively correlated with their SES level, but the scores were not significantly affected

based on whether they attended a traditional high school or a smaller learning community high school. This was true for both FCAT Mathematics and FCAT Reading scores. The results for the percentage of minority students were similar. There was no significant interaction between the percentage of minority students, the type of school they attended, and their FCAT Mathematics or FCAT Reading scores.

Recommendations and Implications for Practice

At first glance, the results of the present study would indicate that the use of smaller learning communities is not necessary for an increase in student achievement. If, however, one considers the results for at-risk (low SES and minority) students, quantitative data are not the only data that should be examined. Just as the State of Florida does not just look only at FCAT grades to evaluate and grade a school, there is more to student progress than just a grade, and the collegial environment of smaller learning communities has tremendous potential in engaging students and providing encouragement and support for those at-risk.

Although an increase in scores based on attending a smaller learning community was not shown in the present study, the use of a smaller learning community certainly should not be abandoned. Rather, one must investigate the number of at-risk students who stay in school because of their inclusion into a smaller learning community. The use of a smaller learning community should be utilized based on the student population of the specific school. SLCs have a flexibility to be configured in numerous different ways, even to the point of allowing schools that have only small populations of low SES

students and minorities to have their own smaller learning community within a school where the rest of the students follow a traditional school path. This would limit required support for the extra cost of a smaller learning community only to those students who need it for their personal success. It could provide an ongoing dynamic process where students could enter and leave the small setting as needs dictated, allowing funds to create even more smaller learning communities in schools that need them and releasing resources from those schools that do not. It would be interesting to see if the mandatory implication of small class sizes in 2010-2011 had a similar effect on student achievement.

Recommendations for Future Research

Although the results of the quantitative study did show that traditional large schools have increased student achievement over schools that were configured as smaller learning communities, additional research should be initiated, comparing traditional schools with actual small schools. To do this, researchers would have to expand the study population outside the State of Florida and employ a different way of assessing student achievement. Further study in the comparison of small versus large school configurations' in urban versus suburban schools should be undertaken.

APPENDIX A
STUDY INTRODUCTION LETTER

Dear Sir/Madam:

Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of people who agree to take part in a research study. You are being invited to take part in a research study which will include about 50 people within the State of Florida. You have been asked to take part in this research study because you are a school administrator. You must be 18 years of age or older to be included in the research study.

I am a doctoral student at UCF working under Dr. Kenneth T. Murray (UCF faculty supervisor in the Department of School of Teaching, Learning and Leadership). As part of my doctoral research, I am conducting a study of FCAT scores at differently configured high schools in Florida. I am writing you to collect data so I can finish my research, your response would be greatly appreciated. I may have written you last year but the scope of my research has been changed and I need to collect different data. Two different types of high schools will be examined traditional school and those using Smaller Learning Communities.

Purpose of the research study: The purpose of this study is to determine if there is a relationship between a High Schools configuration pattern (in Florida) and student academic achievement as measured by school, wide FCAT scores. Under No Child Left Behind (NCLB), Public Law 107 – 110, student achievement is the number one priority of schools in the United States. In the hopes to increase student achievement, different school configurations have been utilized. With budgets for education being reduced every year, schools only have the money necessary to fund programs that are the most productive to increase student achievement. Therefore, identifying the best configuration pattern for a school, which provides the greatest student achievement, must be determined so that communities can receive the highest return for the available educational dollars. This research should determine which type of school configuration pattern (if either) leads to an increase in student achievement quantify if there is an increase in student achievement
What you will be asked to do in the study:

- You will be asked to answer a category question to determine the configuration pattern that is used at your school. This is only used to ensure that there is an equitable number of schools of each configuration pattern used.
- You will then be asked three open ended questions about your belief of how you think smaller learning communities effect student achievement.
- You will be asked to email your responses back to the researcher.

What you should know about this research study:

- Whether or not you take part is up to you.
- You should take part in this study only because you want to.
- You can choose not to take part in the research study.
- Whatever you decide it will not be held against you.
- Feel free to ask all the questions you want before you decide.

Time required: We expect study participants should be able to complete the three questions and the category question within ten to fifteen minutes.

Risks: There are no reasonably foreseeable risks or discomforts involved in taking part in this study.

Benefits: We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits include research to support the use of a particular high school configuration pattern.

Compensation or payment:

There is no compensation or other payment to you for taking part in this study.

Confidentiality: We will limit your personal data collected in this study to people who have a need to review this information. Personal identifying information will only be used to manage the sending and receiving of the emailed surveys.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints, or think the research has hurt you, talk to Donald M. Morrison, Ed. S., Graduate Student, University of Central Florida, College of Education, Department of School of Teaching, Learning and Leadership, (407) 281-7443 or Dr. Kenneth T. Murray, Faculty Supervisor, Department of School of Teaching, Learning and Leadership at (407) 823-1468 or by email at kenneth.murray@ucf.edu.

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901. You may also talk to them for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You want to get information or provide input about this research.

At no time will students identifying data be used (names, students numbers). Specific school names will also not be released; they will be identified based on their category placement. The results of this research will be shared with those counties that have schools that participate in the study.

To reduce the time involved you may submit your response via email.

Thank you for taking the time to complete this survey. Your response to this survey will be considered your permission to take part in this research.

Donald Morrison, Ed.S.
UCF Doctoral Student

APPENDIX B
RAW SCHOOL DATA

RAW DATA OF FCAT SCORES

Raw data of FCAT scores are shown by school, percent free and reduced lunch, percent minority population and the schools configuration pattern.

For the school configuration pattern, a 1 indicates a traditional school, whereas a 2 indicates a school utilizing a smaller learning community.

| School | Enrollment | % Free and reduced lunch | %Minority population | School configuration pattern | 2007 Reading FCAT Score | 2008 Reading FCAT Score | 2007 Mathematics FCAT Score | 2008 Mathematics FCAT Score |
|--------|------------|--------------------------|----------------------|------------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| 1 | 1741 | 42 | 73 | 1 | 300 | 308 | 321 | 326 |
| 2 | 2281 | 20 | 36 | 1 | 333 | 337 | 338 | 340 |
| 3 | 1919 | 35 | 52 | 1 | 302 | 306 | 324 | 325 |
| 4 | 1176 | 28 | 30 | 1 | 312 | 321 | 330 | 334 |
| 5 | 2035 | 19 | 12 | 1 | 323 | 331 | 339 | 342 |
| 6 | 1220 | 44 | 36 | 1 | 305 | 311 | 327 | 330 |
| 7 | 1323 | 30 | 11 | 1 | 313 | 329 | 331 | 341 |
| 8 | 1418 | 38 | 39 | 2 | 314 | 320 | 327 | 334 |
| 9 | 2759 | 38 | 45 | 1 | 307 | 311 | 327 | 332 |
| 10 | 1114 | 44 | 46 | 1 | 293 | 307 | 320 | 333 |
| 11 | 1735 | 23 | 19 | 1 | 323 | 332 | 337 | 340 |
| 12 | 2190 | 18 | 23 | 1 | 321 | 332 | 342 | 345 |
| 13 | 1545 | 14 | 16 | 1 | 327 | 332 | 345 | 346 |
| 14 | 2324 | 34 | 46 | 2 | 313 | 316 | 331 | 334 |
| 15 | 1238 | 18 | 37 | 1 | 317 | 326 | 337 | 340 |
| 16 | 1941 | 8 | 22 | 1 | 332 | 339 | 345 | 347 |
| 17 | 2053 | 67 | 97 | 2 | 274 | 287 | 292 | 296 |
| 18 | 3100 | 36 | 75 | 1 | 305 | 316 | 331 | 280 |
| 19 | 2216 | 57 | 85 | 1 | 272 | 274 | 290 | 289 |
| 20 | 2309 | 13 | 32 | 1 | 325 | 335 | 345 | 349 |
| 21 | 2258 | 37 | 56 | 1 | 310 | 320 | 331 | 335 |
| 22 | 2312 | 43 | 61 | 1 | 305 | 310 | 329 | 331 |
| 23 | 3928 | 12 | 55 | 1 | 327 | 336 | 346 | 351 |
| 24 | 2394 | 53 | 75 | 2 | 286 | 301 | 299 | 304 |
| 25 | 1758 | 72 | 95 | 2 | 287 | 285 | 292 | 302 |
| 26 | 3050 | 30 | 87 | 2 | 309 | 316 | 331 | 335 |
| 27 | 1426 | 70 | 92 | 2 | 276 | 285 | 287 | 289 |
| 28 | 1992 | 52 | 60 | 1 | 288 | 294 | 300 | 301 |
| 29 | 2861 | 32 | 54 | 1 | 313 | 317 | 336 | 337 |
| 30 | 3160 | 10 | 30 | 1 | 331 | 339 | 346 | 349 |
| 31 | 2256 | 54 | 77 | 1 | 289 | 290 | 296 | 305 |

| School | Enrollment | % Free and reduced lunch | %Minority population | School configuration pattern | 2007 Reading FCAT Score | 2008 Reading FCAT Score | 2007 Mathematics FCAT Score | 2008 Mathematics FCAT Score |
|--------|------------|--------------------------|----------------------|------------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| 32 | 2854 | 53 | 96 | 1 | 290 | 295 | 301 | 309 |
| 33 | 2120 | 39 | 49 | 1 | 303 | 302 | 331 | 332 |
| 34 | 2177 | 40 | 67 | 1 | 322 | 326 | 343 | 345 |
| 35 | 2689 | 43 | 75 | 1 | 288 | 292 | 298 | 306 |
| 36 | 2286 | 50 | 82 | 1 | 290 | 289 | 298 | 301 |
| 37 | 2212 | 56 | 65 | 2 | 294 | 295 | 305 | 307 |
| 38 | 2529 | 48 | 70 | 2 | 300 | 303 | 326 | 329 |
| 39 | 1777 | 69 | 89 | 2 | 294 | 294 | 292 | 303 |
| 40 | 3131 | 22 | 42 | 1 | 318 | 320 | 335 | 337 |
| 41 | 2026 | 42 | 21 | 2 | 309 | 311 | 327 | 331 |
| 42 | 1468 | 34 | 8 | 1 | 318 | 318 | 334 | 337 |
| 43 | 2073 | 48 | 29 | 1 | 308 | 315 | 326 | 334 |
| 44 | 1263 | 42 | 11 | 1 | 299 | 309 | 323 | 330 |
| 45 | 1758 | 40 | 19 | 1 | 301 | 312 | 325 | 328 |
| 46 | 1425 | 28 | 20 | 1 | 299 | 307 | 324 | 325 |
| 47 | 2283 | 9 | 19 | 1 | 329 | 329 | 342 | 342 |
| 48 | 2108 | 33 | 15 | 1 | 298 | 301 | 322 | 325 |
| 49 | 2594 | 28 | 44 | 1 | 302 | 311 | 324 | 326 |
| 50 | 1878 | 26 | 31 | 1 | 310 | 310 | 331 | 331 |
| 51 | 1738 | 17 | 25 | 1 | 326 | 338 | 340 | 345 |
| 52 | 1315 | 55 | 80 | 1 | 283 | 267 | 272 | 283 |
| 53 | 2110 | 16 | 23 | 1 | 323 | 326 | 341 | 342 |
| 54 | 1700 | 28 | 36 | 1 | 307 | 318 | 330 | 338 |
| 55 | 1861 | 37 | 53 | 1 | 299 | 306 | 321 | 326 |
| 56 | 1863 | 44 | 31 | 2 | 300 | 311 | 321 | 326 |
| 57 | 1217 | 81 | 99 | 2 | 252 | 255 | 271 | 271 |
| 58 | 3345 | 48 | 92 | 2 | 298 | 293 | 290 | 297 |
| 59 | 3027 | 34 | 79 | 2 | 344 | 350 | 336 | 343 |
| 60 | 3697 | 32 | 72 | 1 | 304 | 313 | 328 | 334 |
| 61 | 3368 | 45 | 90 | 2 | 295 | 307 | 302 | 309 |
| 62 | 3632 | 46 | 95 | 2 | 295 | 300 | 294 | 303 |
| 63 | 3441 | 65 | 98 | 2 | 268 | 279 | 281 | 289 |
| 64 | 2280 | 65 | 97 | 2 | 269 | 280 | 268 | 285 |
| 65 | 2140 | 77 | 95 | 2 | 263 | 264 | 257 | 275 |
| 66 | 4154 | 41 | 92 | 2 | 307 | 312 | 331 | 333 |
| 67 | 2029 | 58 | 82 | 1 | 286 | 304 | 293 | 308 |
| 68 | 2090 | 66 | 99 | 2 | 258 | 258 | 268 | 275 |
| 69 | 1788 | 76 | 99 | 2 | 248 | 251 | 255 | 263 |

| School | Enrollment | % Free and reduced lunch | %Minority population | School configuration pattern | 2007 Reading FCAT Score | 2008 Reading FCAT Score | 2007 Mathematics FCAT Score | 2008 Mathematics FCAT Score |
|--------|------------|--------------------------|----------------------|------------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| 70 | 3411 | 46 | 96 | 2 | 297 | 294 | 297 | 305 |
| 71 | 1042 | 75 | 100 | 2 | 235 | 246 | 268 | 270 |
| 72 | 1479 | 75 | 99 | 2 | 248 | 264 | 266 | 267 |
| 73 | 3307 | 35 | 79 | 1 | 307 | 303 | 327 | 327 |
| 74 | 1725 | 62 | 99 | 2 | 267 | 276 | 267 | 265 |
| 75 | 2096 | 67 | 100 | 2 | 256 | 263 | 259 | 276 |
| 76 | 3168 | 18 | 59 | 1 | 323 | 324 | 335 | 339 |
| 77 | 2907 | 79 | 98 | 2 | 278 | 283 | 283 | 293 |
| 78 | 3070 | 61 | 92 | 2 | 273 | 270 | 272 | 284 |
| 79 | 2201 | 49 | 93 | 2 | 279 | 298 | 296 | 309 |
| 80 | 2773 | 45 | 89 | 2 | 292 | 301 | 294 | 304 |
| 81 | 2721 | 67 | 96 | 2 | 287 | 286 | 290 | 299 |
| 82 | 2677 | 52 | 99 | 2 | 263 | 261 | 264 | 271 |
| 83 | 2005 | 33 | 91 | 1 | 310 | 322 | 334 | 342 |
| 84 | 2965 | 66 | 84 | 2 | 264 | 274 | 268 | 281 |
| 85 | 2513 | 57 | 92 | 2 | 290 | 291 | 297 | 298 |
| 86 | 2845 | 51 | 92 | 2 | 297 | 301 | 292 | 302 |
| 87 | 1142 | 58 | 50 | 1 | 279 | 287 | 281 | 300 |
| 88 | 1314 | 56 | 93 | 2 | 286 | 272 | 270 | 272 |
| 89 | 2339 | 19 | 27 | 2 | 314 | 322 | 331 | 336 |
| 90 | 2007 | 40 | 63 | 2 | 281 | 286 | 310 | 315 |
| 91 | 1736 | 46 | 59 | 2 | 271 | 276 | 309 | 310 |
| 92 | 2217 | 29 | 61 | 2 | 292 | 283 | 317 | 309 |
| 93 | 2939 | 12 | 36 | 2 | 314 | 319 | 338 | 339 |
| 94 | 1593 | 46 | 73 | 2 | 278 | 279 | 308 | 310 |
| 95 | 1829 | 48 | 77 | 2 | 278 | 289 | 308 | 315 |
| 96 | 1860 | 39 | 68 | 1 | 293 | 294 | 322 | 320 |
| 97 | 1769 | 41 | 65 | 2 | 284 | 288 | 311 | 312 |
| 98 | 1077 | 58 | 99 | 2 | 269 | 254 | 267 | 269 |
| 99 | 1956 | 45 | 45 | 1 | 291 | 294 | 312 | 316 |
| 100 | 1946 | 29 | 20 | 1 | 303 | 310 | 318 | 320 |
| 101 | 1581 | 65 | 69 | 2 | 290 | 297 | 281 | 302 |
| 102 | 1720 | 40 | 48 | 2 | 313 | 311 | 322 | 319 |
| 103 | 2262 | 46 | 33 | 1 | 301 | 303 | 324 | 324 |
| 104 | 1443 | 25 | 28 | 1 | 301 | 313 | 302 | 315 |
| 105 | 1019 | 53 | 61 | 1 | 276 | 291 | 294 | 301 |

| School | Enrollment | % Free and reduced lunch | %Minority population | School configuration pattern | 2007 Reading FCAT Score | 2008 Reading FCAT Score | 2007 Mathematics FCAT Score | 2008 Mathematics FCAT Score |
|--------|------------|--------------------------|----------------------|------------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| 106 | 1931 | 50 | 28 | 1 | 298 | 302 | 321 | 320 |
| 107 | 2037 | 47 | 26 | 1 | 302 | 313 | 321 | 328 |
| 108 | 2833 | 42 | 59 | 1 | 307 | 313 | 329 | 331 |
| 109 | 1884 | 45 | 45 | 1 | 297 | 297 | 290 | 303 |
| 110 | 2383 | 21 | 36 | 1 | 320 | 327 | 337 | 338 |
| 111 | 2366 | 40 | 47 | 1 | 300 | 305 | 321 | 322 |
| 112 | 2081 | 57 | 61 | 1 | 288 | 283 | 294 | 295 |
| 113 | 2497 | 35 | 38 | 1 | 311 | 310 | 330 | 329 |
| 114 | 1961 | 44 | 55 | 2 | 296 | 303 | 314 | 322 |
| 115 | 2124 | 40 | 51 | 1 | 310 | 315 | 333 | 337 |
| 116 | 1985 | 57 | 74 | 2 | 309 | 311 | 303 | 309 |
| 117 | 1726 | 61 | 86 | 2 | 292 | 295 | 294 | 303 |
| 118 | 1844 | 48 | 73 | 1 | 308 | 315 | 323 | 336 |
| 119 | 1241 | 70 | 73 | 1 | 278 | 296 | 286 | 300 |
| 120 | 1790 | 70 | 83 | 2 | 277 | 288 | 283 | 292 |
| 121 | 1335 | 66 | 86 | 2 | 276 | 275 | 283 | 283 |
| 122 | 2140 | 12 | 25 | 1 | 333 | 336 | 342 | 345 |
| 123 | 2857 | 48 | 42 | 1 | 299 | 304 | 327 | 331 |
| 124 | 2268 | 14 | 30 | 1 | 336 | 349 | 327 | 331 |
| 125 | 2143 | 34 | 47 | 1 | 313 | 323 | 327 | 333 |
| 126 | 1310 | 43 | 50 | 1 | 304 | 328 | 329 | 345 |
| 127 | 2626 | 16 | 36 | 1 | 330 | 336 | 342 | 347 |
| 128 | 1446 | 50 | 71 | 1 | 282 | 282 | 285 | 303 |
| 129 | 2353 | 39 | 62 | 1 | 298 | 307 | 322 | 327 |
| 130 | 1994 | 46 | 34 | 1 | 310 | 311 | 331 | 332 |
| 131 | 2961 | 38 | 48 | 2 | 300 | 305 | 321 | 327 |
| 132 | 1349 | 36 | 33 | 2 | 296 | 310 | 321 | 320 |
| 133 | 1696 | 42 | 37 | 2 | 291 | 289 | 317 | 319 |
| 134 | 2118 | 36 | 37 | 2 | 293 | 298 | 318 | 322 |
| 135 | 1322 | 32 | 22 | 1 | 305 | 312 | 320 | 329 |
| 136 | 1904 | 45 | 45 | 2 | 294 | 306 | 301 | 321 |
| 137 | 1320 | 36 | 30 | 1 | 319 | 322 | 334 | 337 |
| 138 | 1425 | 39 | 40 | 1 | 292 | 293 | 323 | 324 |
| 139 | 1676 | 28 | 35 | 1 | 339 | 347 | 345 | 347 |
| 140 | 1889 | 36 | 29 | 2 | 302 | 318 | 324 | 332 |

| School | Enrollment | % Free and reduced lunch | %Minority population | School configuration pattern | 2007 Reading FCAT Score | 2008 Reading FCAT Score | 2007 Mathematics FCAT Score | 2008 Mathematics FCAT Score |
|--------|------------|--------------------------|----------------------|------------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| 141 | 1491 | 59 | 66 | 2 | 281 | 283 | 282 | 289 |
| 142 | 1623 | 45 | 37 | 1 | 302 | 300 | 323 | 321 |
| 143 | 1720 | 39 | 23 | 2 | 307 | 315 | 326 | 331 |
| 144 | 1399 | 44 | 44 | 2 | 296 | 310 | 320 | 32 |
| 145 | 1294 | 45 | 67 | 2 | 288 | 291 | 294 | 300 |
| 146 | 1258 | 50 | 86 | 2 | 304 | 304 | 306 | 309 |
| 147 | 1938 | 5 | 18 | 1 | 341 | 350 | 349 | 352 |
| 148 | 1837 | 21 | 36 | 1 | 326 | 332 | 338 | 341 |
| 149 | 1983 | 16 | 40 | 1 | 325 | 330 | 338 | 342 |
| 150 | 1590 | 46 | 38 | 1 | 288 | 289 | 294 | 300 |
| 151 | 1724 | 27 | 28 | 2 | 306 | 310 | 333 | 329 |
| 152 | 1914 | 17 | 18 | 2 | 306 | 324 | 327 | 327 |
| 153 | 2157 | 34 | 33 | 1 | 296 | 311 | 323 | 328 |
| 154 | 1752 | 48 | 49 | 1 | 287 | 282 | 315 | 316 |
| 155 | 1351 | 55 | 59 | 1 | 286 | 294 | 293 | 303 |
| 156 | 1475 | 42 | 26 | 2 | 309 | 312 | 330 | 326 |
| 157 | 1453 | 52 | 48 | 2 | 294 | 300 | 302 | 304 |
| 158 | 2408 | 36 | 34 | 1 | 311 | 313 | 332 | 331 |
| 159 | 1678 | 60 | 33 | 2 | 288 | 294 | 296 | 307 |
| 160 | 1466 | 53 | 37 | 2 | 284 | 301 | 295 | 303 |
| 161 | 1610 | 46 | 40 | 1 | 322 | 319 | 334 | 334 |
| 162 | 1830 | 46 | 47 | 2 | 298 | 302 | 305 | 305 |
| 163 | 1525 | 16 | 17 | 1 | 324 | 341 | 336 | 343 |
| 164 | 1993 | 22 | 26 | 1 | 323 | 331 | 333 | 336 |
| 165 | 1916 | 28 | 32 | 1 | 311 | 322 | 333 | 339 |
| 166 | 1410 | 32 | 42 | 1 | 310 | 305 | 327 | 324 |
| 167 | 1029 | 25 | 9 | 1 | 299 | 314 | 322 | 330 |
| 168 | 1743 | 24 | 29 | 1 | 327 | 330 | 339 | 341 |
| 169 | 1908 | 20 | 27 | 2 | 330 | 327 | 344 | 344 |
| 170 | 2082 | 11 | 15 | 1 | 336 | 338 | 347 | 349 |
| 171 | 2626 | 39 | 56 | 1 | 297 | 309 | 322 | 327 |
| 172 | 3083 | 29 | 41 | 1 | 310 | 318 | 333 | 336 |
| 173 | 3814 | 53 | 79 | 2 | 277 | 283 | 288 | 294 |
| 174 | 3380 | 47 | 82 | 2 | 302 | 308 | 306 | 305 |
| 175 | 3551 | 34 | 60 | 1 | 314 | 319 | 331 | 334 |

| School | Enrollment | % Free and reduced lunch | %Minority population | School configuration pattern | 2007 Reading FCAT Score | 2008 Reading FCAT Score | 2007 Mathematics FCAT Score | 2008 Mathematics FCAT Score |
|--------|------------|--------------------------|----------------------|------------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| 176 | 1943 | 46 | 62 | 1 | 297 | 303 | 322 | 326 |
| 177 | 2808 | 44 | 69 | 1 | 294 | 301 | 325 | 329 |
| 178 | 1036 | 78 | 99 | 2 | 266 | 274 | 284 | 286 |
| 179 | 2171 | 57 | 90 | 2 | 263 | 269 | 272 | 284 |
| 180 | 2660 | 45 | 62 | 2 | 292 | 301 | 316 | 323 |
| 181 | 3043 | 25 | 52 | 2 | 311 | 323 | 332 | 338 |
| 182 | 4332 | 33 | 49 | 2 | 309 | 319 | 330 | 335 |
| 183 | 3454 | 43 | 65 | 1 | 303 | 311 | 323 | 329 |
| 184 | 2788 | 33 | 55 | 1 | 304 | 313 | 323 | 331 |
| 185 | 3177 | 26 | 39 | 1 | 324 | 335 | 340 | 344 |
| 186 | 1681 | 49 | 56 | 1 | 289 | 300 | 283 | 298 |
| 187 | 2427 | 69 | 87 | 1 | 285 | 294 | 292 | 291 |
| 188 | 1897 | 31 | 27 | 1 | 293 | 308 | 322 | 329 |
| 189 | 2200 | 64 | 71 | 1 | 283 | 291 | 292 | 290 |
| 190 | 1415 | 67 | 81 | 1 | 272 | 273 | 263 | 282 |
| 191 | 1777 | 39 | 46 | 1 | 282 | 295 | 316 | 323 |
| 192 | 2419 | 41 | 73 | 2 | 300 | 300 | 305 | 311 |
| 193 | 1115 | 88 | 99 | 1 | 260 | 257 | 273 | 282 |
| 194 | 2136 | 50 | 76 | 2 | 279 | 277 | 291 | 302 |
| 195 | 2927 | 11 | 19 | 1 | 328 | 331 | 343 | 346 |
| 196 | 2056 | 57 | 81 | 2 | 285 | 281 | 283 | 294 |
| 197 | 2878 | 20 | 49 | 2 | 308 | 317 | 317 | 321 |
| 198 | 2446 | 53 | 68 | 2 | 290 | 295 | 300 | 310 |
| 199 | 1989 | 60 | 96 | 2 | 263 | 276 | 280 | 284 |
| 200 | 2201 | 37 | 65 | 2 | 287 | 290 | 314 | 324 |
| 201 | 2133 | 15 | 36 | 1 | 329 | 330 | 344 | 343 |
| 202 | 2152 | 14 | 26 | 2 | 319 | 327 | 339 | 340 |
| 203 | 1892 | 29 | 49 | 1 | 303 | 310 | 328 | 338 |
| 204 | 2501 | 33 | 18 | 2 | 311 | 311 | 331 | 332 |
| 205 | 1301 | 51 | 34 | 1 | 298 | 304 | 299 | 305 |
| 206 | 1798 | 27 | 46 | 2 | 300 | 308 | 321 | 328 |
| 207 | 1569 | 49 | 18 | 2 | 292 | 311 | 318 | 327 |
| 208 | 1819 | 47 | 58 | 2 | 281 | 383 | 307 | 309 |
| 209 | 2099 | 36 | 35 | 2 | 305 | 301 | 325 | 323 |
| 210 | 2328 | 26 | 27 | 1 | 309 | 311 | 330 | 329 |

| School | Enrollment | % Free and reduced lunch | %Minority population | School configuration pattern | 2007 Reading FCAT Score | 2008 Reading FCAT Score | 2007 Mathematics FCAT Score | 2008 Mathematics FCAT Score |
|--------|------------|--------------------------|----------------------|------------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| 211 | 1841 | 32 | 29 | 2 | 313 | 307 | 327 | 327 |
| 212 | 2315 | 10 | 15 | 1 | 324 | 333 | 338 | 342 |
| 213 | 1992 | 49 | 66 | 2 | 290 | 290 | 288 | 285 |
| 214 | 1480 | 39 | 66 | 1 | 304 | 309 | 324 | 325 |
| 215 | 1595 | 23 | 17 | 2 | 302 | 317 | 326 | 326 |
| 216 | 2314 | 12 | 18 | 2 | 350 | 352 | 319 | 317 |
| 217 | 2174 | 45 | 35 | 1 | 293 | 293 | 319 | 317 |
| 218 | 2166 | 17 | 11 | 1 | 324 | 323 | 341 | 336 |
| 219 | 2222 | 29 | 38 | 1 | 322 | 333 | 329 | 336 |
| 220 | 1880 | 25 | 18 | 1 | 316 | 315 | 328 | 327 |
| 221 | 1445 | 49 | 37 | 2 | 293 | 297 | 320 | 321 |
| 222 | 1879 | 40 | 40 | 1 | 286 | 317 | 308 | 328 |
| 223 | 2186 | 24 | 31 | 1 | 316 | 312 | 328 | 326 |
| 224 | 1789 | 59 | 52 | 1 | 277 | 282 | 284 | 293 |
| 225 | 1990 | 43 | 37 | 2 | 298 | 297 | 324 | 323 |
| 226 | 1946 | 49 | 47 | 1 | 295 | 299 | 319 | 321 |
| 227 | 2075 | 39 | 40 | 2 | 291 | 297 | 312 | 319 |
| 228 | 1813 | 55 | 67 | 1 | 276 | 278 | 282 | 296 |
| 229 | 1726 | 49 | 49 | 1 | 285 | 294 | 314 | 317 |
| 230 | 1546 | 13 | 7 | 1 | 336 | 342 | 346 | 345 |
| 231 | 1826 | 39 | 20 | 1 | 305 | 312 | 327 | 327 |
| 232 | 1836 | 18 | 19 | 1 | 319 | 323 | 332 | 334 |
| 233 | 1254 | 44 | 56 | 2 | 286 | 294 | 292 | 297 |
| 234 | 2371 | 30 | 26 | 1 | 305 | 311 | 329 | 329 |
| 235 | 2017 | 27 | 9 | 2 | 309 | 322 | 334 | 341 |
| 236 | 2995 | 24 | 38 | 2 | 320 | 328 | 342 | 348 |
| 237 | 2342 | 32 | 43 | 2 | 314 | 325 | 332 | 341 |
| 238 | 2442 | 27 | 42 | 1 | 327 | 326 | 340 | 341 |
| 239 | 2467 | 34 | 39 | 1 | 312 | 323 | 332 | 338 |
| 240 | 2018 | 18 | 25 | 1 | 330 | 336 | 344 | 346 |
| 241 | 3199 | 38 | 53 | 1 | 313 | 319 | 332 | 337 |
| 242 | 2282 | 30 | 35 | 1 | 321 | 328 | 337 | 343 |
| 243 | 1606 | 6 | 15 | 1 | 335 | 344 | 346 | 349 |
| 244 | 1803 | 2 | 13 | 1 | 334 | 339 | 345 | 345 |
| 245 | 1555 | 25 | 18 | 1 | 311 | 316 | 330 | 330 |

| School | Enrollment | % Free and reduced lunch | %Minority population | School configuration pattern | 2007 Reading FCAT Score | 2008 Reading FCAT Score | 2007 Mathematics FCAT Score | 2008 Mathematics FCAT Score |
|--------|------------|--------------------------|----------------------|------------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| 246 | 1568 | 29 | 25 | 1 | 315 | 310 | 330 | 326 |
| 247 | 1633 | 69 | 75 | | 274 | 271 | 277 | 288 |
| 248 | 1452 | 65 | 68 | 2 | 276 | 281 | 276 | 294 |
| 249 | 2091 | 47 | 48 | 2 | 277 | 303 | 293 | 291 |
| 250 | 2491 | 45 | 51 | 2 | 297 | 299 | 319 | 322 |
| 251 | 2464 | 46 | 56 | 2 | 284 | 298 | 310 | 322 |
| 252 | 1190 | 38 | 30 | 1 | 284 | 298 | 310 | 320 |
| 253 | 3321 | 32 | 31 | 1 | 304 | 318 | 322 | 321 |
| 254 | 2861 | 42 | 46 | 2 | 295 | 302 | 314 | 322 |
| 255 | 1940 | 34 | 14 | 1 | 311 | 306 | 326 | 327 |
| 256 | 2242 | 48 | 48 | 2 | 280 | 292 | 308 | 315 |
| 257 | 1827 | 21 | 16 | 1 | 314 | 316 | 327 | 331 |
| 258 | 2722 | 18 | 17 | 2 | 325 | 338 | 338 | 345 |
| 259 | 1324 | 29 | 15 | 1 | 315 | 329 | 334 | 340 |

APPENDIX C
SURVEY QUESTIONS

Interview/ Survey Questions

What county do you work in?

For category purposes do you utilize any type of smaller learning community in order to mimic a smaller school setting, (i.e., Teaming, Houses, or Mandatory Academies)?

1. Do you believe that the school structure (traditional versus smaller learning communities) has different effects on student achievement as measured by the FCAT Mathematics and Reading test? If yes, why?
2. Do you believe that the school structure (traditional versus smaller learning communities) has different effects on student achievement of your lower SES students as measured by the FCAT Mathematics and Reading test? If yes, why?
3. Do you believe that the school structure (traditional versus smaller learning communities) has different effects on student achievement of your minority students as measured by the FCAT Mathematics and Reading test? If yes, why?

APPENDIX D
INSTITUTIONAL REVIEW BOARD EXEMPTIONS

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

NOT HUMAN RESEARCH DETERMINATION

From : UCF Institutional Review Board #1
FWA00000351, IRB00001138
To : Donald M Morrison
Date : August 02, 2011

Dear Researcher:

On 8/2/2011 the IRB determined that the following proposed activity is not human research as defined by DHHS regulations at 45 CFR 46 or FDA regulations at 21 CFR 50/56:

Type of Review: UCF IRB Initial Review Submission Form
Project Title: How high school size patterns affect student achievement in the State of Florida
Investigator: Donald M Morrison
IRB ID: SBE-11-07770
Funding Agency: None

University of Central Florida IRB review and approval is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are to be made and there are questions about whether these activities are research involving human subjects, please contact the IRB office to discuss the proposed changes.

On behalf of Kendra Dimond Campbell, MA, JD, UCF IRB Interim Chair, this letter is signed by:

Signature applied by Janice Turchin on 08/02/2011 04:13:56 PM EDT

IRB Coordinator

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research
From: UCF Institutional Review Board #1
FWA00000351, IRB00001138
To: Donald M. Morrison
Date: December 21, 2012

Dear Researcher:

On 12/21/2012, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: How high school size patterns affect student achievement in the State of Florida: Principal survey
Investigator: Donald M Morrison
IRB Number: SBE-12-08987
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewska, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 12/21/2012 12:47:48 PM EST

IRB Coordinator

Page 1 of 1

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