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A Relationship Between the Florida Comprehensive Assessment Test 2.0 Mathematics Scores and Racial and Ethnic Concentrations when Considering Socio-Economic Status, ESOL Student Population

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A RELATIONSHIP BETWEEN THE FLORIDA COMPREHENSIVE

ASSESSMENT TEST 2.0 MATHEMATICS SCORES AND RACIAL AND

ETHNIC CONCENTRATION WHEN CONSIDERING SOCIO-ECONOMIC

STATUS, ESOL STUDENT POPULATION, AND SCHOOL CLIMATE

A dissertation submitted in partial fulfillment of

the requirements for the degree of

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in

CURRICULUM AND INSTRUCTION

by

Marilys Galindo

2013

To: Dean Delia Garcia
        College of Education

This dissertation, written by Marilys Galindo, and entitled A Relationship Between the Florida Comprehensive Assessment Test 2.0 Mathematics Scores and Racial and Ethnic Concentrations when considering Socio-Economic Status, ESOL Student Population, and School Climate, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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Date of Defense: November 8, 2013

The dissertation of Marilys Galindo is approved.

_____
Dean Delia Garcia
College of Education

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Dean Lakshmi N. Reddi
University Graduate School

Florida International University, 2013

DEDICATION

I dedicate this dissertation to my husband, parents, brother, and grandparents.

Without their support, understanding, patience, and love, the completion of this degree

would not have been possible. I am who I am today, thanks to you all!

ACKNOWLEDGMENTS

ABSTRACT OF THE DISSERTATION

A RELATIONSHIP BETWEEN THE FLORIDA COMPREHENSIVE ASSESSMENT

TEST 2.0 MATHEMATICS SCORES AND RACIAL AND ETHNIC

CONCENTRATION WHEN CONSIDERING SOCIO-ECONOMIC STATUS, ESOL

STUDENT POPULATION, AND SCHOOL CLIMATE

by

Marilys Galindo

Florida International University, 2013

Miami, Florida

Professor Maria Fernandez, Major Professor

From the moment children are born, they begin a lifetime journey of learning

about themselves and their surroundings. With the establishment of the No Child Left

Behind Act of 2001, it mandates that all children receive a high-quality education in a

positive school climate. Regardless of the school the child attends or the neighborhood in

which the child lives, proper and quality education and resources must be provided and

made available in order for the child to be academically successful.

The purpose of this ex post facto study was to investigate the relationship between

the FCAT 2.0 mathematics scores of public middle school students in Miami-Dade

County, Florida and the concentrations of a school's racial and ethnic make-up (Whites,

Blacks, and Hispanics), English for Speakers of other Languages (ESOL) population,

socio-economic status (SES), and school climate. The research question of this study

was: Is there a significant relationship between the FCAT 2.0 Mathematics scores and

racial and ethnic concentration of public middle school students in Miami-Dade County

when controlling SES, ESOL student population, and school climate for the 2010-2011 school year?

The instruments used to collect the data were the FCAT 2.0 and Miami-Dade County Public Schools (M-DCPS) School Climate Survey. The study found that Economically Disadvantaged (SES) students socio-economic status had the strongest correlation with the FCAT 2.0 mathematics scores ($r = -.830$). The next strongest correlation was with the number of students who agreed that their school climate was positive and helped them learn ($r = .741$) and the third strongest correlation was a school percentage of White students ($r = .668$). The study concluded that the FCAT 2.0 mathematics scores of M-DCPS middle school students have a significant relationship with socio-economic status, school climate, and racial concentration.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
AYP	Adequate Yearly Progress
ELL	English Language Learners
ESE	Exceptional Student Education
ESL	English as a Second Language
ESOL	English for Speaker of Other Languages
FCAT	Florida Comprehensive Assessment Test
FCAT 2.0	Florida Comprehensive Assessment Test 2.0
FEFP	Florida Education Finance Program
FIU	Florida International University
FLDOE	Florida Department of Education
IRB	Institutional Review Board
M-DCPS	Miami-Dade County Public Schools
MFP	Minimum Foundation Program
MLR	Multiple Linear Regression
NAACP	National Association for the Advancement of Colored People
NCEE	National Commission on Excellence in Education
NCLB	No Child Left Behind Act 2001
NDEA	National Defense Education Act
NGSSS	Next Generation Sunshine State Standards
PRE-K	Pre-Kindergarten
RCR	Responsible Conduct of Research
SES	Socio-Economic Status

SS	Sum of Squares
VIF	Variance Inflation Factor
VPK	Voluntary Pre-Kindergarten
WASP	White Anglo-Saxon Protestants

CHAPTER 1

INTRODUCTION

It can be said that in American culture, all residents of the United States are

connected in the sense that in exchange for living up to social responsibilities they are

entitled to opportunity, rights, freedom, and justice. As stated by Moore (2002),

> American students, regardless of race, ethnicity, or religion, would be bonded by
>
> a common American culture, understand and accept the academic standards
>
> established by society and strive to fulfill their individual potential in a
>
> democratic society characterized by equal opportunity, individual rights, and
>
> responsibilities, freedom, and social justice. (p. 246)

Throughout history, the socio-economic status of different groups of people (with regard

to their education, health, assets, and relationships) has created segregation among the

country's population (Kahlenberg, 2000). Regardless of government efforts, segregation

has continued to exist and reflects in the schools. Racial and ethnic minority families

usually find themselves living in neighborhoods populated by other minorities.

Moreover, the segregation of a school reflects the neighborhood's demographics; usually

the more segregated the school, the lower the level of student achievement (Rumberger &

Palardy, 2005). Additionally, Rumberger and Palardy (2005) pointed out that "minority

students are more likely to attend large, high-poverty urban schools with fewer qualified

teachers and more traditional organizational features that inhibit student learning" (pp.

130-131). Schools that are in the same district, but located in neighborhoods of differing

socio-economic status, display a large disparity in opportunities and quality of education

offered to students. The students' academic achievement level has a relation to

residential segregation. Residential segregation relates to the school's resources and materials, the students' preparation for standardized testing, the students' linguistic competency, the students' cultural experience, segregation, educational aspirations, parental involvement, and family structure (Moore, 2002).

Raley (1991) stated that the socio-economic status of neighborhoods relates to its children, their health, development, and academic achievement. The academic achievement of students living in low socio-economic areas has been limited by the lack of resources, funds, and parental support (Raley, 1991). With regards to race, W.E.B. Dubois wrote that an African American student "needs neither segregated schools nor mixed schools. What he needs is Education" (Coleman, 1935, p. 335). Every student needs to receive a quality education that meets their individual needs and learning styles, however, not all racial and ethnic minority children have the financial means to live in integrated neighborhoods or high socio-economic status neighborhoods with access to the higher quality education and opportunities. The responsibility lies with school districts and departments of education to provide all students with the necessities so that they are able to focus on obtaining an education for the benefit of their future. These necessities include the same amount of attention, exposure to knowledge, and resources found in schools located in higher socio-economic status neighborhoods. The socio-economic status into which students are born is beyond their control.

In 1974, Thurgood Marshall, a lawyer who contributed to the victory of *Brown v Board of Education* and later served as a Supreme Court Justice, stated,

we deal with the right of all children, whatever their race, to an equal state in life and to an equal opportunity to reach their full potential as citizens. Those

children who have been denied that right in the past deserve better… our nation, I

fear, will be ill served by the courts' refusal to remedy separate and unequal

education for unless our children begin to learn together. (as cited in

Chemerinsky, 2005, p. 32)

Regardless of the school the child attends or the neighborhood the child lives in, quality

education and resources must be provided and made available in order for the child to be

academically successful. From the moment children are born, they are learning; learning

how to walk, read, talk, learning how to do everything (Chemerinsky, 2005). Besides, as

implied by the name of the No Child Left Behind Act of 2001, no child should be left

behind since it mandates that all children receive a high-quality education. "At the

beginning of the twenty-first century, the issue is not education in general, but quality

education" (Perry, T., 2010, p. xi). Are all children receiving the same high-quality

education in a positive school climate?

This chapter provides background information on segregation and students'

academic achievement, and, with regards to this study, the problem examined, the

purpose, the research questions, the definition of terms, the significance of the study, the

delimitations, and the organization of the study .

Rationale

The researcher has been interested in conducting this study since she began to

complete her field experience hours for her Bachelor's degree from Florida International

University in Miami-Dade County, Florida. The experience acquired first-hand intrigued

the researcher. During her first set of 15 field hours back in the summer semester of

2004, the researcher was assigned to a Pre-Kindergarten (Pre-K) class at Jesse J.

McCrary, Jr. Elementary School, formerly known as Little River Elementary School, during May and June of the school year. The school is located in a low socio-economic status neighborhood, in an area called Little Haiti due to the area's predominant population of Haitian immigrants. Approximately 84% of the student population was Black (Little River Elementary School Characteristic, 2004). During the researcher's experience at Jesse J. McCrary, Jr. Elementary School, she became troubled by the severe limitation to quality educational opportunities for these students. The resources and manipulatives (books, educational toys, etc.) in the classroom were old, broken, and limited. Classroom management needed improvement; there seemed to be some chaos since the children were always at play while the researcher was there. There was no evidence of a curriculum being followed. The researcher recalls the Pre-K teacher stating that she was content if her students were at least able to learn how to write their name by the end of the school year.

The researcher really noticed the difference when she went to complete her second set of 15 field hours at Sunset Park Elementary during the fall semester of 2004. The researcher was assigned to another Pre-Kindergarten class. This school is located in a middle to high socio-economic status neighborhood, in the Kendall area of Miami-Dade County. The majority of the student population was Hispanic, at 70%, followed by White at 16% and Black at 4% (Sunset Park Elementary School Characteristic, 2005). Despite being the largest ethnic group in this school and school district, Hispanics are an ethnic minority in the United States.

During the researcher's experience at Sunset Park Elementary School, she directly observed the maximized learning experience received by those students. In contrast with

the children at Jesse J. McCrary, Jr., the Sunset Park students had already mastered the ability to write their name by the time the researcher had started her field hours at the beginning of the school year in September. The class followed the curriculum adopted for Pre-Kindergarten in Miami-Dade County, the HighScope Curriculum, in which "children learn through direct, hands-on experiences with people, events and ideas" (HighScope Educational Research Foundation, 2011). The students were enthusiastically engaged and interested in the hands-on learning activities; it was a positive atmosphere for learning. The teacher led the students from activity to activity with smooth transitions, efficiently managing class time. The classroom management was well organized, and was reflected in the order and behavior of the students. There was an abundance of learning resources and manipulatives that seemed in relatively new condition. The researcher completed these 15 field hours during September and October, one school year after she visited Jesse J. McCrary, Jr. Elementary School.

After exposure to these contrasting classroom settings, the researcher became intrigued by the relationship between residential segregation and students' academic achievement. The experience raised many questions for her. Why are not all students in Miami-Dade County Public Schools (M-DCPS) receiving a high level of quality education? Why are all schools not providing the students with the same educational opportunities as mandated by the No Child Left Behind Act? What can be done about the inequality in the education system? How many more schools are in the same position as Jesse J. McCrary, Jr. Elementary School? It would be beneficial to education and policy makers to adjust or tailor educational policies to truly provide all students with quality education, and to hold those responsible for exercising high-quality education.

Statement of the Problem

The problem examined in this study was if a significant relationship exists between the Florida Comprehensive Assessment Test 2.0 (FCAT 2.0) Mathematics scores and racial and ethnic concentrations (Blacks, Whites, and Hispanics) of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and school climate for the 2010-2011 school year. Studies (Blazer, 2007; Borman, McNulty Eitle, Michael, & Eitle, 2004; Chemerinsky, 2005; Conger, 2005; Kao & Thompson, 2003; Moore 2002) on the relationship between achievement and segregation have been conducted, but a recent study focusing on Miami-Dade County will help better meet the needs of the students in the county. Additionally, not enough is currently known about the relationship of school segregation with the school climate, ESOL student population, and socio-economic status on the scores of middle school students in M-DCPS on the FCAT 2.0 Mathematics Test.

Purpose of the Study

The purpose of this study was to investigate the relationship between the FCAT 2.0 Mathematics scores of public middle school students in Miami-Dade County, Florida, the schools' racial and ethnic concentrations (Whites, Blacks, and Hispanics), ESOL student population, socio-economic status (SES), and school climate for the 2010 – 2011 school year. The study was undertaken to demonstrate whether a significant relationship exists between mathematics achievement and racial and ethnic concentrations, socio-economic status, ESOL student population, and school climate in Miami-Dade County Public Schools (M-DCPS).

Research Questions

This study was driven by the following primary research question:

Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and racial and ethnic concentration of public middle school students in Miami-Dade County when controlling SES, ESOL student population, and school climate for the 2010-2011 school year?

The study was also driven by these secondary research questions:

1. Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and racial and ethnic concentrations when controlling the ESOL student population of the school?

2. Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and SES?

3. Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and SES when controlling racial and ethnic concentrations?

4. Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and school climate when controlling racial and ethnic concentrations?

Definition of Terms

Black

This term is used to describe individuals who according to the U.S. Census Bureau selected Black as their race on the Census form. Blacks are of different ethnicities and come from different areas of the world such as Africa, America, the Caribbean, and Latin America. A Black person is "a person having origins in any of the Black racial groups of Africa" (Race, 2000). The race category of Black can be divided into the country of origin of the person (e.g., Kenya, Nigeria, or Haiti).

Cultural Capital

This term was created by Pierre Bourdieu and Jean-Claude Passeron (1973) and refers to the knowledge, skills, education, and advantage a person gets from being wealthy.

de facto Segregation

This type of segregation is due to circumstances such as residential segregation and social segregation. It is difficult to control without violating the individual's rights. It usually occurs due to social or economic reasons (Moore, 2002).

de jure Segregation

This type of segregation of people is based on their race or ethnicity and it was imposed by the law (Moore, 2002).

Desegregation

This is when there are two or more different races in a neighborhood, school, or public area (Moore, 2002). This term has the same meaning as Integration.

Dominant Culture

Specifically in the United States, it is the traits displayed by the White Anglo-Saxon

Protestant social group. It is distinct from the culture of other groups such as Blacks

and Hispanics. It established the U.S.'s government, values, economy, society,

culture, etc.

Economic Capital

This is the monetary assets and properties an individual or family control.

Ethnicity

It is a quality of individuals who share traits that include customs, history, language,

religion, and values.

Financial Capital

The term is used to measure the amount of income an individual has.

Florida Comprehensive Assessment Test (FCAT)

Also known as the FCAT, it is the state of Florida's standardized assessment, and is

used to meet the requirements of the No Child Left Behind Act (NCLB).

Florida Comprehensive Assessment Test (FCAT 2.0)

This is the new version of FCAT. It was first administered on Wednesday April 13,

2011 in the subject areas of mathematics and reading only to test the students'

mastery of the Next Generation Sunshine State Standards (NGSSS), which are the

new academic standards in place for the state of Florida.

Hispanic

This term is used to describe individuals who according to the U.S. Census Bureau

identified themselves as Hispanic. "Persons of Hispanic origin, in particular, were

those who indicated that their origin was Mexican, Puerto Rican, Cuban, Central or

South American, or some other Hispanic origin. It should be noted that persons of

Hispanic origin may be of any race"

(Race, 2000).

Homophily

This term is used to describe a person who prefers contact with someone of their race

or ethnicity.

Human Capital

The term is used to measure an individual's education.

Integration

See Desegregation.

Majority

A part of a group consisting of more than half of its members and, specifically, when

referring to the overall U.S. population, it means the White, non-Hispanic population

in the U.S.

Manipulatives

Objects used for instruction that enhance a lesson by providing tactile or visual

stimulation.

Math Achievement

Since the establishment of the *No Child Left Behind Act*, the FCAT became the basis for measuring the students' achievement in all public schools in Florida. Students' scores on the FCAT 2.0 Mathematics Test is used to determine which level of mathematics they will be allowed to take the following year, without regard to the grade received in their mathematics course.

Also see Florida Comprehensive Assessment Test (FCAT) and FCAT 2.0.

Middle Schools

They are schools that house only sixth, seventh, and eighth grades. They are not considered a K-8 Center or a Combination School.

Minority

It is any ethnic or racial group of individuals not considered part of the majority, the White population. Specifically when referring to the overall U.S. population, it means the non-White groups of individuals in the U.S.

Propinquity

It is when a person has the opportunity for interracial contact.

Race

"The concept of race as used by the Census Bureau reflects self-identification by people according to the race or races with which they most closely identify. These categories, such as Black or White, are sociopolitical constructs and should not be interpreted as being scientific or anthropological in nature" (Race, 2000).

Residence

This is the building and neighborhood students and their families call home.

Residential Segregation

This is the demographic patterns of race in neighborhoods, such as a majority White,

Black, or Hispanic neighborhood.

School Climate Survey

It is a survey administered by Miami-Dade County Public Schools which allows the

gathering of "information on the perceptions that students, their parents, and school

staff hold concerning their schools and their performance" (School Climate Survey,

2010, p. i).

School Segregation

The separation of groups of students by race in schools due to the demographics of

the neighborhood. In this study, a school is considered segregated if at least 80% of

its student population belongs to a specific race or ethnicity (Moore, 2002).

Segregation

The separation of groups of individuals by race or ethnicity in society.

Social Capital

The term is used to measure the relations, interactions, and support an individual has.

Social Segregation

The separation of groups of students based on race or ethnicity within a school in

social situations.

Socio-economic Status (SES)

The status of an individual based on their economic, social, and physical

environments. It includes income, educational level, occupation, family, social status,

and place of residence.

Tracking

"Group[s] students into particular classes or programs based on their scores on the state standardized test," the FCAT (Moore, 2002, p. 26).

White

These are individuals who according to the U.S. Census Bureau selected White as their race on the Census form. "A person having origins in any of the original people of Europe, the Middle East, or North Africa" (e.g., Irish, German, Italian, Lebanese, Near Easterner, Arab, or Polish; Race, 2000).

Conceptual Framework

The conceptual framework of this study is socio-economic status. Socio-economic status plays an important role in this study because it is an economic and social descriptor of an individual. Moore (2002) defined socioeconomic status as "an umbrella term which incorporates not only an economic and material description of a family, but the values, attitudes, skills, and behaviors that are critical components in achieving academic success" (p. 214). These characteristics (family structure, values, skills, and attitudes towards school and achievement) are all interrelated and relate to individuals' socio-economic status, hence influencing their lives.

The Coleman Report's findings were that the family's socioeconomic status was the most important factor in determining student achievement and educational attainment (Coleman, 1966). Additionally, socio-economic status may limit or enhance an individual's opportunities (e.g. career, educational, etc.) during their lifetime. "Residential and school segregation appear to be critical factors in limiting equal educational opportunities for minorities and explaining their lower levels of

socioeconomic status and educational performance relative to the white majority"
(Moore, 2002, p. 7). Schools dealing with residential and school segregation require
more personnel and resources in order to provide their students with an equal educational
opportunity. Students from middle and high socio-economic status are the most likely to
succeed since they reflect the cultural and economic capital that schools value (Hong &
Youngs, 2008). Consequently, it is more difficult for students of low socio-economic
status to be successful since they have less economic capital. These students have limited
access to educational materials and resources as well as limited support from adults who
are part of their life (Hong & Youngs, 2008). Entwisle, Alexander, and Olson (1997)
stated that "children from impoverished backgrounds do not stay in school as long as
their better-off classmates" and "do not do as well as their better-off classmates on
achievement tests" (p. 32). Families of high and middle socio-economic status have the
financial ability to expose their children to various educational experiences, such as
museums, tutors, libraries, manipulatives, resources, computers, and the Internet.
Exposing children to various educational experiences may be more difficult for a low
socio-economic status family due to limitations in resources (e.g. financial, time, etc.).

Black and Hispanic families living in segregated neighborhoods find themselves
struggling because of low socio-economic status, or low economic capital (Rumberger &
Palardy, 2005). They have a difficult time providing the basic necessities of life for their
children. These families may not have the same education level or access to economic
opportunities as high and middle socio-economic status families. Living in
neighborhoods that are residentially segregated places limits on access to educational
opportunities (Rumberger & Palardy, 2005). These parents find themselves consumed by

working extra hours or multiple jobs in order to provide for their families' living necessities, or lack the ability to participate at a high level in their children's education (for example, due to financial constraints, limited educational background, language barriers, etc.). On the other hand, many of the high and middle socio-economic status families have the skills to communicate and participate in their children's school and community. They have the education to assist their children with school assignments. They have the advantage of an income that allows them to provide more than just the necessities for their children, and which directly enhances their children's' learning experiences (Hallinan, 2001). Additionally, they have different perceptions and expectations of the school and the education system than that of low socio-economic status families.

"Educational attainment is strongly correlated with future occupational positions, income, and socio-economic status. A high level of education is viewed as a ticket to professional opportunities and economic success in an increasingly competitive and advanced society" (Moore, 2002, p. 52). Hence, it is vital that all schools provide students with the same quality education so that they are able to participate in professional opportunities and enjoy economic success.

Education is our most important public resource for overcoming family socio-economic disparities, enhancing life opportunities, developing citizens, and promoting a genuine multiracial and multiethnic democracy. Segregated education negatively relates to all citizens and undermines the goal of constructing a multiracial and multiethnic democracy (Powell, 2005, p. 297).

Delimitations

This study is delimited by the researcher in the following ways. Chapter 2

presents a literature review on various factors that are interrelated but will not be directly

analyzed in this study. These factors include vouchers, magnet programs, charter

schools, tracking, homeownership, parental influence, parental involvement, parents'

education, and family structure. The decision to not directly analyze these factors

delimits the study. The decision to conduct the study using only Miami-Dade County,

Florida delimits the study. The study is then delimited to only the public middle schools

of Miami-Dade County Public Schools. It does not include K-8 Centers or Combination

Schools. Moreover, the study is delimited to just FCAT 2.0 Mathematics Test for the

2010–2011 school year. The study does not include any other subject area tested on the

FCAT 2.0. Additionally, it is delimited to only one question of the School Climate

Survey. Lastly, the study is delimited to the randomly selected students and their parents

who participated in each school's School Climate Survey for the 2010-2011 school year.

Organization of the Study

Chapter 1 presented the background information on segregation and students'

academic achievement, the problem to be examined, the purpose of the study, the

research questions, the definition of terms, the significance of the study, the delimitations,

and the organization of the study. Chapter 2 provides the review of the literature

regarding segregation, and socio-economic status and its relationship to academic

achievement, and perceptions of education. Chapter 3 discusses the methods in the study,

which include the setting, the subjects, the research design, the instruments, the

procedures for data collection, and data analysis. Chapter 4 demonstrates the relationship

of the FCAT 2.0 Mathematics Test with the racial and ethnic concentrations, the results of the School Climate Survey, ESOL student population, and socio-economic status for the 2010-2011 school year in Miami-Dade County Public Schools. Chapter 5 summarizes the findings of the study and discusses the implications of the study for educational policy, theory, and further research.

CHAPTER 2

LITERATURE REVIEW

The purpose of this study was to investigate the relationship between the FCAT 2.0 Mathematics scores of public middle school students in Miami-Dade County, Florida, the schools' racial and ethnic concentrations (Whites, Blacks, and Hispanics), ESOL student population, socio-economic status (SES), and school climate for the 2010 – 2011 school year. This study demonstrates the relationship that exists between mathematics achievement, racial and ethnic concentrations, perceptions of education (by students, parents and staff), ESOL student population, and socio-economic status in Miami-Dade County Public Schools. This study was driven by the following primary research question:

Is there a significant relationship between the FCAT 2.0 Mathematics scores and ethnic concentration of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and school climate for the 2010-2011 school year?

History

United States

On July 4, 1776, the Declaration of Independence was passed and declared that "all men are created equal" (Independence Hall Association, 2010b). It was reinforced in 1789 with the Preamble to the United States Constitution that stated "to form a more perfect union, establish justice, insure domestic tranquility…promote the general welfare…" (Independence Hall Association, 2010a). These statements did not apply to the slaves; they were considered at the time as three-fifths of a person for purposes of

apportioning representatives and taxation. About a century later, there was the American

Civil War from 1861-1865. One of its causes was slavery and when the Thirteenth

Amendment to the United States Constitution passed in 1865, slavery, as well as the

three-fifths rule were abolished in the United States (13th Amendment to the U.S.

Constitution: Abolition of Slavery, n.d.).

In 1896, the Supreme Court decided that the case, *Plessy v Ferguson*, that dealt

with racial segregation, and created "separate but equal" facilities and institutions

(Moore, 2002, p. 8). This led to the separation of facilities and institutions for Whites

and Blacks, such as separate water fountains, seating areas on public buses, and public

schools. These facilities and institutions were separate and supposed to be equal. They

were definitely separate, but time would prove them to be unequal.

During the time period of 1868 through 1931, states were addressing the matter of

race in the schools (Moses, 2010). Eighteen states, composed of the Southern states as

far North as Delaware and as far west as Arizona, mandated that White students and

Black students attend separate schools. There were 10 states that forbade the separation

of Whites and Blacks in public schools. These states were California, Illinois, Maine,

Massachusetts, Nevada, New Jersey, Oregon, Pennsylvania, Rhode Island, and

Washington (Moses, 2010).

Meanwhile, despite the laws and policies in place against racial discrimination,

the practice was still thriving. Williams (1999) stated that "between 1900 and the 1940's,

federal housing policies, the lending practices of banks, restrictive covenants, and

discrimination by the real estate industry, individuals, and vigilant neighborhood

organizations ensured that housing options for blacks were restricted to the least desirable

residential areas" (p. 178). Blacks were able to buy property, but only in certain areas

dealing with many extra requirements such as higher payments.

In 1938, the National Association for the Advancement of Colored People

(NAACP) began "to demonstrate in courts of law that separate educational facilities and

policies in local communities for Black and White populations were never equal" (Willie,

2005, p. 11). During this same year, in *Gaines v Canada*, the court decided that not

granting Lloyd Gaines admission violated his rights in the equal protection clause of the

Fourteenth Amendment of the United States Constitution and consequently the

University of Missouri's Law School must grant admission to African Americans

(Wormser, 2002).

In 1954, through the Supreme Court's decision of the *Brown v Board of

Education* case, everyone was given equal access to public education. As stated by

Munoz, Clavijo, and Koven (1999), the Supreme Court ruled "that segregated public

elementary and secondary schools were inherently unequal and damaged the educational

future of African American students" (p. 5); de jure segregation was deemed illegal.

Many schools started to become only superficially integrated because many were still, in

practice, segregated. As Rivkin (2000) stated, students were "bused for desegregation

purposes but they were not in the same classes as the white students" (p. 334); it was like

there existed two schools in one. With this decision came many violent protests on

behalf of Whites who did not want to be sharing classrooms, water fountains, and bus

seating areas, among many other things, with Blacks.

Meanwhile, the launching of Sputnik 1 by the Soviet Union on October 4, 1957

marked the beginning of the Space Race. It was a competition between the United States

and the Soviet Union. Since the United States was not the first country to launch a satellite into space, the United States' government began to analyze what was happening in their education system (Guillemette, n.d.). Soon after, the National Defense Education Act (NDEA) was passed that provided more funding to the United States' education system. It redesigned school curricula, emphasizing the sciences and mathematics. It also led to an increase in the number of students attending colleges and universities (The Federal Role in Education, 2010).

Under the presidency of Lyndon B. Johnson, the Civil Rights Act was passed by Congress in 1964, entitling all citizens to equal rights regardless of their age, color, handicap, national origin, race, religion, and sex. The Civil Rights Act went on to further emphasize the ruling of *Brown v Board of Education*. As an incentive to eliminate discrimination and segregation, "the Department of Justice threatened to deny federal funds to segregated school systems" (Gray, 2005, p. 96). Unfortunately, based on today's school demographics, the Civil Rights Act was not so successful that all schools are now equally integrated. Schools seem to have resegregated (Williams, 1999).

In 1965, the Voting Rights Act was passed. It prohibited discriminatory voting practices that many states, especially in the South, were using. Such discrimination included taking a literacy test to obtain the right to vote. This act gave minorities, specifically Blacks, the right to vote but left many without obtaining that right because they were not literate (Voting Rights Act, n.d.).

Moreover, in 1966, James Coleman conducted a research study on the equality of education across all racial and ethnic groups and their academic achievements, known as *The Coleman Report*. Street (2005) stated that Coleman focused

on the stressful danger and poverty of neighborhoods, the chaos of single-parent

households, the absence of successful educated role models in homes and

community, the missed breakfasts, the lack of privacy, and absence of books in

homes and of bookstores and libraries in the community, the ubiquitous late night

blare of the television, and the struggle of intermittently employed dropout

mothers unable or unwilling to enforce reasonable sleeping and studying patterns

for their children. (p. 122)

Coleman concluded that the family and neighborhood have more of a relationship with

the students than the school (Berliner & Biddle, 1995). In addition, he discovered that

White students achieved higher than the other students, which were considered

minorities. These racial and ethnic minority students were children of parents with little

education. Coleman concluded that the American society must first desegregate itself in

order for schools to truly become desegregated since students attend the school closest to

their home.

In 1973, in the *San Antonio School District v Rodriguez* case, "the United States

Supreme Court stated that public education is not a right granted to individuals by the

Constitution" and "asserted that there is no constitutional right to education at all" (Perry,

I., 2010, p. 34). Yet, the education of people is needed in order to keep the country

running efficiently and effectively. "The denial of education was a signature feature of

enslavement in the United States" and "teaching a slave to read was a criminal act"

(Perry, I., 2010, p. 38). Education, along with property ownership and control of one's

own life, became symbols of freedom.

In 1974, in the *Lau v Nichols* case, "the U.S. Supreme Court called for providing meaningful participation in a public education program, regardless of a student's first language" (Misco & Castañeda, 2009, p. 182). If it was not followed, the rights of a student, per the Civil Rights Act of 1964, would be violated. In 1982, in the *Plyler v Doe* case, it was made clear that illegal immigrants were also entitled to meaningful participation in a public education program. Since they too "are entitled to all the protections of the Fourteenth Amendment" (Misco & Castañeda, 2009, p. 182).

In 1983 and under President Ronald Reagan, the National Commission on Excellence in Education (NCEE) published a report that analyzed the education system and performance of the country. *A Nation at Risk: The Imperative of Educational Reform* placed "nationwide attention to improve America's public schools and improve efforts to educate racial minority children" (Gray, 2005, p. 96). President Ronald Reagan used the findings of *A Nation at Risk* to explain "the 'failures' of American education and how those 'failures' were confirmed by 'evidence'" in his speech (Berliner & Biddle, 1995, p. 3). Unless those failures were addressed, the nation would be damaged. According to the document, "American students never excelled in international comparisons of student achievement" which raised a red flag (Berliner & Biddle, 1995, p.3). When comparing the American students' educational achievement to that of students in other industrialized countries, the American students ranked last (Gajendragadkar, 2006). Based on the censuses from the 1990s, many children were found living in poverty. Although "residential segregation by race declined slightly, racial and economic segregation in schools increased…we continue to segregate not only by race but also by income" (Powell, 2005, p. 284). Furthermore, the National School Boards Association reported

that in the 1990s, nearly two-thirds of Black children attended segregated schools because it was their designated neighborhood school (Bankston & Caldas, 1998). As a response to that report, the Goals 2000 legislation was passed.

Goals 2000 gave federal aid to the states, allowed the states to develop their own academic standards, defined levels of mastery, and measured students' learning through standardized testing. It also included the reauthorization of the Elementary and Secondary Education Act with provisions for more professional development for educators, instructional materials, resources, and parental involvement opportunities (Wang & Kovach, 1995). This act provided grants and services to schools located in racial and ethnic minority neighborhoods. Low socio-economic status schools need extra funds to provide the support necessary for poor students to have an equal quality education (Berliner & Biddle, 1995). They will need the support of school counselors and other personnel to cope with problems, social services, and programs that generate dignity and hope (Berliner & Biddle, 1995). Programs such as Title I and Title VII were designed to help racial and ethnic minority students obtain the same academic achievement level as White students. The majority of students who qualify come from racial and ethnic minority households. A Title I school receives special federal funds to provide specific resources and services to the students. On the other hand, Title VII was established to help students acquire the English language.

In May 2000, the case *Williams v State of California* was filed in the California Supreme Court. It was due to a lack of "equal access to instructional materials, safe and decent school facilities, and qualified teachers" (The Williams Case, 2011). Settled four years later, it established funds for instructional materials and critical repair of school

facilities in order to fulfill its constitutional obligation. "In California, education is a fundamental right" and the "California law also requires basic educational equality" (Oakes, 2010, p. 53).

Regardless, there has always been the "expectation that all people living in the nation, irrespective of color, race, and/or cultural background, will become part of one homogeneous culture" (Arora, 2005, p. 19). Unfortunately, this is still to occur, despite the federal efforts and policies. It has been almost 60 years since the decision of the *Brown v Board of Education* case, almost 50 years since the passage of The Civil Rights Act of 1964, and yet quality education does not exist for all children (Perry, T., 2010).

Florida

Former Governor Millard Caldwell established the Minimum Foundation Program (MFP) in 1945. Its purpose was "to equalize educational funding among districts based on the county's ability to support its schools" (Borman et al., 2004, p. 609). These funds were distributed as needed, regardless of the race or ethnic composition of the school's student population. Florida's politicians "hoped to prove that Black children would be provided an education equal to that provided to the state's White children, even if in separate schools" (Borman et al., p. 609). Florida's elected officials did not seem to accept the ruling of the *Brown v Board of Education* case because they devised a plan to circumvent it. In 1955, former Governor LeRoy Collins passed the Florida Pupil Assignment Law. This law "empowered county school boards to assign pupils to schools on the basis of sociological, psychological, and like intangible socio-scientific factors" which later proved to be a "loophole for schools wishing to avoid desegregation" (Borman et al., p. 610). Finally, when the Civil Rights Act was passed in

1964, Florida found itself obeying desegregation orders from the federal courts. Through transportation and the establishment of magnet schools, Florida was able to start meeting these mandates.

Years later, MFP was replaced by the Florida Education Finance Program (FEFP). It "restructured the funding formula based on full-time equivalency and local contributions" (Borman et al., 2004, p. 611). It "addressed the costs of different grades, special programs, cost of living differences in each county, and the cost of busing in rural areas" (Borman et al., p. 611). In 1999, the A+ Accountability Plan was passed in Florida. It was the foundation of school reform. It "required that students in grades 3-10 be tested annually in reading and mathematics on the state FCAT assessment" (Ladner, 2009, p. 11). This was the beginning of the Florida Comprehensive Assessment Test (FCAT).

Today, Florida's Constitution in Article IX, Section 1 states that "adequate provision shall be made by law for a uniform, efficient, safe, secure, and high quality system of free public schools that allows students to obtain a high quality equation" (State of Florida, 2013).

Educational Policies

Title I

From the Elementary and Secondary Education Act of 1965 came Title I. The purpose of Title I "is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standard and State academic assessments" (U.S. Department of Education, 2004). The goal is to aid racial and ethnic minority students in

the areas of health, nutrition, and educational resources (Borman, Stringfield, & Slavin, 2001). Title I focuses on "helping eligible children meet the same challenging academic standards that states are required to establish for all children" (Miami-Dade County Public Schools, 2011b). Schools that have at least 40% of their student population qualify for free or reduced lunch (based on parents' income) receive Title I funds. It grants financial assistance to the state department of education and their school districts in order to help provide all students with a quality education. Title I provides these schools with extra funds to maximize the students' learning experience with programs, services, resources, and personnel. These funds are "used to provide educational services to students who are educationally disadvantaged or at risk of failing to meet state standards" (Education Week, 2004).

English for Speakers of Other Languages

From the reauthorization of the Elementary and Secondary Education Act in 1967 came Title VII, also known as the Bilingual Education Act. It "added a research agenda for English Language Learners (ELL), which was congressionally mandated and produced the beginnings of knowledge on and about the education of a Latino/a children" (Mercado & Santamaria, 2005, p. 15). The English for Speakers of Other Languages (ESOL K-12) Program was established in the early 1960s for K-12 students whose primary language at home was not English. The ESOL (K-12) Program "is a Language Arts program that incorporates all aspects of Language Arts instruction, content, and language development" (Miami-Dade County Public Schools, 2011a). Students learn reading, literature, composition, vocabulary, word study, language, listening, speaking

viewing, information literacy, study and test taking, and the culture of the English

language (Miami-Dade County Public Schools, 2011a).

Every student is unique. "Each student brings to the classroom a multiplicity of

intersecting experiences and a constellation of linguistic and cultural factors that will

influence how the student responds to classroom conditions and to assigned work"

(Zamel & Spack, 2006, p. 126). Through educational programs like ESOL, the student's

learning experience is improved.

No Child Left Behind

In 2001, former President George W. Bush signed the No Child Left Behind

(NCLB) Act that has reformed education through accountability. NCLB's purpose is to

ensure that all children have an equal opportunity to obtain high-quality education

according to their state's academic standards. Kim and Sunderman (2005) pointed out

that "it is intended to close the achievement gap between high- and low-performing

children, especially the gaps between minority and non-minority students and

disadvantaged children and their more advantaged peers" (p. 3). NCLB provided and

required more professional development for teachers in order to classify them as highly-

qualified. It also made the information about teachers' qualifications public. NCLB

redesigned curricula to focus on the concepts expected to appear on standardized tests.

Complying with the NCLB mandates, state departments of education have turned to

standardized tests as a way of holding districts accountable for the education students are

receiving. States have to follow the NCLB mandates in order to continue to receive

federal funding.

There are certain requirements in place that allow for the gathering of accurate data to measure if the school made adequate yearly progress (AYP). "NCLB requires 95% of students overall and 95% of each subgroup of students within a school to take the standardized reading and mathematics tests" (Kim & Sunderman, 2005, p. 3). The purpose of AYP status is to ensure that there is improvement in school performance, especially among the subgroups. Subgroups include racial and ethnic students, Title I students, special needs students, and ESL (English as a second language) students (Hong & Youngs, 2008). When AYP status is not met, it forces districts and schools to implement additional educational strategies and supports such as reviews, tutoring, reinforcement, educational technology, support personnel, and professional development to help raise the students test scores. If a school fails to meet AYP in any of its subgroups, it will not be granted AYP status for that school year. "Schools that fail to make AYP for two or more consecutive years are identified as "in need for improvement" (Kim & Sunderman, 2005, p. 3). On the other hand, another way to obtain AYP is through safe harbor. If the amount of students below proficiency is reduced by at least 10% and there is improvement in another factor such as the school's attendance rate, then the school is granted AYP status (Kim & Sunderman, 2005, p. 3).

Lee (2004) stated that even though this is an incentive for schools, "there has been evidence that high stakes tests, rather than promote educational excellence for all children, disadvantage typically underrepresented students who are disproportionately found among those who fail to meet the cutoff scores" (p. 3). Hence, these standardized tests seem to be modeled according to the cultural and economic capital theories, favoring the knowledge, skills, and education of the students in middle or high socio-

economic status, instead of providing all students a quality education. Street (2005) stated that "the NCLB responded to the achievement gap by mandating rigorous testing standards for all racial, ethnic, and socio-economic student groups" and that schools that fail to do so are being threatened to lose federal funding by 2014 (p. 145). Teachers, parents, students, and stakeholders believe lessons seem to be drilling students with just the basics and not allowing time for them to discover the concepts in-depth and get to truly teach them hands-on (Gonzalez, 2005). Gonzalez (2005) stated that teachers "are teaching to the test rather than providing students with the full range of curriculum" because there is a specific amount of material that needs to be covered before the standardized test is administered (p. 173). This standardized testing is actually having students dislike school (Street, 2005).

With the establishment of NCLB came the creation of various other education programs targeted at meeting the needs of the students. Voluntary Pre-Kindergarten (VPK) was created in certain states with Title I funds and it gives the opportunity to all four year olds to start attending school free with the goal of helping them achieve a high academic level and reducing the achievement gap. Additionally, the creation of the Florida Virtual School offers over 90 online classes to middle and high school students for free, allowing them to get ahead or reinforce any subject area (Ladner & Lips, 2009).

School Choice

NCLB, along with other educational policies, is aimed at reducing the achievement gap. Since "so many schools in poor neighborhoods are deficient and resistant to improvement, many see school choice as the best choice for improving education opportunities for poor children" (Archbald, 2004, p. 285). It provides families,

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especially low socio-economic status families, with options, if they are not satisfied with the neighborhood's public schools. School choice "serves as a route to better school options for disadvantaged students otherwise consigned to underperforming districts and could thereby shape school attendance patterns based on students' interests, rather than home addresses" (Lubienski & Weitzel, 2009, p. 354). For these families, it might not be an option to move to an integrated neighborhood or higher socio-economic status neighborhood but at least they can decide to send their children to a school that maximizes their learning. For many families, it has provided their child with a better learning experience and brighter future. "School choice aims to provide these students and their parents with the choice options that middle and upper class families already have in substance through residential selectivity" (Lubienski & Weitzel, 2009, p. 373). It "will not only provide a mechanism for students seeking to improve the quality of their own education but also engender competition that will lead to improvements in the quality of education for students who remain in traditional public schools" (Sass, 2006, p. 92).

Public schools are finding themselves seeking magnet programs and establishing unique educational programs to maintain their current students and attract new ones from outside their attendance boundary. They are making their education more appealing so parents and students pick them. Through vouchers, magnet programs, and charter schools, parents are given more options with respect to their child's education.

Vouchers

Vouchers were originally created in the 1960s and they enabled "parents to choose either a public or private school for their children to attend" (Gajendragadkar,

2006, p. 148). Removing the monopoly power of local public schools, now students can attend certain private schools using this coupon (Barrow & Rouse, 2008, p. 2). Poor families have the opportunity "to choose private schools over their neighborhood public schools" (Barrow & Rouse, 2008, p. 11). These families have the opportunity to send their child to a religious-driven and/or smaller classroom settings school. Vouchers allow low socio-economic status families to send their child to a private school without having to pay the tuition, in hopes of providing a better education for their child. "Children from poorer families are captives in neighborhood schools in inner cities or rural areas" and need choices in order to attend a high-achieving school (Levin, 1998, p. 379). Vouchers give parents more control of their child's education "because they allow parents to find the right particular school for each individual child" from the participating schools only (Forster, 2008, p. 11). Vouchers are also aimed at assisting in integrating schools and neighborhoods, allowing low socio-economic status families to send their child to a private school. Forster (2008) stated that "in other service areas, from grocery stores to health care, if a service provider isn't getting the job done people can switch to another provider simply by making the decision to do so" (p. 11). With the voucher, qualifying students' parents do not have to pay for school twice: first through property taxes and second through tuition. Selecting this school choice will not cost parents any more money than what they already contribute through property taxes, if they own property.

Unfortunately, not all private schools participate in the program. Many of the best private schools do not accept vouchers. These public school students must also pass the particular private school's entrance exam. Plus, vouchers are not fixing the quality of

education in public schools; they are just giving a ticket out to certain students to leave the problem behind.

Magnet Programs

As a response to the ruling of the *Brown v Board of Education* case, magnet schools were created mainly to attract White students to high racial and ethnic minority enrollment schools and to enhance the schools' curriculum. They were meant to integrate segregated schools and provide opportunities for other students to attend a school outside of their neighborhood. A magnet school attracts students from other neighborhoods just like a magnet attracts metal objects (West, 1994). Parents are able to choose to send their child there or not, instead of being forced to, as long as the child is accepted to the magnet program. To attract White parents to magnet schools located in segregated neighborhoods, specializations in curricula such as foreign language, the arts, science, and technology or the establishment of programs like the International Baccalaureate and Advanced Placement are used (Gersti-Pepin, 2002). Besides the specialized curriculum, they have innovative practices. Students are exposed to learning opportunities that have been made possible because of the magnet program. These magnet programs add diversity to highly segregated schools. Dr. Martin Luther King Jr. stated "desegregation is eliminative and negative…integration is the positive acceptance of desegregation and the welcomed participation of Negroes in the total range of human activities" (Orfield, 2007, p. 25). Through these efforts, it is hoped that minority students will benefit from the high-quality education found in white schools.

In order for magnet schools to attract students from outside the neighborhood, the school has to be appealing and enticing (West, 1994). The school is marketed, making it

seem a school for the gifted or for superior students (West, 1994). In some cases, neighborhood students are placed into courses that are separate and often in a lower academic track as compared with higher track courses offered to transferring students; this is not the quality of education originally envisioned. West (1994) also added that racial and ethnic minority students experience more disciplinary punishments than majority students. Such scenarios create feelings of inferiority for the racial and ethnic minority students.

There are two types of magnet programs, partial-site and full-site. The full-site magnet program has all the students in the school in the magnet program. On the other hand, the partial-site magnet involves only the students transferring into the school for the magnet program. The partial-site magnet program is more prone to segregating the students within the school because "nonmagnet students are denied the company of the magnet students; they are also denied the special attention, financial support, and superior educational opportunity the magnet students receive" (West, 1994, p. 2570).

Not all magnet schools provide all their students with the same educational opportunities. Metz (1988) stated that magnet programs create two separate schools within one because some students benefit from the magnet resources while others do not. It creates segregation within a school, contrary to its magnet program's purpose of desegregating the school. Gersti-Pepin (2002) stated that "policymakers often develop policy under the guise of making schools better, but in effect they often lose sight of insuring that all students receive a good education regardless of gender, race, or class distinctions" (p. 47).

Regardless of the intentions of the *Brown v Board of Education* Supreme Court case, the Civil Rights Act, Goals 2000, and the No Child Left Behind Act, segregation has not been totally eliminated and quality education does not exist in schools. "Residential segregation has led to the concentration of poverty in residential areas and thus the concentration of poverty in the classroom (Williams, 1999, p. 179). Residential segregation, which is reflected in the schools' population, continues to make education separate and unequal, even with the efforts of magnet schools, mandatory busing, and rezoning of areas. These efforts have helped reduce but have not completely eliminated segregation and surely not established quality education in all schools. According to the Harvard Civil Rights Project, schools are becoming segregated once again because housing segregation has increased. In 2004, the White enrollment was at 60%, lower than what it was in 1968 at 80%. In that same year, the Black and Hispanic school enrollment was 17% each, in comparison to five percent in 1968 (Lee, 2004). The amount of White students enrolled has decreased while the amount of Black and Hispanic students enrolled has increased since 1968. This study brought forth any existing relationship between school segregation, the scores of middle school students on the FCAT 2.0 Mathematics Test, the results of the School Climate Survey, ESOL student population, and socio-economic status.

Charter Schools

In 1991, charter schools were created, starting off in the State of Minnesota. "Charter schools are independent schools of choice that are publicly funded, freed from regulations governing traditional public schools, and contractually accountable for performance such as student achievement on state assessment tests" (Gajendragadkar,

2006, pp. 144-145). They were created to offer parents and their children another option in regards to schooling. Charter schools do not have attendance boundaries and offer rigorous and specialized curriculum, but students must choose to enroll and then be accepted. Such specified curriculum is what makes the charter school attractive to students not from the neighborhood. This has been a path many parents have taken if they have felt that the neighborhood's public school is not providing their child with a maximized learning opportunity. Charter schools have "fostered competition that will lead to increases in the quality of traditional public schools" (Sass, 2006, p. 96).

It was believed that charter schools would desegregate neighborhoods but, unfortunately, that has not yet happened. According to Gajendragadker (2006), "charter schools increase racial isolation because White charter school students are less likely than other racial group students to attend schools with large minority populations" (p. 154). The Civil Rights Project at Harvard University discovered that "70% of African Americans in charter schools attend an intensely segregated minority school compared to 34% of African American public school students" (Levy, 2010, p. 44). Levy (2010) added that to many, it seems that charter schools are starting up the "white flight" again and returning to the "separate but equal" doctrine or maybe separate but unequal (p. 50). Charter schools are not establishing quality education in all schools. While some students are leaving to charter schools, the problem is being left behind in the public schools and not getting fixed. The students who remain in public schools continue to deal with the low-quality education. Since there are no attendance boundaries, parents can send their child to any charter school as long as the child is accepted. White parents are moving their children from their designated traditional public school and placing

them in a charter school where Whites are the majority of the student population (Levy, 2010). This applies to all races in the same way and is the same as students attending only a designated neighborhood public school: Students are still faced with social segregation, tracking, simplified curriculum, few highly-qualified teachers, and more of the same problems as in a system with designated schools.

To address this issue, some states have passed laws to racially balance the student population in charter schools, but these laws are not addressing the quality of education in public schools. Overall, charter schools provide a choice to families for obtaining a better education for their children under the efforts of "increased accountability, heightened parental engagement, and inspired curricular innovation" (Gajendragadkar, 2006, p. 180). They "have the potential to counteract attendance patterns based on segregated neighborhoods and create school communities based on common areas of interest and values" while following laws that racially balance the student population (Lubienski & Weitzel, 2009, p. 354).

Academic Achievement and School Segregation

The theorist Paulo Freire (1970) stated that "money is the measure of all things", especially of one's socio-economic status (p. 44). It is reflective of one's success. Kahlenberg (2006) added that "education is supposed to be the prime engine for social mobility in America" (p. 1). Unfortunately, for many, obtaining a high socio-economic status is difficult because of the challenges brought forth by the various factors such as dominant culture, school segregation, residential segregation, poverty, family structure, and parents' education that hinder receiving a high-quality education, seen as the path to success (Street, 2005). "Black and Hispanic students are much more likely to attend low-

income schools than Whites" (Blazer, 2007, p. 4). But, it is the school's job to educate so that these factors are eliminated. As stated by Dr. Martin Luther King Jr. "the job of the school is to teach so well that family background is no longer an issue" (Rouse & Barrow, 2006, p. 100). This study investigates what a relationship, if any, exists between school segregation, academic achievement, perceptions of education, ESOL student population, and socio-economic status.

Dominant Culture

Public institutions have established racism and White supremacy. "Institutionalized racism is the extent to which racism is embedded in the dominant organizations and power structure of society resulting in distinctive patterns of social disadvantages" (Hardaway & McLoyd, 2009, p. 247). We have all "received the message that the lighter or whiter people's skin is, the better, the smarter, more moral and deserving they are" (Berlak, 2008, p. 12). It has trickled throughout, taking a subconscious role in everyday life. "Children are particularly susceptible to the media's assaults on the intelligence, morality, and motivation of people who look like them" and "internalize these beliefs about themselves" (Delpit, 2010, p. 174). These markers of race and ethnicity perpetuate the racial inequality that still exists today in the United States despite the efforts that have been put in motion to end it (Berlak, 2008).

Public institutions like schools reflect the values, goals, and interests of dominant economic and political institutions. Delpit (1995) stated that "the culture of the school is based on the culture of the upper and middle classes – of those in power" and are reflective of the knowledge, skills, and education of those with a higher position in society, usually the White supremacy, according to cultural capital theory (p. 25). These

public institutions must be examined in order to understand the gap in educational performance between the dominant White population and various racial and ethnic minority groups. This examination will bring forth ways to improve educational performance since the public institutions relate to the formation of attitudes, values, skills, and knowledge related to school performance (Moore, 2002). According to Delpit and Dowdy (2002), the results of standardized testing favor children who speak common American English simply because these children are able to respond to questions that are couched in a familiar language based upon familiar experiences. Since the 'right children' – upper class, wealthy – tend to get the top scores, it is assumed that the I.Q., reading speech, language acquisition, and other tests are valid. (p.98) All other students who do not share familiar language base or familiar experiences must be educated and tested according to such guidelines. Unfortunately, test creators fail "to develop assessment instruments that could accurately and adequately distinguish between language disabilities and language differences" (Perry, Steele, & Hilliard, 2003, p. 54).

The predominant culture of White Anglo-Saxon Protestants (WASPs) reinforces the idea that its values, attitudes, beliefs, traditions, customs, and morals are the only acceptable and normal behavior. Divergence from these cultural traits is perceived as abnormal and, in cases of extreme differences, different cultures can be perceived as deviant and degenerate. Inequality toward minority groups is tolerated, so long as social conventions continue to benefit the majority. Moore (2002) stated that "multiculturalists assert that the gap in educational performance exists because minority students have been the victims of racism and discrimination by educational institutions dominated by White Anglo-Saxon Protestant (WASP) values, attitudes, behaviors, and goals" (p. 70). As

stated by Freire (1970), "the oppressor, what is worthwhile is to have more - always more - even at the cost of the oppressed having less or having nothing. For them, to be is to have and to be the class of the 'haves'" (p. 44). In essence, the majority will always want more power and more control. Society reflects their values, goals, and interests, despite how discriminatory or unfair it may be to the rest of the population.

Educational Attainment

According to Moore (2002), the gap of educational attainment between Whites and racial and ethnic minority groups has decreased during the last forty years, but it continues to exist. Also, the population of racial and ethnic minority students in schools has been increasing through the years. Standardized tests, according to critics, are culturally biased against racial and ethnic minority groups; they are not based on the linguistic competency and cultural experiences of the races and ethnicities of all students taking the tests. "A much lower percentage of students passed the FCAT in Black segregated schools than in White segregated schools" (Borman et al., 2004, p. 625).

Valencia (1997) stated that students attending segregated schools live in poverty, have high drop-out rates, have less qualified teachers, have fewer teachers who mirror the diversity of students, are in more remedial courses, are less exposed to pre-collegiate courses, have low educational aspirations, have low college enrollment, have low scores on standardized tests, have unmet educational needs, have cultural/language exclusion, and have low parental involvement. "By the time students reach the 12th grade, very few students of color are included in upper-level mathematics courses" (Diamond, 2006, p. 500). Borman et al. (2004) stated that "as the percentage of Black students increased [in

a school], there was an expected decrease in the percentage of students passing the FCAT" (p. 624).

On the other hand, students attending mainly White schools are offered more pre-collegiate courses, have more highly-skilled teachers, have a more rigorous curriculum, have higher educational aspirations, and have higher parental involvement. Crain (1970) and Boozer, Krueger, and Wolkon (1992) concluded that the higher the White enrollment in a school, the greater the chances for academic achievement, probability of attending college, higher wages, and working in an integrated environment. This finding justifies the purpose of this study to investigate if a relationship exists between the scores of middle school students on the FCAT 2.0 Mathematics Test, racial and ethnic concentrations, the results of the School Climate Survey, ESOL student population, and socio-economic status.

The educational attainment of students relates not only to the quality of education they receive but also the atmosphere found in their homes, socio-economic status, participation in cultural activities, residential segregation, and resources available in and outside of school. Individual differences attributed to experiences, places lived, and culture, among other things, relate to who the child is, their abilities, attitudes, behavior, goals, and values and who they can become (Valencia, 1997).

Tracking

Through curriculum differentiation, students are placed according to their academic abilities (Valencia, 1997). This teaching method has led to segregation within schools. "Even in integrated schools, Black students are disproportionately allocated or tracked into low-ability and non-college preparatory classes that are characterized by a

less demanding curriculum and lower teacher expectations" (William, 1999, p. 179). This separation of students according to their academic preparation is "referred to as tracking, ability grouping, or gifted and talented programming" and does not provide quality education for all students (Conger, 2005, p. 226). From the elementary school grades, the students are being tracked based on their mathematics and reading abilities, steering them towards higher or lower levels of education. Tracking may lead to the permanent placement of students at a low-level, never challenging them to their true potential (Aberger, Brown, Mantil, & Perkins, 2009, p. 17). There are many factors that relate to a child's understanding. This goes on to relate to the students' belief in themselves, their self-esteem, and what they are capable of achieving. According to Moore (2002), racial and ethnic minority groups tend to be less educated than Whites, and "nationwide, minorities are overrepresented in special education and remedial classes and underrepresented in advanced classes" (p. 12). "Minority and White students with similar academic abilities are often assigned to different tracks, with Black and Hispanic students disproportionately found in lower tracks" (Blazer, 2007, p. 8).

Additionally, schools located in residentially segregated and low socio-economic status neighborhoods do not offer the same amount of honors and Advanced Placement courses as schools located in predominantly White and high socio-economic status neighborhoods (Kao & Thompson, 2003). When students are placed in classes according to their academic level, the student population is being segregated since the majority of the racial and ethnic minority groups are placed in remedial and regular level classes while the majority of Whites are placed in honors and Advanced Placement level classes. This limits the students' exposure and opportunities, not providing quality education to

all students. Students placed in the "lower educational tracks are typically taught by less qualified teachers using instructional materials and strategies that are less challenging and engaging and therefore, ultimately, learn less" (Diamond, 2006, p. 501). Moreover, tracking increases social segregation, limiting the interaction of racial and ethnic minority groups with the majority in social settings. Not having the same linguistic competency and cultural experiences of the dominant culture can prevent racial and ethnic minority students from achieving a high academic level and being able to be enrolled in honors and Advanced Placement level classes (Kao & Thompson, 2003).

On the other hand, detracking has been created to counteract the relation of tracking (Blazer, 2007). These heterogeneous classrooms increase classroom diversity and decreased within school segregation (Blazer, 2007). Detracking is a method used to combat school segregation.

Social Segregation

Residential segregation leads to school segregation which then creates social segregation. Social segregation is present in schools through propinquity and homophily. Propinquity, when a person has the opportunity for interracial contact, is highly available to students attending integrated schools or schools in middle or high socio-economic status neighborhoods (Mouw & Entwisle, 2006). Individuals who exhibit homophily, the tendency to prefer contact with one's own race or ethnicity, have this trait reinforced when attending a school with a high concentration of their race or ethnicity, due to fewer opportunities to interact with members of other social groups (Mouw & Entwisle, 2006). Social segregation can result from residential segregation of the school's neighborhood. If the neighborhood is heavily populated by Hispanics, there is a high chance the makeup

of the local school's student population will be Hispanic. Consequently, students attending such a school will most likely interact socially with Hispanics (Moody, 2001). The tendency toward homophily leads students to become friends with other individuals who share similar social traits. The similarities are usually found in academic performance, behavior, and socio-economic status (Moody, 2001). Additionally, sometimes parents decide on a school based on the racial and ethnic concentrations of the student population, even if the school is of lower academic quality (Lubienski & Weitzel, 2009). These parents' priority is for their child to be surrounded by children similar to them so that they fit in and feel comfortable.

Furthermore, even when the overall demographics suggest that a school is integrated, social groups within the school may still not be integrated with each other. "Schools that seem integrated on paper do not always have integrated classrooms or common areas" (Blazer, 2007, p. 7). Around many school campuses, each racial and ethnic group has its own territory where it socializes. Despite the level of integration in classrooms, students will segregate themselves in the cafeteria, extracurricular activities, and playground (Clotfeller, 2002; Schofield & Sagar, 1977; Tatum, 1997; p. 225). This adds to the segregation among the student population, leading to strained relations among the different racial and ethnic groups. This also limits the interaction between students racially and ethnically different from each other.

In contrast, extracurricular activities give students the opportunity to interact with students of different ethnicities and race (Moody, 2001). Students participating in sports, school government, drama, music, clubs, and the school newspaper are exposed to opportunities that promote interracial friendships. Participation in extracurricular

activities is a challenge to racial and ethnic minority students who are learning the

English language and culture since they are not able to interact socially (Romo, 1997).

They feel timid and embarrassed about how they speak English and how less

knowledgeable they are about the American way of life. According to Romo (1997),

"cooperative learning methods create thoughtful, equitable interactions needed to

promote positive racial attitudes…students of different races and ethnicities work

together in groups, which receive rewards, recognition, or evaluation based on how much

they improve each member's academic performance" (p. 5). All students need to be

exposed to information about different racial and ethnic groups in order to respect and

better relate to each other. A racial and ethnic minority student who becomes literate in

English is able to learn and understand the knowledge necessary to be promoted from

grade to grade. On the other hand, these racial and ethnic minority students usually deal

with being bullied and ridiculed. They suffer from stereotype threat which is "being

viewed through the lens of a negative stereotype" that deals with their race or ethnicity

"or the fear of doing something that might inadvertently confirm that stereotype"

(Diamond, 2006, p. 501). They become timid and afraid of representing and displaying

their culture. Sometimes they might be faced with conflicting choices between a

perceived loyalty to their social group and their desire to be successful in school. There

also exists the case in which the racial and ethnic minority student has decided not to

learn English or adopt the American culture, having created a connotative definition to

achieving high academically; they see getting good grades as "acting White" (Romo,

1997, p. 2). Thus, they refuse to abandon their native culture and do everything that does

not make them "White". These issues stem from the segregation that exists in the

students environment and can lead to the squandering of the educational capabilities of minority students that struggle with these social pressures.

Ainsworth (2002) stated that usually children in segregated neighborhoods have no admiration of older peers who have completed high school, while instead they hold in high esteem those who drop out of school. They will eventually not put forth maximum effort and stop caring about their education. This lack of interest and effort is seen with a weak academic preparation noticeable through low grades and test scores. Suspension and grade retention also have a long term relationship on racial and ethnic minority students, leading to low self-esteem and lack of interest and motivation, to then possibly dropping out of high school (Kao & Thompson, 2003). Students are more likely to drop out of high school if the school is predominately Black or Hispanic (Mayer, 1991). Dropping out of high school tends to lead to lower paying jobs, greater chance for unemployment, dependency on welfare, higher crime rate, teenage pregnancy, and greater chance for their children being disadvantaged (Jargowsky & Bane, 1991; Massey & Denton, 1993; Wilson, 1997, 2012). All these conditions seem to be predominant in segregated neighborhoods. The children are the future of the country; hence they need to receive the proper academic preparation today necessary for them to be successful leaders tomorrow.

Residential Segregation

"Racial and economic inequalities shape children's experiences from very early on and as a result, on average, Black and White children face very different life chances" (Magnuson & Waldfogel, 2008, p. 1). Residential segregation has led to institutional inequalities. "Many believe that the dramatic differences between Blacks and Whites in

achievement are due, in part, to school segregation" (Echenique, Fryer Jr., & Kaufman, 2006, p. 265). School segregation is reflective of the segregation that exists in the neighborhood, residential segregation which is de facto segregation. Since a school's population is largely based on its surrounding boundaries, whoever lives within that boundary attends the school. Schools in a racial and ethnic minority neighborhood will have high enrollments of racial and ethnic minority students (Kim & Sunderman, 2005). "School attendance boundaries are largely determined by neighborhood of residence and because families of different socio-economic status backgrounds live in different neighborhoods, children from more and less advantaged backgrounds attend different schools" (Rouse & Barrow, 2006, p. 116). Racial and ethnic minority students, who are the ones in need of the most support and resources, find themselves exposed to the least because of where they live and where the school they attend is located. In these circumstances, students do not receive quality education.

Majority neighborhoods have better schools, better facilities, and better resources while racial and ethnic minority neighborhoods have lower-quality schools, worse facilities, and inadequate resources. Significant numbers of racial and ethnic minorities live and go to school in isolation from the majority, receiving an inferior education (Cobb & Glass, 2009). Luckily, there are still the few that succeed. In the case of *Brown v Board of Education*, Brown stated "segregation has no place in public education because segregation often leads to discrimination. And discrimination has no place in a free, open, and democratic society" (Willie, 2005, p. 13). Inequalities in residential areas have led to discrimination since not all schools offer the same exposure and opportunities.

Residential segregation creates "a barrier for the establishment of successful school programs" (Stretesky & Hogan, 2005, p. 412). Between the lack of funds, materials, and resources, negative attitude, and low expectations from the community, residential segregation impedes success in the schools. Racial and ethnic minority students would have better educational opportunities and resources if they attend a high majority enrollment school, since many of their schools do not offer the same quality education. Such "access to predominantly White institutions would enhance the social mobility and life chances" for minorities (Borman et al., 2004, p. 607). The social and economic disadvantages of residential segregation make it difficult for children to overcome the challenges of inequality.

Residential segregation creates different neighborhoods with different needs and resources. Regardless of policies and community programs that have been created to meet these needs, many needs are still to be met. Poverty still prevails in segregated neighborhoods and equality of residential areas and their schools is far from existing. The characteristics of the families in segregated neighborhoods, their assets, attitudes, education, employment, and income play a key part in the success of the students. Echenique et al. (2006) stated that "Black children enter kindergarten lagging behind White children, and these differences grow throughout the school years" (p. 265). This is common among racial and ethnic minorities due to the limited exposure these children have to education before starting school.

It is these circumstances that drove the purpose of this study, to identify the relationship between school segregation, academic achievement, perceptions of education, ESOL student population, and socio-economic status. It is in the interest of

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the country to provide segregated schools with the necessary funds, resources, materials, and personnel to provide those students with a high-quality education as per NCLB (Gray, 2005).

Neighborhood

Middle and high socio-economic status families often decide the school their children will attend, "either private schools or good public schools in neighborhoods their parents have chosen to live in" (Archbald, 2004, p. 285). On the other hand, "poor and minority children are more often enrolled in schools not because they have chosen them, but because of the restricted choices about where they can live; restrictions that are imposed by housing policies, lending practices, and societal prejudices" (Archbald, 2004, p. 285). Other restrictions are self-imposed by the individuals, such as obtaining a good education to have a stable career and be successful.

According to Charles Clotfeller, a leading desegregation researcher, "more than a third (37.4%) of the nation's black students in 2000 attended schools that were ninety to a hundred percent nonwhite and nearly three-fourths (72%) attended schools that were at least fifty percent nonwhite" (Street, 2005, p. 15). Scott (2005) added that "low-income, high-needs, and minority children are concentrated in urban centers, while higher-income, better educated, white families are typically found in the suburbs and private schools" (p. 9). "White and wealthier students will take steps to maintain their social status by distancing themselves from groups that they perceive to be of lowering standing" (Saporito & Sohoni, 2006, p. 82). They are willing to relocate as long as racial and ethnic minorities do not relate to their social status. They are aware that a community's attitude, behavior, socio-economic status, and values have a deep relation to

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children's educational attainment. "The concentration of poor students and non-White students depresses achievement and magnifies the average likelihood of dropping out" (p. 2138). In essence, the majority does not want to send their child to a school with low achievement and high drop-out rates.

Neighborhood conditions relate to the child's academic achievement, shaping who the child is and will become. As stated by Moore (2002) "a neighborhood, much like a family, is an organic entity that can through its community values, behaviors, attitudes, and adult role models exert a profound relationship, positive or negative, on the children who reside in the community" (p. 212). Growing up in a neighborhood with a high crime rate negatively relates to the child's life, just as growing up in a neighborhood with a low crime rate positively relates to the child's life. "In concentrated poverty neighborhoods, children may be less exposed to adults and peers who speak Standard English and also less exposed to hearing language, in general, because of restrictions on social interaction imposed by parents concerned about safety" (Sastry & Pebley, 2008, p. 8). Wilson (1997) concluded that "neighborhoods where most adults have steady jobs, foster behaviors and attitudes that are conducive to success" (p. 119). Children are raised seeing the examples of model adults, with norms, structure, and values. Also, they are exposed to other opportunities presented through information, networks, and resources. Without these positive examples, the children are growing up in social isolation that lacks role models and various other exposures (Stretesky & Hogan, 2005, p. 407).

Children living in communities that negatively relate to them are more likely to have broken families, health problems, hunger, welfare dependency, crime exposure, and learning disabilities. Their opportunities to succeed become limited. With the lack of

role models, children have less constructive ways to spend their time, lending themselves to unproductive activities, displaying lack of interest for schoolwork and their future, and being disrespectful towards adults (Wacquant, 1996). Street (2005) added that "children cannot grow up to be healthy and successful adults unless basic needs of security, nutrition, housing, honoring, and recognition of self, etc. are met" (p. 144). These needs are present in the lives of all children doing well in school and they come from the home.

On the other hand, it is not just White parents who send their children to schools with high White enrollment. Racial and ethnic minority parents also look for schools that will allow their child to feel welcomed and part of a whole. Berliner and Biddle (1995) stated that "racial and ethnic minorities would like the schools attended by their children to offer curricula that honor their cultural heritages" (p. 226). Sending their child to a school that has a high White enrollment will only make them feel like an outsider. "Minority parents, who fear their children will be isolated or have other difficulties in predominantly White schools, will search for schools where the student body is predominantly minority" (Tedin & Weiher, 2004, p. 1110). Also, living in residential segregated neighborhoods can limit the English skills students are acquiring in school. They lack the interactions that lead to the practice and further development of English because they do not find themselves needing to communicate in English. Additionally, residential segregation can be "attributed in part to people's preferences over the race of their neighbors" (Bayer, McMillan, & Rueben, 2001, p. 3). Many parents feel more comfortable raising their children in a neighborhood where they share the same race and ethnicity with others than in a neighborhood that they do not. Unfortunately, this action

on behalf of racial and ethnic minority parents only leads to further residential segregation and hinders their child's success.

Poverty

Due to economic reasons, minorities tend to live in segregated and low socio-economic neighborhoods where poverty prevails. "Segregation is a key determinant of the quality of life in neighborhoods", placing limits on access and opportunities (Williams, 1999, p. 183). Racial and ethnic minority groups "continue to face considerable prejudice and discrimination in U.S. housing markets and therefore remain considerably unable to freely choose where they wish to live" (Street, 2005, p. 32). Schools in these neighborhoods have low achievement levels and lack the resources and opportunities offered by schools in middle and high socio-economic status neighborhoods. "Teachers and schools must accept, believe, and act upon the belief that children of poverty area learners, have been learning since birth, are ready to learn at anytime, and will learn" (Delpit & Dowdy, 2002, p. 135). Teachers and schools must set high expectations, be positive, show that they believe in the students, and provide the adequate resources and review for the students. This reinforces the idea that these students deserve a quality education.

Poverty relates to children thoroughly, from birth till death; even if they end up being successful, poverty has hindered their life in one way or another in their earlier years. "If children come to school hungry, sick, homeless, scared, or with uncorrected vision problems or if they come from homes warmed by high-sulfur heating oil or with inadequate sanitation systems, their education is compromised" (Cortes, Jr., 2010, p. 97). Overall, racial and ethnic minority groups usually attend schools whose overall

achievement is low (Wang & Kovach, 1995). These schools lack the necessary personnel and resources in order to improve the school's overall achievement. All students should have the textbooks and supplies necessary for their classes, and incentives should be offered to attract highly-qualified teachers to such schools. Through effective instruction, students are able to academically achieve higher. All students need to explore the world around them through complex, hands-on projects. Their education must be a continuous accrual of knowledge.

Furthermore, the deterioration of the family, religion, and community has placed a great amount of pressure on school districts to solve social problems like segregation, student behavior, crime, and drug abuse. Many racial and ethnic minority families face poverty and life-threatening problems. They rely on community resources like counseling, financial assistance, and medical treatment to overcome these situations. Children who were raised in a household that received financial assistance are less likely to graduate from high school than children who were raised in a household that did not receive any financial assistance (Raley, 1991).

Homeownership

Some families find themselves homeless and living in cars parked in abandoned lots. Homeless children are prone to having poor cognitive and physical development and exhibit more health problems than students who have a place to call home (Hart-Shegos, 1999). They have a higher probability of suffering from anxiety, depression, asthma, anemia, stunted growth, lead poisoning, and poor nutrition (Hart-Shegos, 1999). Their academic success is also hindered. "In schools with greater student mobility and a higher percentage of students in poverty, fewer students passed the math and reading

portions of the FCAT" (Borman et al., 2004, p. 623). On the other hand, parents who are homeowners provide their children with a more stable home environment. Unlike renters, there is a greater chance of not moving from house to house. Children are able to grow up attending the schools in the same neighborhood, not removing them from instructional time to pack, move, and unpack. Usually students fall out of place in the curriculum when moving from one school to another, causing confusion if they have not acquired the necessary skills on the concept being taught at their new school. Additionally, homeowners are willing to invest more money in their home unlike renters, providing their children with a higher quality living environment (Haurin, Parcel, & Haurin, 2001). This increases the economic capital of the household which positively relates to the success of the children (Haurin et al.).

Parental Influences

Parent Involvement

Parents contribute to their children's education by providing three types of capital: financial, human and social capital. A family's financial capital is measured by their amount of income. The larger the income, the more comfortable life the children will have. The family's human capital is measured by the parents' education. The higher education the parents have, the larger income they will receive. The family's social capital is measured by the relations, interactions, and support of the parents with the child. The more networking and resources the parents are exposed to due to their social position, the better off the children will be.

Muller (1995) stated that the more involved a parent is in their child's education, the higher the child will achieve academically. "Students with the most supportive

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parents not only have higher proficiency levels, but also more positive attitudes towards

mathematics than those students with the least supportive parents" (Cai, Moyer, & Wang,

1999, p. 15). In fact, it "not only increases educational outcomes for individual children

but for the entire school" (Aberger et al., 2009, p. 12). Parents who have more access to

educational information and social networks are able to provide their children with the

best education possible (Scott, 2005). Muller (1995) added that when mothers are not

employed full-time, they are able to dedicate more time to their child's education. With

increased involvement from the mother, the father also tends to increase their

involvement in their child's education. Parents in these circumstances become more

aware of school functions and increase their participation. They assist their child more

with homework and studying. There is also a higher chance of them knowing the parents

of their child's friends. Additionally, households in which the mother is not employed

full time usually have a stricter, regulated environment, such as television restrictions and

homework checks.

Parents' Education

Moreover, parents' education level has a relation with students' socio-economic

status and academic achievement. According to Sarane Boocock, an educational

sociologist, "the family characteristic that is the most powerful predictor of school

performance is socio-economic: the higher the socio-economic status of the student's

family, the higher his academic achievement" (Moore, 2002, p. 62). Part of the family

characteristic is the parents' education. Children whose parents are well educated and

older spend more time studying and watch less television than children of less educated

and younger parents (Hofferth & Sandberg, 2001). Usually, families with higher socio-

economic status select a neighborhood to live in based on the elementary school's reputation. Students coming from a majority neighborhood have parents who are able to provide them with more than just the basic necessities. Books, computers, educational centers, games, museum visits, summer camps, tutoring, library visits, and zoo visits are all resources that families with higher socio-economic status can provide for their children. Such parents also have more time to be involved in their child's education. Rivkin (2000) added that Blacks who are educated, involved in their children's education, and have resources are more likely to send their children to a high White enrollment school for them to obtain a better education and have more opportunities.

Family Structure

Since the 1960s, the number of children growing up in a single-parent household, due to divorce or being born out of wedlock, continues to increase. Kelly and Emery (2003) stated that "children in divorced families have lower academic performance and achievement test scores compared with children in continuously married families" (p. 356). Their chances of dropping out of high school are two to three times greater (Kelly & Emery, 2003). A divorce is a stressful situation for children. They often find themselves feeling that the divorce is their fault. They deal with loyalty issues with each parent. Plenty of children lose contact with their birth father after a divorce (Kelly & Emery, 2003). Since the father is usually absent in these cases, these children grow up without a male role model. This is particularly hard for boys since the father is usually absent in their lives. Younger children relate more to the absence of a parent than older children, since the older children are more independent, mature, and able to understand. By the time these children are finishing high school, many decide not to attend college

because of the economic hardship they have and are still undergoing because of their parents' divorce (Amato, 2000). Overall, these students tend to have fewer years of education than students whose parents are not divorced (Keith & Finlay, 1988). Additionally, children whose parents divorce usually move from home to home and switch schools more frequently than children whose parents are married (Sandell & Plutzer, 2005). This causes instability in the child's life.

As Mulkey, Crain, and Harrington (1992) reported, "students from one-parent households have significantly lower grades and test scores than do students from two-parent households" (p. 176). Children who grow up in a single-parent household (mother or father) are more likely to be single-parents themselves and typically they do not have high academic achievement. A single-parent home often comes with economic deprivation. These single-parents often need to work multiple jobs or long hour days just to get by. Usually, the children take on more responsibilities at younger ages, interfering with their education (Hofferth & Sandberg, 2001). These children end up suffering since they do not receive the amount of attention and supervision they need. These children usually find themselves home alone and struggling on homework assignments. Usually, parental support is nonexistent.

Furthermore, belonging to a poor family with a large number of children also relates to student achievement. The household income needs to be used to pay for the living expenses of more individuals. If money is lacking, parents find themselves not being able to provide their children with what is needed to be healthy and successful in school. Health care, medicine, vitamins, and proper nutrition might be minimal. Educational resources and support such as books, computers, Internet, trips to museums

and libraries, and tutors might be lacking. Additionally, usually parental support is non-existent. The majority of these parents may be working extra to be able to earn more money to pay the bills (Roscigno, Tomaskovie-Devey, & Crowley, 2006, p. 2139).

According to Raley (1991), families who are headed by the mother are usually economically disadvantaged. In such a situation, when the child is old enough to work, they may quit school to help with the financial difficulties or if the child stays in school the job may start burdening the child's education. Mothers who are single-parents sometimes turn to their children for emotional support in regards to their personal problems (Raley, 1991). The mother will share her feelings and transmit her emotions to her child, including bitter feelings towards her ex-husband, frustration towards men, or experiences with her new significant other (Glenwick & Mowrey, 1986). When children take on responsibilities that may be too advanced for their age such as providing emotional support to their mother, the parent and child are role reversing. This turns the parent-child relationship into more of a friendship, which can improve communication between the parent and child but also make it harder for the parent to discipline the child. Also, children may experience stress when their parent remarries. But, on the contrary, sometimes children whose parents remarry have a higher graduation rate than children whose parents do not remarry since two caring adults bring more stability to a child's life (Raley, 1991, p. 5). In order for racial and ethnic minority groups to overcome the hardships they face, parents and children alike have to "accept responsibility for positive outcomes" versus denying "responsibility for negative outcomes" (Miller, Reynolds, & Weiner, 2003, p. 106). They need to focus on all the factors that contribute to their child's education and try to limit the negative relations.

Racial and ethnic minority students need to have high self-esteem, establish goals, and be given the opportunity to achieve them in order to be educationally successful. They should have self-efficacy, the knowledge of their ability to succeed in reaching a specific goal. Students, regardless of their race and ethnicity, need to have capacity and control beliefs. Students with capacity beliefs have confidence in their own capabilities. Also, students with control beliefs know they control the factors that relate to their ability to succeed. Students need to be aware and understand that everything is attainable if they put their maximum effort into it. Sometimes, racial and ethnic minority groups have suffered so much hardship and ridicule that the children develop what is called "learned helplessness" (Miller et al., 2003, p. 106). These children find themselves in this condition, with difficulties in school and feel "there is no opportunity for change" (Miller et al., p. 106). In reality, it is never too late to change and take advantage of the new opportunities that present themselves.

Therefore, limited exposure to role models succeeding with the dominant culture, restricted career and employment opportunities, and unsupportive or unhelpful social networks are among the explanations for the relation of disadvantaged neighborhoods on academic achievement (Ainsworth, 2002). Residential segregation, socio-economic status, poverty, homeownership, parent involvement, parents' education, and family structure are factors that are related to each other and can hinder the academic achievement of students.

Perceptions of Education

School climate is a pattern of shared perceptions about the characteristics of an organization (Keefe, Kelley, & Miller, 1985). A positive school climate is vital to the

school's success. "Safety, trust, respect, fairness, high expectations, a welcoming environment – these elements add up to a positive school climate" (Perkins-Gough, 2008, p. 89). The students, parents, and school staff need to feel and experience this positive school climate in order for them to have positive perceptions of education and the school they attend, their child attends, or they work. Sweeney (1988) stated "a winning school climate provides the very foundation for a sound educational program" (p. 1). Sweeney (1988) added "when the climate is right, people are inspired to do their best. Teachers and students…do what needs to be done to stimulate learning, and achievement generally rises" (p. 1). Everything that occurs at the school or related to the school relates to the perceptions of education and school climate. A school's climate "is the quality and consistency of interpersonal interactions within the school community that influences children's cognitive, social, and psychological development" (Hoy & Sabo, 1998, p. 322). It can be a positive relation or a significant barrier to the students' learning and performance of staff members. "School climate is reflected in every interaction and in every decision adults and students make" which include inspiring students to maintain and protect school property, and helping your child with homework and studies (Noonan, 2004, pp. 61-62).

School districts, such as Miami-Dade County Public Schools, conduct a School Climate Survey every school year to assess the perceptions of education of the participating students, their parents, and the entire school staff. The data collected is used "to promote meaningful staff, family, and student engagement- and to enhance the social, emotional, ethical, civic, and intellectual skills and dispositions that contribute to success in school and in life" (Cohen, Pickeral, & McCloskey, 2009, p. 45). Various different

questions bring to light the perceptions of each, the students, the parents, and the school staff. It assists in bringing forth the areas in need of improvement in the school, district and in education.

The perceptions the students, parents, and school staff have of the school and education eventually reflect upon the school climate, which in turn reflects upon students' academic achievement as well as the school's success. These perceptions are based on previous and current experiences with the school, district and education. These experiences can deal with finance, support, and discrimination (Rubie-Davis, Peterson, Irving, Widdowson, & Dixon, 2010). "School climate may be one of the most important ingredients of a successful instructional program" (Heck, 2000, pp.513 – 522). Negative attitudes or low expectations are reflected on the students' academic achievement and the school's success. "The climate of a school has always been, and continues to be, essential to a school's success in educating its children and preparing them for a life beyond its corridors" (Noonan, 2004, p. 61).

Conclusion

According to Flores (2005),

as we enter the 21st century, we face ultra-conservative movements (English Only, Back-to-Basics, standardization of curricula, high-stakes standardized testing, etc.), public policies (banning of bilingual education in states such as California, Massachusetts, New York; high school exit exams; No Child Left Behind), and big corporate interests (McGraw-Hill, Houghton Mifflen, Open Court) in the effort to continue these deficit views and schooling practices of Latinos and children of color in general. (p. 91)

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There are currently many forces against acts and policies that support meeting the needs of racial and ethnic minority students in education. It is vital for the country to educate every child, because today's children will be the ones leading the development of society in the future. Every child needs to receive a quality education from a positive school climate.

According to Freire (1970), to meet the needs of minorities, "the solution is not to 'integrate' them into the structure of oppression, but to transform that structure so that they can become 'beings for themselves'" (p. 61). Transforming the structure is having all schools provide a quality education and be held accountable for it. Despite the school segregation, racial and ethnic minority children need to have equal educational opportunities so they can grow into successful adults and look past all their hardships. All children, despite their ethnicity or race, "have the right to their own language, their own culture" and the system must be fought so "that children be allowed to express themselves in their own language style" (Delpit, 1995, p. 37). Delpit (1995) added "it is not they, the children, who must change, but the schools" (p. 37). Their individual learning needs and styles need to be met so they can grow up into successful adults. Districts, schools, and teachers must maintain high standards for all students, especially minorities, to push them forth academically. These structures or public institutions need to be transformed to meet the needs of all students. Wang and Kovach (1995) believe that by "magnifying the 'positives' in the lives of urban children and youth, we can rekindle hope for progress in addressing the deep-rooted problem of the achievement gap" (p. 5). Public schools, where the majority of children receive their education, is vital for the future of the United States. It is important that the education that the children

receive is the best possible and tailored to all racial and ethnic and socio-economic groups of students.

> We share a common destiny. That destiny does not rely solely upon the White community – or professional – but upon the performance of our entire citizenry. We need an educated population and competent work force across all occupations. Remember the words of Dr. Martin Luther King: 'The quality, not the longevity of one's life, is what's important.' (Lisack, 1987, p. 32)

The students' academic achievement level relates to school segregation and the advantages and disadvantages that come with it. Despite the number of years since the ruling of the *Brown v Board of Education* case, much work still needs to be done in assuring that all schools are providing an educational opportunity and high-quality education in a positive school climate to the students. School districts must be held accountable for it, like they are with the state standardized tests. Educational equality is still to be realized (Echenique et al., 2006). Hence, the children's future depends upon the performance of the entire country to end segregation so that students, regardless of their socio-economic status, receive the same quality education and opportunities in order to be academically successful. "The educational and social benefits of desegregation begin only when students from different racial and ethnic backgrounds are learning together, in classes with diverse populations (Orfield, 2007, p. 10).

CHAPTER 3

METHODS

This chapter briefly touches upon the purpose of the study and research question again. Additionally, this chapter focuses on the setting and subjects for the study, the research design, the statistical instruments used, and the procedures for data collection and conducting data analysis.

Purpose of the Study

The purpose of this study was to investigate the relationship between the FCAT 2.0 Mathematics scores of public middle school students in Miami-Dade County, Florida, racial and ethnic concentrations (Whites, Blacks, and Hispanics), ESOL student population, socio-economic status, and school climate for the 2010 – 2011 school year. The study was undertaken to demonstrate whether a significant relationship exists between mathematics achievement and racial and ethnic concentrations, socio-economic status, ESOL student population, and school climate in Miami-Dade County Public Schools (M-DCPS).

Research Questions

This study was driven by the following primary research question:

Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and racial and ethnic concentration of public middle school students in Miami-Dade County when controlling SES, ESOL student population, and school climate for the 2010-2011 school year?

The study was also driven by these secondary research questions:

1. Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and racial and ethnic concentrations when controlling the ESOL student population of the school?

2. Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and SES?

3. Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and SES when controlling racial and ethnic concentrations?

4. Is there a significant negative relationship between the FCAT 2.0 Mathematics scores and school climate when controlling racial and ethnic concentrations?

The Setting and Subjects for the Study

Miami-Dade County

MacDonald and Monkman (2005) stated that "although *Brown v Board of Education* had ruled segregation illegal in 1954, Miami, like most urban areas, still practiced racial segregation in the 1960s" (p. 67). Miami is home to immigrants, some highly successful, while others struggle daily to meet their needs. According to the U.S. Census Bureau, in 2010, the population of Miami-Dade county was 2,496,435 (2010a). In Miami, Hispanics are the demographic majority and Spanish is spoken everywhere. The U.S. Census Bureau reported that 65% of the population is Hispanic, while 18.9% is Black Non-Hispanic, and 15.4% is White Non-Hispanic (2010b). Furthermore, 70.3% of households have another language other than English spoken at home, 58.3% own their home and 17.1% live in poverty (U.S. Census Bureau, 2010a).

Currently, M-DCPS is the fourth largest public school system in the nation (Miami-Dade County Public Schools, 2013). According to M-DCPS *Statistical Highlights* for the 2010-2011 school year, they had a total of 435 schools, 347,133 students, and 20,322 teachers (2011). In sixth grade, they had 2,359 White Non-Hispanic students, 6,596 Black Non-Hispanic students, and 17,651 Hispanic students (Miami-Dade County Public Schools, 2011c). In seventh grade, they had 2,357 White Non-Hispanic students, 6,653 Black Non-Hispanic students, and 17,637 Hispanic students (Miami-Dade County Public Schools, 2011c). In eighth grade, they had 2,534 White Non-Hispanic students, 6,626 Black Non-Hispanic students, and 17,700 Hispanic students (Miami-Dade County Public Schools, 2011c). There were 62,838 students enrolled in the English for Speakers of Other Languages (K-12) Program (Miami-Dade County Public Schools, 2011c). There were 187,481 students using Spanish as their home language, followed by 16,789 students using Haitian Creole as their home language (Miami-Dade County Public Schools, 2011c). Of the total number of public middle school students, 75.5% were eligible for free/reduced lunch compared to Miami-Dade County Public Schools' district average of 70.2% for all schools (Miami-Dade County Public Schools, 2011c).

M-DCPS has been able to desegregate a considerable number of the schools. As of June 30, 2002, M-DCPS was granted unitary status by the United States District Court for the Southern District of Florida, meaning it was no longer considered segregated based on the district's demographics (Blazer, 2007). In recent years, the number of White students attending predominantly Black and Hispanic schools has increased due to the efforts of decreasing segregation in M-DCPS through the establishment and promotion of several new magnet programs in schools throughout the district as well as

the rezoning of school boundaries (Blazer, 2007). Magnet programs, charter schools, and vouchers have given students the ability to attend other schools besides their home school in hopes of offering them varied opportunities for becoming successful.

Subjects

For the 2010-2011 school year, there were a total of 59 public middle schools that were part of Miami-Dade County Public Schools and all of them were used in this study. The scores obtained by each of the 59 public middle schools for the FCAT 2.0 Mathematics Test in the 2010-2011 school year were used in the study, as well as the results of racial and ethnic concentration, ESOL student population, socio-economic status, and the School Climate Survey. The scores on the FCAT 2.0 Mathematics Test for the 2010-2011 school year were analyzed. Those exams were collected at the schools, then collected by M-DCPS, and sent to be graded following the guidelines and orders of Florida's Department of Education.

Moreover, the results of the School Climate Survey for each participating public middle school were analyzed. These surveys were collected by teachers and administrators and then submitted to M-DCPS to be compiled and analyzed. The data on racial and ethnic concentration, ESOL student population, and socio-economic status were compiled by M-DCPS' Department of Research Services.

FLDOE's *2011 AYP Report* (2010-2011 Edition) provided data from the 59 different public middle schools on the number of students tested by race/ethnicity, Title I students, and English Language Learners. MDCPS' *School Climate Survey Individual Results* (2010-2011 Edition) provided the results of the school climate survey given randomly to selected students and their parents, along with all of the staff from the 59

different public middle schools. Table 1 displays the total number of White students,

Black students, and Hispanic students, along with the total of these three categories and

their corresponding percentages from the total. Moreover, the table displays the total

number of Economically Disadvantaged (SES) students and ESOL students, along with

their corresponding percentages from the total. Lastly, Table 2 displays the total number

of School Climate Parent Surveys returned, School Climate Student Surveys returned,

and School Climate Staff Surveys returned along with the total of these three categories

and their corresponding percentages from the total.

Table 1

FLDOE's 2011 AYP Report (2010-2011 Edition) Data

	White	Black	Hispanic	Eco. Dis.	ESOL	Total (B + W + H)	% White	% Black	% Hispanic	% Eco. Dis.	% ESOL
Total	4330	14896	35025	43044	7306	54251	8.0%	27.5%	64.6%	79.3%	13.5%

Table 2

MDCPS' School Climate Survey Individual Results (2010-2011 Edition) Data

	Parents Forms Returned	Students Forms Returned	Staff Forms Returned	Total Forms Returned	% Parents	% Students	% Staff
Total	4776	5585	2298	12659	37.7%	44.1%	18.2%

Florida Comprehensive Assessment Test (FCAT)

The Florida Comprehensive Assessment Test, also known as the FCAT, has been

administered in the state of Florida since 1998. Since the establishment of the 2001 No

Child Left Behind Act, it is the basis for the school accountability program in Florida.

The test's purposes are to measure the students' abilities in mathematics, reading,

science, and writing, and assure that high standards are being implemented. The test is

criterion-referenced. Students take the FCAT Writing, Mathematics, Reading, and Science in the spring each school year and students are tested in specific subject areas depending on their grade-level. All public school students, including charter school students, are required to take the FCAT. There are cases in which English Language Learner (ELL) students or Exceptional Student Education (ESE) students can be excluded from taking the FCAT, but certain requirements must be met and guidelines must be followed. Other ELL students or ESE students may be eligible for certain accommodations and are provided these accommodations during the test.

Students are examined in mathematics and reading from third through 10th grade. Students are examined in science in fifth, eighth, and 11th grade. Last, students are examined in writing in fourth, eighth, and 10th grade. "Students in grade three must achieve an FCAT Equivalent Score at level two or higher [of five levels] in reading, or show good cause, to be eligible for promotion" (Florida Department of Education, February 2011). In 10th grade, students are required to pass the mathematics and reading portions of the test in order to receive their high school diploma upon the completion of high school. The students who entered ninth grade in the 2009-2010 school year, need a score of at least 1889 in mathematics in order to graduate high school (Florida Department of Education, February 2011). Additionally, the students need a score of at least 1926 in reading in order to graduate high school (Florida Department of Education, February 2011). If they do not pass the exam in 10th grade, they have additional opportunities during 11th and 12th grade to pass the exam. If they still do not pass, they will only receive a certificate of completion of high school instead of a high school diploma.

With new academic content standards in place at the start of the 2010-2011 school year, the FCAT has changed. These new academic content standards are the Next Generation Sunshine State Standards (NGSSS). The Florida Department of Education has modified the FCAT to the FCAT 2.0 in order to measure students' achievement of the NGSSS. Mathematics and reading were the first to make the transition. The FCAT 2.0 for sixth, seventh, and eighth grade mathematics was administered to all Florida students on Wednesday April 13, 2011. Science was first administered on April 2012 and only to fifth and eighth graders.

The results of the FCAT 2.0 exam for the 2010-2011 school year were released and published by the Florida Department of Education during summer of 2011. These documents compare school districts to each other as well as schools within a school district to each other. Besides the FCAT 2.0 scores, it also includes demographics information about the schools (socio-economic status, racial and ethnic concentration, and ESOL student population).

<center>**School Climate Survey**</center>

Since the early 1990s, M-DCPS has been administering yearly the School Climate Survey which allows the gathering of "information on the perceptions that students, their parents, and school staff hold concerning their schools and their performance" (School Climate Surveys, 2011, p. i). It gathers "information regarding what these groups think about the school and their perceptions concerning how the school can be improved" (School Climate Surveys, 2011, p. 1). Unlike school staff, not all students and parents participate. M-DCPS' Department of Research Services uses the random number generator from Microsoft Excel software to randomly select the students and their parents

<center>70</center>

who will participate in the School Climate Survey (T. Froman, personal communication, May 24, 2011). All the homeroom classrooms at each school are assigned a random number. The homeroom classrooms are then placed in order according to their assigned random number. These numbers are entered in Microsoft Excel and then homeroom classrooms are chosen at each school until at least 200 students have been randomly selected (T. Froman, personal communication, May 24, 2011). These students and their parents are asked to participate in the School Climate Survey. Unfortunately, not all surveys distributed are returned.

There are three different surveys, one for each type of recipient: student, parent, and school staff. They are each tailored to obtain the individual perceptions of the students, parents, and school staff on the school, its performance, and areas in need of improvement. For each item, the participant must answer "strongly agree", "agree", "undecided/unknown", "disagree", and "strongly disagree".

The School Climate Survey is given during the months of January and February of every school year and is collected by teachers and administrators to then be sent in to M-DCPS' Department of Research Services. The data are compiled, analyzed, and then released publicly in August. Documents are released for each school, presenting its results by type of survey (Parent, Student, or Staff), question, and response. The responses are published as a percentage. In the same report, the school's individual results are compared to all other schools.

For this study, the one item present in each of the three different surveys (student, parent, and school staff) was used in order to test the same perception of education from these different views. Additionally, for this study only the percentages from those who

responded "strongly agree" or "agree" on the School Climate Survey for students, parents, and staff were used. These two percentages were added together to obtain one percentage to represent how many students, parents, or staff agree that the school is positive and helps the students learn. For the students' School Climate Survey, the variable being tested (listed with its corresponding number from the survey) was as follows:

26. The overall climate or feeling at my school is positive and helps me learn.

(School Climate Surveys, 2011, p. 11).

For the parents' School Climate Survey, the variable being tested (listed with its corresponding number from the survey) was as follows:

34. The overall climate or atmosphere at my child's school is positive and helps my

child learn. (School Climate Surveys, 2011, p. 10).

For the school staffs' School Climate Survey, the variable being tested (listed with its corresponding number from the survey) was as follows:

34. The overall climate or atmosphere at my school is positive and helps students

learn. (School Climate Surveys, 2011, p. 12).

For this study, from this point forth the item is referred to as the positive school climate question.

Research Design

This study was an ex post facto research because there was "no direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable" (Kerlinger, 1973, p. 379). It allowed for the discovery of a relationship among the variables. The independent variables in this study are racial and

ethnic concentrations (Blacks, Hispanics, and Whites), ESOL student population, socio-economic status, and the results of the positive school climate question of the public middle schools in Miami-Dade County. These are all pre-existing conditions and cannot be manipulated. The dependent variable in this study is the scores of the middle school students on the FCAT 2.0 Mathematics Test for the 2010-2011 school year. These scores and results have already occurred and cannot be manipulated. Since the variables cannot be manipulated, then causal inferences cannot be made.

In this study, the dependent variable, middle school students' scores on the FCAT 2.0 Mathematics Test, was tested for differences on the independent variables, racial and ethnic concentration, the results of the positive school climate question, the ESOL student population, and the socio-economic status of the students for the 2010-2011 school year. The ex post facto research design "begins with a given effect and seeks the experimental factor that brought it about" (Mouly, 1970, p. 340).

Instruments

For this study, various instruments were used to obtain the necessary data that were analyzed. The instruments were the FCAT 2.0 and M-DCPS' School Climate Survey. The FCAT 2.0 was the instrument that measured the middle school students' academic achievement. This data were collected, graded, and made available by Florida Department of Education at the end of the 2010 – 2011 school year.

The FCAT 2.0 scores are categorized by levels one through five. In order to obtain a passing score, the students must score at least a level three or higher on the FCAT Mathematics Equivalent Scale Scores (Table 3) and on the FCAT Mathematics Equivalent Scores (Developmental Scale Scores; Table 4). For this school year, two sets

of scores were used because they are transitioning from the Equivalent Scale Scores

(Table 3) of the original FCAT to the Developmental Scale Scores of the FCAT 2.0

(Table 4; Florida Department of Education, 2011d). If the students score a level 1 or 2,

they are considered as having failed the FCAT 2.0 Mathematics Test.

Table 3

FCAT 2.0 Mathematics Equivalent Scale Score for 6th, 7th, and 8th grades

Grade	Level 1	Level 2	Level 3	Level 4	Level 5
6	100 – 282	283 – 314	315 – 353	354 – 390	391 - 500
7	100 – 274	275 – 305	306 – 343	344 – 378	379 - 500
8	100 – 279	280 – 309	310 – 346	347 – 370	371 – 500

Table 4

FCAT 2.0 Mathematics Equivalent Scores (Developmental Scale) for 6th, 7th, and 8th grade

Grade	Level 1	Level 2	Level 3	Level 4	Level 5
6	770 – 1553	1554 – 1691	1692 – 1859	1860 – 2018	2019 – 2492
7	958 – 1660	1661 – 1785	1786 – 1938	1939 – 2079	2080 – 2572
8	1025 – 1732	1733 – 1850	1851 – 1997	1998 – 2091	2092 - 2605

The Florida Department of Education grades its public middle schools by

awarding "one point for each percent of students who score proficient or higher on the

FCAT and who make annual learning gains" (Florida Department of Education, July

2011). The highest number of points a school may earn is 800, which includes 400 points

from the learning gains components. The performance components include "percent of

full-year-enrolled students scoring at level 3 or higher on FCAT Reading" for 100 points

maximum (Florida Department of Education, July 2011). The same applies for FCAT

Mathematics, FCAT Science, and FCAT Writing, each 100 points maximum. The

learning gains components include "percent of full-year-enrolled students who made

learning gains in reading" and mathematics (100 points maximum for each) and the

"percent of full-year-enrolled students in the lowest performing 25% who made learning

gains in reading" and mathematics (100 points maximum for each; Florida Department of

Education, July 2011). The schools are awarded a grade based on the score earned. An

"A" is considered at least 525 points, a "B" is between 495 and 524 points, a "C" is

between 435 and 494 points, a "D" is between 395 and 434 points, and an "F" is less than

395 points" (Florida Department of Education, July 2011).

The School Climate Survey was the instrument that measured the perceptions of

education from students, parents, and school staff. After responding "strongly agree",

"agree", "undecided/unknown", "disagree", or "strongly disagree" for each item, the

responses to these surveys were collected by teachers and administrators and submitted to

M-DCPS' Department of Research Services. The results were compiled and different

reports were released including by school, by variable, and by entire school district

among many.

Procedures for Data Collection

For this study, the guidelines of Florida International University's (FIU)

Institutional Review Board (IRB) and Responsible Conduct of Research (RCR) were

followed as expected by FIU and M-DCPS. The trainings of IRB and RCR were

completed. Once the researcher's dissertation proposal was defended, the study was

submitted to the IRB, with a Form A1 waiver since no individual human beings

participated in the study. Upon FIU IRB's approval, data were collected.

Florida Department of Education (FLDOE) and M-DCPS have published several

documents analyzing various aspects of the school district. These documents are

available to the public. For this study, FLDOE's *FCAT School Accountability Report* (2010-2011 Edition), FLDOE's *2011 AYP Report* (2010-2011 Edition), and MDCPS' *School Climate Survey Individual Results* (2010-2011 Edition) were used to collect the necessary data.

FLDOE's *School Accountability Report* (2010-2011 Edition) provided data on the percentage of the students passing the FCAT 2.0 Mathematics Test (achievement levels 3 through 5). FLDOE's *2011 AYP Report* (2010-2011 Edition) provided data on the number of students tested by race/ethnicity, Title I students, and English Language Learners by individual middle school. This document further presented information on the individual middle schools such as their FCAT school grade, if they met AYP status, and if they had Title I status. MDCPS' *School Climate Survey Individual Results* (2010-2011 Edition) provided the results of the school climate survey given to randomly selected students and their parents, along with all of the staff at each individual middle school. The survey gathered the perceptions of education at the school for those stakeholders.

Data Analysis

In this study, five research hypotheses regarding the relationship between the FCAT 2.0 Mathematics scores and racial and ethnic concentration of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and school climate for the 2010-2011 school year were tested. Since these research hypotheses are specifying the direction of the correlation, they are all one-tailed research hypotheses (directional). The following research hypotheses were tested:

H1. There is a significant negative relationship between the FCAT 2.0

Mathematics scores and racial and ethnic concentration of public middle

schools in Miami-Dade County when controlling socio-economic status,

ESOL student population, and school climate for the 2010-2011 school year.

H2. There is a significant negative relationship between the FCAT 2.0

Mathematics scores and racial and ethnic concentration when controlling the

ESOL student population of the school.

H3. There is a significant negative relationship between the FCAT 2.0

Mathematics scores and SES.

H4. There is a significant negative relationship between the FCAT 2.0

Mathematics scores and SES when controlling racial and ethnic

concentrations.

H5. There is a significant negative relationship between the FCAT 2.0

Mathematics scores and school climate when controlling racial and ethnic

concentrations.

The research questions and hypotheses were formulated based on the literature

review. The independent variables of racial and ethnic concentrations, socio-economic

status, ESOL student population, and school climate are present in several different

studies and literature as having a relationship to academic achievement. These studies

and literature include Coleman (1966); Berliner and Biddle (1995); Lubienski and

Weitzel (2009); Levin (1998), Williams (1999); Freire (1970); Blazer (2007); Delpit

(1995); Perry et al. (2003); Borman et al. (2004); Cortes, Jr. (2010); Perkins-Gough

(2008); Sweeney (1988); Hoy and Sabo (1998); and Heck (2000). This study's research

questions and hypotheses were designed to search for a relationship between the FCAT 2.0 Mathematics scores, racial and ethnic concentrations, socio-economic status, ESOL student population, and school climate in Miami-Dade County, Florida.

For the primary research question and first hypothesis, since racial and ethnic concentrations have a relation to socio-economic status, ESOL student population, and school climate, these variables were controlled in order to analyze the unique variance between racial and ethnic concentrations and the FCAT 2.0 Mathematics scores. Socio-economic status, ESOL student population, and school climate are interrelated to racial and ethnic concentrations, so the ability to analyze them individually was sought. (Coleman, 1966; Blazer, 2007; Borman et al., 2004)

For the first secondary research question and second hypothesis, since racial and ethnic concentrations can have a relation to ESOL student population, ESOL student population was controlled in order to analyze the unique variance between racial and ethnic concentrations and the FCAT 2.0 Mathematics scores. ESOL student population was interrelated to racial and ethnic concentrations, so the ability to analyze them individually was sought. (Coleman, 1966; Blazer, 2007; Borman et al., 2004)

For the second secondary research question and third hypothesis, a relationship between FCAT 2.0 Mathematics scores and socio-economic status is sought. Socio-economic status was interrelated to academic achievement, so the ability to analyze it was sought. (Levin, 1998; Williams, 1999; Freire, 1970; Delpit, 1995; Cortes, Jr. 2010)

For the third secondary question and fourth hypothesis, since socio-economic status and racial and ethnic concentrations have a relation, racial and ethnic concentrations were controlled in order to analyze the unique variance between socio-

economic status and the FCAT 2.0 Mathematics scores. Socio-economic status was interrelated to racial and ethnic concentrations, so the ability to analyze them individually was sought. (Levin, 1998; Williams, 1999; Freire, 1970; Delpit, 1995; Cortes, Jr. 2010)

For the fourth secondary question and fifth hypothesis, racial and ethnic concentrations were controlled in order to analyze the relationship between school climate and the FCAT 2.0 Mathematics scores. Racial and ethnic concentrations were interrelated to school climate so the ability to analyze them individually was sought. (Perkins-Gough, 2008; Sweeney, 1988; Hoy & Sabo, 1998; Heck, 2000)

Multiple Linear Regression (MLR), also known as General Linear Model (GLM), was used to test the hypotheses. It brought forth if there was a significant relationship between middle school students' mathematics scores on the FCAT 2.0 and racial and ethnic concentration when controlling the socio-economic status, the ESOL student population, and the school climate. "Multiple Linear Regression is a method used to model the linear relationship between a dependent variable and one or more independent variables" (Meko, 2011, p. 1).

Moreover, Multiple Linear Regression provided flexibility and benefits for the purposes of this study. Multiple Linear Regression can be used to test the majority of research hypotheses. Additionally, Multiple Linear Regression "generates an R^2 coefficient that allows the research to account for a significant amount of variance on the criterion variable" (Lindemer, 2006, p. 96).

Furthermore, for the purpose of this study, an alpha level, P_{crit}, of 0.01 was used. Using an alpha level of 0.01 allows the study to be replicated 72% of the time (Newman, McNeil, & Fraas, 2003). Studies using a 0.05 alpha level can only be replicated 50% of

the time. The software that was used to perform the statistical analyses is IBM SPSS

Statistics 20.

The 2010-2011 school year FCAT 2.0 Mathematics results, the dependent

variable, were presented as percentages in FLDOE's *School Accountability Report* (2010-

2011 Edition). These percentages represent the percentages of the students passing the

FCAT 2.0 by obtaining achievement levels 3, 4, and 5. The racial and ethnic

concentration data, an independent variable, was presented in FLDOE's *2011 AYP*

Report (2010-2011 Edition) as the percentages of Black, Hispanic, and White students

that test at each school. The socio-economic status, an independent variable, was

represented by the percentage of Title I students, meaning the percentage of students

receiving free or reduced lunch as presented by FLDOE's *2011 AYP Report* (2010-2011

Edition). The ESOL student population data, an independent variable, was presented as

the percentage of ESOL student population tested at each school in FLDOE's *2011 AYP*

Report (2010-2011 Edition). Lastly, MDCPS' *School Climate Survey Individual Results*

(2010-2011 Edition), an independent variable, presented the data on perceptions of

education of students, parents, and school staff. A percentage represents the total amount

from the answer choices "strongly agree" and "agree" from the item used from the

survey. The item used is referred to as the positive school climate question.

Chapter 3 presented the setting and subjects for the study, the research design,

statistical instruments used, and the procedures for data collection and conducting data

analysis. Next, Chapter 4 presents the relationship between the scores of the FCAT 2.0

Mathematics Test and the racial and ethnic concentrations, the ESOL student population,

socio-economic status, and the results of the positive school climate question. Last,

Chapter 5 summarizes the findings of the study and discusses the implications of the

study for educational policy, theory, and further research.

CHAPTER 4

FINDINGS

The primary purpose of this chapter is to investigate the relationship between the

FCAT 2.0 Mathematics scores of public middle school students in Miami-Dade County,

Florida and the schools' racial and ethnic concentrations (Whites, Blacks, and Hispanics),

ESOL student population, socio-economic status (SES), and school climate for the 2010

– 2011 school year. The chapter includes an analysis of the relationships between the

scores of the FCAT 2.0 Mathematics Test and the racial and ethnic concentrations, the

ESOL student population, socio-economic status, and the results of the positive school

climate question from the School Climate Survey.

The major findings of this study on Miami-Dade County Public Schools were

analyzed in light of current research to help explain if the FCAT 2.0 Mathematics scores

of public middle school students have a relationship with racial and ethnic concentrations

(Whites, Blacks, and Hispanics), ESOL student population, socio-economic status, and

the results of the positive school climate question. Further analysis of the data is found in

Appendix II (Collinearity Statistics, Descriptive Statistics, and Model Summary tables).

Caution must be used when interpreting the results of this study because measuring

educational performance relies on complex and complicated variables such as racial and

ethnic concentration, socio-economic status, and perceptions of education (Moore, 2002).

These variables interact with each other in ways that can challenge expectations and

predictions. Hence, multicollinearity was present in various occasions when testing the

hypotheses.

Multicollinearity occurs when two or more independent variables are highly correlated with each other (Hinton, Brownlow, McMurray, & Cozens, 2004). The presence of multicollinearity makes it difficult to analyze the individual contribution of each independent variable in predicting the dependent variable. If multicollinearity exists, in the Coefficient Table, under the column of Collinearity Statistics, the Tolerance results would be less than 0.10 and the VIF results would be greater than ten. In order to analyze the individual contribution of each independent variable on the dependent variable, one or more of the highly correlated variables were removed each time multicollinearity was present.

Relationship between FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration when controlling Socio-Economic Status, ESOL Student Population and School Climate

Blacks, SES, ESOL and School Climate

The study was driven by a primary research question which tested the relationship between the FCAT 2.0 Mathematics scores and racial and ethnic concentration (Blacks) of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and school climate for the 2010 – 2011 school year. For this particular test, there was a high correlation between the White student population, the Black student population, and the Hispanic student population; thus, the White student population and the Hispanic student population were left out in order to eliminate multicollinearity (Appendix II, Table 53). On the other hand, the independent variables of the White student population and the Hispanic student population were only kept in for

the Pearson *r* and Sig. Table (Table 5) so that the correlation of those variables would be known.

Correlations of the independent variables with the dependent variable were also calculated. Pearson correlation, *r*, measures how much the scores of the two variables vary together, and then contrasts it with how much they vary individually (Hinton et al., 2004). It describes the linear relationship between two variables. The *r* represents a value between negative one and positive one. A strong correlation has a *r* that measures between 0.7 and 1, while a moderate correlation has a *r* that measures between 0.3 and 0.7, and a weak correlation has a *r* that measures between 0 and 0.3 (DiMaria, 2000). The closer the value is to zero, the weaker the correlation. A weak correlation represents scattered points and a lot of error while a strong correlation represents the majority of points lying on a regression line and a small amount of error. Additionally, a positive correlation is when both values are increasing while a negative correlation is when one value is increasing and the other is decreasing. (Hinton et al.)

As shown in Table 5, the correlations have different strengths. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation because the *r* is between -0.3 and -0.7. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the *r* is between 0.3

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and 0.7. The White student population has a 0.668 correlation with the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the r is between 0.3 and 0.7. The ESOL student population has a -0.134 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a weak correlation since the r is is between 0 and -0.3 .It is a negative correlation meaning that as the ESOL student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The Economically Disadvantaged (SES) student population has a -0.830 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since r is between -0.7 and -1 but, it is also a negative correlation meaning that as the Economically Disadvantaged (SES) increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The parents agreeing that the school climate is positive and helps students learn has a 0.595 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as more parents agree that the school climate is positive and helps students learn, the higher the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation because the r is between 0.3 and 0.7. The students agreeing that the school climate is positive and helps them learn has a 0.741 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since the r is between 0.7 and 1 but, it is also a positive correlation meaning that as more students agree that the school climate is positive and helps them learn, the higher percentage of the students passing the FCAT 2.0

Mathematics Test. The staff agreeing that the school climate is positive and helps

students learn has a 0.605 correlation with the percentage of the students passing the

FCAT 2.0 Mathematics Test. It is a moderate correlation since the r is between 0.3 and

0.7 but it is also a positive correlation meaning that the more staff agree that the school

climate is positive and helps students learn increased, the students higher the percentage

of the students passing the FCAT 2.0 Mathematics Test.

Table 5

Pearson r and Sig. (1-tailed) - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks, Whites, Hispanics) when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

	Total %[a]	Passing FCAT Math	Blacks	Hispanics	Whites	ESOL	Economically Disadvantaged (SES)	School Climate (Parent)	School Climate (Student)	School Climate (Staff)
Pearson Correlation	Passing FCAT Math	1.000	-.597	.429	.668	-.134	-.830	.595	.741	.605
	Blacks	-.597	1.000	-.959	-.351	-.328	.407	-.546	-.511	-.478
	Hispanics	.429	-.959	1.000	.073	.472	-.161	.464	.410	.417
	Whites	.668	-.351	.073	1.000	-.394	-.891	.376	.417	.289
	ESOL	-.134	-.328	.472	-.394	1.000	.435	.085	.062	-.027
	Economically Disadvantaged (SES)	-.830	.407	-.161	-.891	.435	1.000	-.429	-.529	-.429
	School Climate (Parent)	.595	-.546	.464	.376	.085	-.429	1.000	.624	.474
	School Climate (Student)	.741	-.511	.410	.417	.062	-.529	.624	1.000	.554
	School Climate (Staff)	.605	-.478	.417	.289	-.027	-.429	.474	.554	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.156	.000	.000	.000	.000
	Blacks	.000	.	.000	.003	.006	.001	.000	.000	.000
	Hispanics	.000	.000	.	.290	.000	.111	.000	.001	.001
	Whites	.000	.003	.290	.	.001	.000	.002	.001	.013
	ESOL	.156	.006	.000	.001	.	.000	.263	.324	.419
	Economically Disadvantaged (SES)	.000	.001	.111	.000	.000	.	.000	.000	.000
	School Climate (Parent)	.000	.000	.000	.002	.263	.000	.	.000	.000
	School Climate (Student)	.000	.000	.001	.001	.324	.000	.000	.	.000
	School Climate (Staff)	.000	.000	.001	.013	.419	.000	.000	.000	

For the primary research question, the independent variables with the strongest correlations to the dependent variable were the Economically Disadvantaged (SES) students and the results of the positive school climate question on the student survey. The independent variable with the weakest correlation to the dependent variable was the ESOL student population. The independent variables with moderate correlations were the Black student population, the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, and the results of the positive school climate question on the staff survey. The independent variables with a negative relationship with the dependent variable were the Black student population, the ESOL student population and the Economically Disadvantaged (SES) student population, meaning that as the value of these variables increased, a lower percentage of the students pass the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, the results of the positive school climate question on the student survey, and the results of the positive school climate question on the staff survey, meaning that as the value of these variables increased , a higher percentage of students pass the FCAT 2.0 Mathematics Test.

Table 5 shows the results of the research hypothesis (H1). The P_{crit} established for this study is 0.01. The P_{calc} for the Black student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in

Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Hispanic student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the White student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the ESOL student population is 0.156, making it not statistically significant since 0.156 is not less than 0.01 so the research hypothesis (H1) is rejected, meaning no significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Economically Disadvantaged (SES) student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student

population, and the school climate for the 2010 – 2011 school year. The P_{calc} for parents

agreeing that the school climate is positive and helps students learn is $p < 0.001$, making

it statistically significant since it is less than 0.01 and not rejecting the research

hypothesis (H1), meaning a significant negative relationship exists between the FCAT

2.0 mathematics scores and the racial and ethnic concentrations of public middle schools

in Miami-Dade County when controlling socio-economic status, ESOL student

population, and the school climate for the 2010 – 2011 school year. The P_{calc} for students

agreeing that the school climate is positive and helps them learn is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H1), meaning a significant negative relationship exists between the FCAT 2.0

mathematics scores and the racial and ethnic concentrations of public middle schools in

Miami-Dade County when controlling socio-economic status, ESOL student population,

and the school climate for the 2010 – 2011 school year. The P_{calc} for staff agreeing that

the school climate is positive and helps students learn is $p < 0.001$, making it statistically

significant since it is less than 0.01 and not rejecting the research hypothesis (H1),

meaning a significant negative relationship exists between the FCAT 2.0 mathematics

scores and the racial and ethnic concentrations of public middle schools in Miami-Dade

County when controlling socio-economic status, ESOL student population, and the

school climate for the 2010 – 2011 school year.

  For each research hypothesis not rejected, a Type I Error has been made if any

research hypothesis ends up being incorrect. A one percent chance exists of that

happening. Moreover, for the primary research question, there was only one independent

variable that was not statistically significant, the percentage of the ESOL student population.

As shown in Table 6, there are two models because Model 1 is controlling the ESOL student population, socio-economic status, and school climate while Model 2 incorporates all the independent variables. Table 6 shows the Sum of Squares (SS) Total for both models is 14379.222, which represents all the variance in the data. It measures how dispersed the data points are, in other words all the variance in the data. For Model 1, the Sum of Squares (SS) Regression is 12236.586, which is the unique variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 12456.304. SS Regression is also known as SS Between, SS Model, and SS Explained. For Model 1, the Sum of Squares (SS) Residual is 2142.635, which is the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 2076.892. SS Residual is also known as SS Unexplained, SS Error, SS Within, Group Variance, and Error Variance. For Model 1, Degrees of Freedom, df, for Regression is five and for Residual is 51, for a total of 56 df. For Model 2, Degrees of Freedom, df, for Regression is six and for Residual is 50, for a total of 56 df. The Mean Square is the variance in the ANOVA. It calculates the variance estimates by dividing the Sum of Squares by respective Degrees of Freedom. For Model 1, for Regression, it is 2447.317 and for Residual, it is 42.012. For Model 2, for Regression, it is 2050.388 and for Residual, it is 41.538. For Model 1, the F value is 58.252 which is the test statistic ($TS_{calc\ or}F_{calc}$), testing the significance of R, R^2, and of the entire regression model. For Model 2, the F value is 49.362. Calculated by dividing the Regression Mean Square by the Residual Mean Square, the F value provides the ratio between the two variances. For the Significant column, P_{calc}, Model 1

is statistically significant because *p* < 0.001, hence it is less than 0.01, as well as in Model

2, thus it does not reject the research hypothesis (H1), meaning a significant negative

relationship exists between the FCAT 2.0 Mathematics scores and racial and ethnic

concentrations when controlling socio-economic status, ESOL student population, and

school climate of public middle schools in Miami-Dade County for the 2010 – 2011

school year (Hinton et al, 2004). Hence, it indicates the presence of a negative

relationship in Model 1 and Model 2 between the independent variables and dependent

variable. The independent variables may have overlapped in creating this relationship

with the dependent variables.

Table 6

*ANOVA[a] - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic
Concentration (Blacks) when controlling Economically Disadvantaged (SES), ESOL
Student Population, and School Climate*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12236.586	5	2447.317	58.252	.000[b]
	Residual	2142.635	51	42.012		
	Total	14379.222	56			
2	Regression	12302.330	6	2050.388	49.362	.000[c]
	Residual	2076.892	50	41.538		
	Total	14379.222	56			

Note a. Dependent Variable: % Passing FCAT Math
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population,
% School Climate (Staff), % School Climate (Student), % of Economically
Disadvantaged (SES)
c. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population,
% School Climate (Staff), % of Black student population, % School Climate (Student), %
of Economically Disadvantaged (SES)

Table 7 shows how much each variable contributes to the research question for

this particular test. The Standardized Coefficients column presents the contribution that

the independent variable makes to the model. The Beta is the average amount that the

dependent variable increases when the independent variable increases by one standard deviation and all other independent variables are held constant. According to the Beta results, the strongest contribution on the passing of the FCAT 2.0 Mathematics Test comes from the students that are Economically Disadvantaged (SES), -0.657 in Model 1 and from the students that are Economically Disadvantaged (SES), -0.610 in Model 2.

For the Sig. column in Table 7, if the value is < 0.01, the variable makes a significant contribution to the prediction of the dependent variable. If the value is > 0.01, the variable does not make a significant contribution to the prediction of the dependent variable. For Model 1, the independent variables that make a significant contribution to the dependent variable were the Economically Disadvantaged (SES) student population ($p < 0.001$) and the results of the positive school climate question on the student survey (0.002). For Model 2, the independent variables that make a significant contribution to the dependent variable were the Economically Disadvantaged (SES) student population ($p < 0.001$) and the results of the positive school climate question on the student survey (0.002). For Model 1, the independent variables that do not make a significant contribution to the dependent variable were the ESOL student population (0.047), the results of the positive school climate question on the parent survey (0.347), and the results of the positive school climate question on the staff survey (0.029). For Model 2, the independent variables not making a significant contribution to the dependent variable were the Black student population (0.214), the ESOL student population (0.299), the results of the positive school climate question on the parent survey (0.535), and the results of the positive school climate question on the staff survey (0.063; Hinton et al., 2004).

Table 7

Coefficients - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks) when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Model		Standardized Coefficients	t	Sig.
	Total %	Beta		
1	(Constant)		6.615	.000
	ESOL	.134	2.035	.047
	Economically Disadvantaged (SES)	-.657	-8.293	.000
	School Climate (Parent)	.068	.950	.347
	School Climate (Student)	.259	3.211	.002
	School Climate (Staff)	.151	2.247	.029
2	(Constant)		6.770	.000
	Blacks	-.102	-1.258	.214
	ESOL	.082	1.049	.299
	Economically Disadvantaged (SES)	-.610	-7.007	.000
	School Climate (Parent)	.046	.624	.535
	School Climate (Student)	.260	3.240	.002
	School Climate (Staff)	.131	1.904	.063

Moreover, Table 8's Part column under Correlations, when the values are squared, it indicates the contribution each independent variable has to the total R^2 (Pallant, 2010). These values also represent the total variance each independent variable explains in the dependent variable and how much the R^2 drops when it is not included in the model. In Model 1, the ESOL student population contributes 1.21% to the dependent variable, meaning it also explains 1.21% of the unique variance in the dependent variable and will cause the R^2 to drop 1.21% if it is not included in the model. The Economically Disadvantaged (SES) student population contributes 20.1% to the dependent variable, meaning it also explains 20.1% of the unique variance in the dependent variable and will cause the R^2 to drop 20.1% if it is not included in the model. The parents agreeing that the school climate is positive and help students learn contributes 0.26% to the dependent

variable, meaning it also explains 0.26% of the unique variance in the dependent variable and will cause the R^2 to drop 0.26% if it is not included in the model. The students agreeing that the school climate is positive and helps them learn contributes 3.03% to the dependent variable, meaning it also explains 3.03% of the unique variance in the dependent variable and will cause the R^2 to drop 3.03% if it is not included in the model. The staff agreeing that the school climate is positive and helps students learn contributes 1.46% to the dependent variable, meaning it also explains 1.46% of the unique variance in the dependent variable and will cause the R^2 to drop 1.46% if it is not included in the model. On the other hand, for Model 2, the Black student population contributes 0.46% to the dependent variable, meaning it also explains 0.46% of variance in the dependent variable and will cause the R^2 to drop 0.46% if it is not included in the model. The ESOL student population contributes 0.31% to the dependent variable, meaning it also explains 0.31% of variance in the dependent variable and will cause the R^2 to drop 0.31% if it is not included in the model. The Economically Disadvantaged (SES) student population contributes 14.2% to the dependent variable, meaning it also explains 14.2% of variance in the dependent variable and will cause the R^2 to drop 14.2% if it is not included in the model. The parents agreeing that the school climate is positive and help students learn contributes 0.12% to the dependent variable, meaning it also explains 0.12% of variance in the dependent variable and will cause the R^2 to drop 0.12% if it is not included in the model. The students agreeing that the school climate is positive and helps them learn contributes 3.03% to the dependent variable, meaning it also explains 3.03% of variance in the dependent variable and will cause the R^2 to drop 3.03% if it is not included in the model. The staff agreeing that the school climate is positive and helps students learn

contributes 1.04% to the dependent variable, meaning it also explains 1.04% of variance

in the dependent variable and will cause the R^2 to drop 1.04% if it is not included in the

model. The strongest contribution to the dependent variable of the passing of the FCAT

2.0 Mathematics Test comes from the Economically Disadvantaged (SES) students

(20.1%) in Model 1, followed by the Economically Disadvantaged (SES) students

(14.2%) in Model 2. (See Appendix II for the Collinearity Statistics explanation)

Table 8

*Coefficients Continued - Relationship of FCAT 2.0 Mathematics Scores and Racial and
Ethnic Concentration (Blacks) when controlling Economically Disadvantaged (SES),
ESOL Student Population, and School Climate*

Model		Correlations	Collinearity Statistics	
	Total %	Part	Tolerance	VIF
1	(Constant)			
	ESOL	.110	.671	1.490
	Economically Disadvantaged (SES)	-.448	.466	2.147
	School Climate (Parent)	.051	.563	1.777
	School Climate (Student)	.174	.450	2.224
	School Climate (Staff)	.121	.647	1.546
2	(Constant)			
	Blacks	-.068	.436	2.291
	ESOL	.056	.477	2.096
	Economically Disadvantaged (SES)	-.377	.381	2.624
	School Climate (Parent)	.034	.530	1.886
	School Climate (Student)	.174	.450	2.224
	School Climate (Staff)	.102	.612	1.635

Blacks, Whites, ESOL and School Climate

The primary research question was further tested using a combination of different

variables. Due to the presence of multicollinearity, the independent variables of the

Hispanic student population and the Economically Disadvantaged (SES) student

population were removed in order to be able to analyze the individual contribution of

each independent variable to the dependent variable (Appendix II, Table 56). On the other hand, the independent variable of the Hispanic student population was only kept in for the Pearson *r* and Sig. Table (Table 9) so that the correlation of those variables would be known.

As shown in Table 9, the correlations have different strengths. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation because the *r* is between -0.3 and -0.7. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the *r* is between 0.3 and 0.7. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the *r* is between 0.3 and 0.7. The ESOL student population has a -0.134 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a weak correlation since the *r* is between 0 and -0.3 but, it is also a negative correlation meaning that as the ESOL student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The Economically Disadvantaged (SES) student population has a -0.830 correlation with the percentage of the students passing the FCAT

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2.0 Mathematics Test. It is a strong correlation since the r is between -0.7 and -1 but, it is

also a negative correlation meaning that as the Economically Disadvantaged (SES)

increased, the percentage of the students passing the FCAT 2.0 Mathematics Test

decreased. The parents agreeing that the school climate is positive and helps students

learn has a 0.595 correlation with the percentage of the students passing the FCAT 2.0

Mathematics Test. It is a positive correlation meaning that as the parents agreeing that

the school climate is positive and helps students learn increased, the percentage of the

students passing the FCAT 2.0 Mathematics Test also increased. It is a moderate

correlation because the r is between 0.3 and 0.7. The students agreeing that the school

climate is positive and helps them learn has a 0.741 correlation with the percentage of the

students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since the r is

between 0.7 and 1 but, it is also a positive correlation meaning that as the students

agreeing that the school climate is positive and helps them learn increased, the percentage

of the students passing the FCAT 2.0 Mathematics Test also increased. The staff

agreeing that the school climate is positive and helps students learn has a 0.605

correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test.

It is a moderate correlation since the r is between 0.3 and 0.7 but it is also a positive

correlation meaning that as the staff agreeing that the school climate is positive and helps

students learn increased, of the students passing the FCAT 2.0 Mathematics Test also

increased.

Table 9

Pearson r and Sig. (1-tailed) - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks, Whites, Hispanics) when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Total %[a]		Passing FCAT Math	Blacks	Hispanics	Whites	ESOL	Economically Disadvantaged (SES)	School Climate (Parent)	School Climate (Student)	School Climate (Staff)
Pearson Correlation	Passing FCAT Math	1.000	-.597	.429	.668	-.134	-.830	.595	.741	.605
	Blacks	-.597	1.000	-.959	-.351	-.328	.407	-.546	-.511	-.478
	Hispanics	.429	-.959	1.000	.073	.472	-.161	.464	.410	.417
	Whites	.668	-.351	.073	1.000	-.394	-.891	.376	.417	.289
	ESOL	-.134	-.328	.472	-.394	1.000	.435	.085	.062	-.027
	Economically Disadvantaged (SES)	-.830	.407	-.161	-.891	.435	1.000	-.429	-.529	-.429
	School Climate (Parent)	.595	-.546	.464	.376	.085	-.429	1.000	.624	.474
	School Climate (Student)	.741	-.511	.410	.417	.062	-.529	.624	1.000	.554
	School Climate (Staff)	.605	-.478	.417	.289	-.027	-.429	.474	.554	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.156	.000	.000	.000	.000
	Blacks	.000	.	.000	.003	.006	.001	.000	.000	.000
	Hispanics	.000	.000	.	.290	.000	.111	.000	.001	.001
	Whites	.000	.003	.290	.	.001	.000	.002	.001	.013
	ESOL	.156	.006	.000	.001	.	.000	.263	.324	.419
	Economically Disadvantaged (SES)	.000	.001	.111	.000	.000	.	.000	.000	.000
	School Climate (Parent)	.000	.000	.000	.002	.263	.000	.	.000	.000
	School Climate (Student)	.000	.000	.001	.001	.324	.000	.000	.	.000
	School Climate (Staff)	.000	.000	.001	.013	.419	.000	.000	.000	.

Note. [a]*n* = 59.

For the primary research question, the independent variables with the strongest correlations to the dependent variable were the Economically Disadvantaged (SES) students and the results of the positive school climate question on the student survey. The independent variable with the weakest correlation to the dependent variable was the ESOL student population. The independent variables with moderate correlations were the Black student population, the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, and the results of the positive school climate question on the staff survey. The independent variables with a negative relationship with the dependent variable were the Black student population, the ESOL student population and the Economically Disadvantaged (SES) student population, meaning that as the values of these variables increased, a lower percentage of students passed the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, the results of the positive school climate question on the student survey, and the results of the positive school climate question on the staff survey, meaning that as they increased in size, a higher percentage of students passed the FCAT 2.0 Mathematics Test.

Table 9 shows the results of the research hypothesis (H1). The P_{crit} established for this study is 0.01. The P_{calc} for the Black student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and the racial and ethnic concentrations of public middle schools in

Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Hispanic student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the White student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the ESOL student population is 0.156, making it not statistically significant since 0.156 is not less than 0.01 so the research hypothesis (H1) is rejected, meaning no significant negative relationship exists between the FCAT 2.0 Mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Economically Disadvantaged (SES) student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student

population, and the school climate for the 2010 – 2011 school year. The P_{calc} for parents agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for students agreeing that the school climate is positive and helps them learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for staff agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year.

For each research hypothesis not rejected, a Type I Error has been made if any research hypothesis ends up being incorrect. There is a one percent chance of that happening. Moreover, for the primary research question, there was only one independent

variable that was not statistically significant, the percentage of the ESOL student population.

As shown in Table 10, there are two models because Model 1 is controlling the ESOL student population and school climate while Model 2 incorporates all the independent variables. Table 10 demonstrates the Sum of Squares (SS) Total for both models is 14379.222, which represents all the variance in the data. For Model 1, the Sum of Squares (SS) Regression is 9346.894, which is the unique variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 11108.853. For Model 1, the Sum of Squares (SS) Residual is 5032.328, which is the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 3270.369. For Model 1, Degrees of Freedom, *df*, for Regression is four and for Residual is 52, for a total of 56 *df*. For Model 2, Degrees of Freedom, *df*, for Regression is six and for Residual is 50, for a total of 56 *df*. The Mean Square is the variance in the ANOVA. The Mean Square for Model 1's Regression is 2336.723 and for Residual, it is 96.776. The Mean Square for Model 2's Regression is 1851.475 and for Residual, it is 65.407. For Model 1, the *F* value is 24.146 which is the test statistic ($TS_{calc \ or} F_{calc}$), testing the significance of R, R^2, and of the entire regression model. For Model 2, the *F* value is 28.307. For the Significant column, P_{calc}, Model 1 is statistically significant because *p* < 0.001, hence it is less than 0.01, as well as in Model 2, thus it does not reject the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and racial and ethnic concentrations when controlling socio-economic status, ESOL student population, and school climate of public middle schools in Miami-Dade County for the 2010 – 2011 school year (Hinton et al., 2004). Hence, it indicates the

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presence of a negative relationship in Model 1 and Model 2 between the independent

variables and dependent variable. The independent variables may have overlapped in

creating this relationship with the dependent variables.

Table 10

ANOVA - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks, Whites) when controlling ESOL Student Population and School Climate

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9346.894	4	2336.723	24.146	.000[b]
	Residual	5032.328	52	96.776		
	Total	14379.222	56			
2	Regression	11108.853	6	1851.475	28.307	.000[c]
	Residual	3270.369	50	65.407		
	Total	14379.222	56			

Note a. Dependent Variable: % Passing FCAT Math
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % School Climate (Student)
c. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % of Black student population, % School Climate (Student), % of White student population

Table 11 shows how much each variable contributes to the research question for

this particular test. According to the Beta results, the strongest contribution on the

passing of the FCAT 2.0 Mathematics Test comes from the positive school climate

question of the student survey, -0.511 in Model 1 and also from the positive school

climate question of the student survey, .374 in Model 2.

For the Sig. column in Table 11, for Model 1, the independent variable making a

significant contribution to the dependent variable was the results of the positive school

climate question on the student survey ($p < 0.001$). For Model 2, the independent

variables making a significant contribution to the dependent variable were the White

student population (0.001) and the results of the positive school climate question on the

student survey ($p < 0.001$). For Model 1, the independent variable not making a

significant contribution to the dependent variable were the ESOL student population

(0.039), the results of the positive school climate question on the parent survey (0.097),

and the results of the positive school climate question on the staff survey (0.026). For

Model 2, the independent variables not making a significant contribution to the

dependent variable were the Black student population (0.039), the ESOL student

population (0.296), the results of the positive school climate question on the staff survey

(0.047), and the results of the positive school climate question on the parent survey

(0.631; Hinton et al., 2004).

Table 11

*Coefficients - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic
Concentration (Blacks, Whites) when controlling ESOL Student Population and School
Climate*

Model Total %	Standardized Coefficients Beta	t	Sig.
(Constant)		-.302	.764
ESOL	-.175	-2.113	.039
1 School Climate (Parent)	.182	1.690	.097
School Climate (Student)	.511	4.504	.000
School Climate (Staff)	.232	2.294	.026
(Constant)		1.915	.061
Blacks	-.212	-2.125	.039
Whites	.333	3.597	.001
2 ESOL	-.094	-1.056	.296
School Climate (Parent)	.045	.484	.631
School Climate (Student)	.374	3.862	.000
School Climate (Staff)	.177	2.039	.047

Moreover, in Table 12's Part column under Correlations, in Model 1, after

squaring the values, the ESOL student population contributes 2.99 % to the dependent

variable, meaning it also explains 2.99% of the unique variance in the dependent variable and will cause the R^2 to drop 2.99% if it is not included in the model. The parents agreeing that the school climate is positive and help students learn contributes 1.93% to the dependent variable, meaning it also explains 1.93% of the unique variance in the dependent variable and will cause the R^2 to drop 1.93% if it is not included in the model. The students agreeing that the school climate is positive and helps them learn contributes 13.69% to the dependent variable, meaning it also explains 13.69% of the unique variance in the dependent variable and will cause the R^2 to drop 13.69% if it is not included in the model. The staff agreeing that the school climate is positive and helps students learn contributes 3.53% to the dependent variable, meaning it also explains 3.53% of the unique variance in the dependent variable and will cause the R^2 to drop 3.53% if it is not included in the model. On the other hand, for Model 2, the Black student population contributes 2.04% to the dependent variable, meaning it also explains 2.04% of variance in the dependent variable and will cause the R^2 to drop 2.04% if it is not included in the model. The White student population contributes 5.90% to the dependent variable, meaning it also explains 5.90% of variance in the dependent variable and will cause the R^2 to drop 5.90% if it is not included in the model. The ESOL student population contributes 0.50% to the dependent variable, meaning it also explains 0.50% of variance in the dependent variable and will cause the R^2 to drop 0.50% if it is not included in the model. The parents agreeing that the school climate is positive and help students learn contributes 0.11% to the dependent variable, meaning it also explains 0.11% of variance in the dependent variable and will cause the R^2 to drop 0.11% if it is not included in the model. The students agreeing that the school climate is positive and

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helps them learn contributes 6.76% to the dependent variable, meaning it also explains

6.76% of variance in the dependent variable and will cause the R^2 to drop 6.76% if it is

not included in the model. The staff agreeing that the school climate is positive and helps

students learn contributes 1.88% to the dependent variable, meaning it also explains

1.88% of variance in the dependent variable and will cause the R^2 to drop 1.88% if it is

not included in the model. The strongest contribution to the dependent variable of the

passing of the FCAT 2.0 Mathematics Test comes from the students agreeing that the

school climate is positive and helps them learn (13.69%), followed by the students

agreeing that the school climate is positive and helps them learn (6.76%) in Model 2.

(See Appendix II for the Collinearity Statistics explanation)

Table 12

Coefficients Continued - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks, Whites) when controlling ESOL Student Population and School Climate

Model		Correlations	Collinearity Statistics	
	Total %	Part	Tolerance	VIF
1	(Constant)			
	ESOL	-.173	.985	1.015
	School Climate (Parent)	.139	.584	1.713
	School Climate (Student)	.370	.524	1.909
	School Climate (Staff)	.188	.661	1.514
2	(Constant)			
	Blacks	-.068	.436	2.291
	Whites	.243	.532	1.880
	ESOL	-.071	.569	1.757
	School Climate (Parent)	.033	.527	1.898
	School Climate (Student)	.260	.484	2.066
	School Climate (Staff)	.137	.606	1.651

Whites, Hispanics, ESOL and School Climate

The primary research question was further tested using a combination of different variables. Due to the presence of multicollinearity, the independent variables of the Black student population and the Economically Disadvantaged (SES) student population were removed in order to be able to analyze the individual contribution of each independent variable to the dependent variable (Appendix II, Table 59). On the other hand, the independent variables of the Black student population and the Economically Disadvantaged (SES) student population were only kept for the Pearson r and Sig. Table (Table 13) so that the correlation of those variables would be known.

As shown in Table 13, the correlations have different strengths. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation because the r is between -0.3 and -0.7. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the r is between 0.3 and 0.7. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the r is between 0.3 and 0.7. The ESOL student population has a -0.134

correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a weak correlation since the r is between 0 and -0.3 but, it is also a negative correlation meaning that as the ESOL student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The Economically Disadvantaged (SES) student population has a -0.830 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since the r is between -0.7 and -1 but, it is also a negative correlation meaning that as the Economically Disadvantaged (SES) increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The parents agreeing that the school climate is positive and helps students learn has a 0.595 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the parents agreeing that the school climate is positive and helps students learn increased, the percentage of the students passing the FCAT 2.0 Mathematics Test also increased. It is a moderate correlation because the r is between 0.3 and 0.7. The students agreeing that the school climate is positive and helps them learn has a 0.741 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since the r is between 0.7 and 1 but, it is also a positive correlation meaning that as the students agreeing that the school climate is positive and helps them learn increased, the percentage of the students passing the FCAT 2.0 Mathematics Test also increased. The staff agreeing that the school climate is positive and helps students learn has a 0.605 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the r is between 0.3 and 0.7 but it is also a positive correlation meaning that as the staff agreeing that the school climate is

positive and helps students learn increased, of the students passing the FCAT 2.0

Mathematics Test also increased.

Table 13

Pearson r and Sig. (1-tailed) - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Total %[a]		Passing FCAT Math	Blacks	Hispanics	Whites	ESOL	Economically Disadvantaged (SES)	School Climate (Parent)	School Climate (Student)	School Climate (Staff)
Pearson Correlation	Passing FCAT Math	1.000	-.597	.429	.668	-.134	-.830	.595	.741	.605
	Blacks	-.597	1.000	-.959	-.351	-.328	.407	-.546	-.511	-.478
	Hispanics	.429	-.959	1.000	.073	.472	-.161	.464	.410	.417
	Whites	.668	-.351	.073	1.000	-.394	-.891	.376	.417	.289
	ESOL	-.134	-.328	.472	-.394	1.000	.435	.085	.062	-.027
	Economically Disadvantaged (SES)	-.830	.407	-.161	-.891	.435	1.000	-.429	-.529	-.429
	School Climate (Parent)	.595	-.546	.464	.376	.085	-.429	1.000	.624	.474
	School Climate (Student)	.741	-.511	.410	.417	.062	-.529	.624	1.000	.554
	School Climate (Staff)	.605	-.478	.417	.289	-.027	-.429	.474	.554	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.156	.000	.000	.000	.000
	Blacks	.000	.	.000	.003	.006	.001	.000	.000	.000
	Hispanics	.000	.000	.	.290	.000	.111	.000	.001	.001
	Whites	.000	.003	.290	.	.001	.000	.002	.001	.013
	ESOL	.156	.006	.000	.001	.	.000	.263	.324	.419
	Economically Disadvantaged (SES)	.000	.001	.111	.000	.000	.	.000	.000	.000
	School Climate (Parent)	.000	.000	.000	.002	.263	.000	.	.000	.000
	School Climate (Student)	.000	.000	.001	.001	.324	.000	.000	.	.000
	School Climate (Staff)	.000	.000	.001	.013	.419	.000	.000	.000	.

Note. [a]*n* = 59.

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For the primary research question, the independent variables with the strongest correlations to the dependent variable were the Economically Disadvantaged (SES) student population and the results of the positive school climate question on the student survey. The independent variable with the weakest correlation to the dependent variable was the ESOL student population. The independent variables with moderate correlations were the Black student population, the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, and the results of the positive school climate question on the staff survey. The independent variables with a negative relationship with the dependent variable were the Black student population, the ESOL student population and the Economically Disadvantaged (SES) student population, meaning that as the value of these variables increased, a lower percentage of students passed the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, the results of the positive school climate question on the student survey, and the results of the positive school climate question on the staff survey, meaning that as value of these variables increased, a higher percentage of students passed the FCAT 2.0 Mathematics Test.

Table 13 shows the results of the research hypothesis (H1). The P_{crit} established for this study is 0.01. The P_{calc} for the Black student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in

Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Hispanic student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the White student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the ESOL student population is 0.156, making it not statistically significant since 0.156 is not less than 0.01 so the research hypothesis (H1) is rejected, meaning no significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Economically Disadvantaged (SES) student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student

population, and the school climate for the 2010 – 2011 school year. The P_{calc} for parents

agreeing that the school climate is positive and helps students learn is $p < 0.001$, making

it statistically significant since it is less than 0.01 and not rejecting the research

hypothesis (H1), meaning a significant negative relationship exists between the FCAT

2.0 mathematics scores and the racial and ethnic concentrations of public middle schools

in Miami-Dade County when controlling socio-economic status, ESOL student

population, and the school climate for the 2010 – 2011 school year. The P_{calc} for students

agreeing that the school climate is positive and helps them learn is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H1), meaning a significant negative relationship exists between the FCAT 2.0

mathematics scores and the racial and ethnic concentrations of public middle schools in

Miami-Dade County when controlling socio-economic status, ESOL student population,

and the school climate for the 2010 – 2011 school year. The P_{calc} for staff agreeing that

the school climate is positive and helps students learn is $p < 0.001$, making it statistically

significant since it is less than 0.01 and not rejecting the research hypothesis (H1),

meaning a significant negative relationship exists between the FCAT 2.0 mathematics

scores and the racial and ethnic concentrations of public middle schools in Miami-Dade

County when controlling socio-economic status, ESOL student population, and the

school climate for the 2010 – 2011 school year.

For each research hypothesis not rejected, a Type I Error has been made if any

research hypothesis ends up being incorrect. There was a one percent chance of that

happening. Moreover, for the primary research question, there was only one independent

variable that was not statistically significant, the percentage of the ESOL student population.

As shown in Table 14, the Sum of Squares (SS) Total for both models is 14379.222, which represents all the variance in the data. For Model 1, the Sum of Squares (SS) Regression is 9346.894, which is the unique variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 11096.910. For Model 1, the Sum of Squares (SS) Residual is 5032.328, which is the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 3282.312. For Model 1, Degrees of Freedom, df, for Regression is four and for Residual is 52, f or a total of 56 df. For Model 2, Degrees of Freedom, df, for Regression is six and for Residual is 50, for a total of 56 df. The Mean Square is the variance in the ANOVA. The Mean Square for Model 1's Regression is 2336.723 and for Residual, it is 96.776. The Mean Square for Model 2's Regression is 1849.485 and for Residual, it is 65.646. For Model 1, the F value is 24.146 which is the test statistic ($TS_{calc\ or}\ F_{calc}$), testing the significance of R, R^2, and of the entire regression model. For Model 2, the F value is 28.174. For the Significant column, P_{calc}, Model 1 is statistically significant because $p < 0.001$ hence it is less than 0.01, as well as Model 2, thus it does not reject the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and racial and ethnic concentrations when controlling socio-economic status, ESOL student population, and school climate of public middle schools in Miami-Dade County for the 2010 – 2011 school year (Hinton et al., 2004). Hence, it indicates the presence of a negative relationship in Model 1 and Model 2 between the independent variables and

dependent variable. The independent variables may have overlapped in creating this

relationship with the dependent variables.

Table 14

ANOVA - Relationship of Racial and Ethnic Concentration (Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population and School Climate

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	9346.894	4	2336.723	24.146	.000[b]
1	Residual	5032.328	52	96.776		
	Total	14379.222	56			
	Regression	11096.910	6	1849.485	28.174	.000[c]
2	Residual	3282.312	50	65.646		
	Total	14379.222	56			

Note a. Dependent Variable: % Passing FCAT Math
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % School Climate (Student)
c. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % of Hispanic student population, % School Climate (Student), % of White student population

Table 15 shows how much each variable contributes to the research question for

this particular test. According to the Beta results, the strongest contribution on the

passing of the FCAT 2.0 Mathematics Test comes from the positive school climate

question of the student survey, -0.511 in Model 1 and also from the White student

population, .391 in Model 2.

For the Sig. column in Table 15, for Model 1, the independent variable making a

significant contribution to the dependent variable was the results of the positive school

climate question on the student survey ($p < 0.001$). For Model 2, the independent

variables making a significant contribution to the dependent variable were the White

student population ($p < 0.001$) and the results of the positive school climate question on

the student survey ($p < 0.001$). For Model 1, the independent variable not making a

significant contribution to the dependent variable were the ESOL student population

(0.039), the results of the positive school climate question on the staff survey (0.026), and

the results of the positive school climate question on the parent survey (0.097). For

Model 2, the independent variables not making a significant contribution to the

dependent variable are the Hispanic student population (0.043), the ESOL student

population (0.301), the results of the positive school climate question on the staff survey

(0.046), and the results of the positive school climate question on the parent survey

(0.619; Hinton et al., 2004).

Table 15

Coefficients - Relationship of Racial and Ethnic Concentration (Whites, Hispanics) and
FCAT 2.0 Mathematics Scores when controlling ESOL Student Population and School
Climate

Model		Standardized Coefficients	t	Sig.
	Total %	Beta		
1	(Constant)		-.302	.764
	ESOL	-.175	-2.113	.039
	School Climate (Parent)	.182	1.690	.097
	School Climate (Student)	.511	4.504	.000
	School Climate (Staff)	.232	2.294	.026
2	(Constant)		1.276	.208
	Hispanics	.194	2.078	.043
	Whites	.391	4.533	.000
	ESOL	-.094	-1.045	.301
	School Climate (Parent)	.047	.500	.619
	School Climate (Student)	.377	3.881	.000
	School Climate (Staff)	.178	2.050	.046

Moreover, in Table 16's Part column under Correlations, in Model 1, after

squaring the values, the ESOL student population contributes 2.99 % to the dependent

variable, meaning it also explains 2.99% of the unique variance in the dependent variable

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and will cause the R^2 to drop 2.99% if it is not included in the model. The parents

agreeing that the school climate is positive and help students learn contributes 1.93% to

the dependent variable, meaning it also explains 1.93% of the unique variance in the

dependent variable and will cause the R^2 to drop 1.93% if it is not included in the model.

The students agreeing that the school climate is positive and helps them learn contributes

13.69% to the dependent variable, meaning it also explains 13.69% of the unique

variance in the dependent variable and will cause the R^2 to drop 13.69% if it is not

included in the model. The staff agreeing that the school climate is positive and helps

students learn contributes 3.53% to the dependent variable, meaning it also explains

3.53% of the unique variance in the dependent variable and will cause the R^2 to drop

3.53% if it is not included in the model. On the other hand, for Model 2, the Hispanic

student population contributes 1.96% to the dependent variable, meaning it also explains

1.96% of variance in the dependent variable and will cause the R^2 to drop 1.96% if it is

not included in the model. The White student population contributes 9.36% to the

dependent variable, meaning it also explains 9.36% of variance in the dependent variable

and will cause the R^2 to drop 9.36% if it is not included in the model. The ESOL student

population contributes 0.50% to the dependent variable, meaning it also explains 0.50%

of variance in the dependent variable and will cause the R^2 to drop 0.50% if it is not

included in the model. The parents agreeing that the school climate is positive and help

students learn contributes 0.12% to the dependent variable, meaning it also explains

0.12% of variance in the dependent variable and will cause the R^2 to drop 0.12% if it is

not included in the model. The students agreeing that the school climate is positive and

helps them learn contributes 6.86% to the dependent variable, meaning it also explains

6.86% of variance in the dependent variable and will cause the R^2 to drop 6.86% if it is

not included in the model. The staff agreeing that the school climate is positive and helps

students learn contributes 1.90% to the dependent variable, meaning it also explains

1.90% of variance in the dependent variable and will cause the R^2 to drop 1.90% if it is

not included in the model. The strongest contribution to the dependent variable of the

passing of the FCAT 2.0 Mathematics Test comes from the students agreeing that the

school climate is positive and helps them learn (13.69%), followed by the White student

population (9.36%) in Model 2. (See Appendix II for the Collinearity Statistics

explanation)

Table 16

Coefficients Continued - Relationship of Racial and Ethnic Concentration (Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population and School Climate

Model		Correlations	Collinearity Statistics	
	Total %	Part	Tolerance	VIF
1	(Constant)			
	ESOL	-.173	.985	1.015
	School Climate (Parent)	.139	.584	1.713
	School Climate (Student)	.370	.524	1.909
	School Climate (Staff)	.188	.661	1.514
2	(Constant)			
	Hispanics	.140	.523	1.913
	Whites	.306	.614	1.628
	ESOL	-.071	.565	1.771
	School Climate (Parent)	.034	.528	1.895
	School Climate (Student)	.262	.485	2.064
	School Climate (Staff)	.138	.606	1.651

Hispanics, ESOL and School Climate

The primary research question was further tested using a combination of different

variables. Due to the presence of multicollinearity, the independent variables of the

Black student population, the White student population, and the Economically

Disadvantaged (SES) student population were removed in order to be able to analyze the

individual contribution of each independent variable to the dependent variable (Appendix

II, Table 62). On the other hand, the independent variables of the Black student

population, the White student population, and the Economically Disadvantaged (SES)

student population were only kept for the Pearson r and Sig. Table (Table 17) so that the

correlation of those variables would be known.

As shown in Table 17, the correlations have different strengths. The Black

student population has a -0.597 correlation with the percentage of the students passing the

FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black

student population increased, the percentage of the students passing the FCAT 2.0

Mathematics Test decreased. It is a moderate correlation because the r is between -0.3

and -0.7. The Hispanic student population has a 0.429 correlation with the percentage of

the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning

that as the Hispanic student population increased, the percentage of the students passing

the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the r is

between 0.3 and 0.7. The White student population has a 0.668 correlation with the

percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive

correlation meaning that as the White student population increased, the percentage of the

students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation

because the r is between 0.3 and 0.7. The ESOL student population has a -0.134

correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test.

It is a weak correlation since the r is between 0 and -0.3 but, it is also a negative

correlation meaning that as the ESOL student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The Economically Disadvantaged (SES) student population has a -0.830 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since the r is -0.7 and -1 but, it is also a negative correlation meaning that as the Economically Disadvantaged (SES) increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The parents agreeing that the school climate is positive and helps students learn has a 0.595 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the parents agreeing that the school climate is positive and helps students learn increased, the percentage of the students passing the FCAT 2.0 Mathematics Test also increased. It is a moderate correlation because the r is between 0.3 and 0.7. The students agreeing that the school climate is positive and helps them learn has a 0.741 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since the r is between 0.7 and 1 but, it is also a positive correlation meaning that as the students agreeing that the school climate is positive and helps them learn increased, the percentage of the students passing the FCAT 2.0 Mathematics Test also increased. The staff agreeing that the school climate is positive and helps students learn has a 0.605 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the r is between 0.3 and 0.7 but it is also a positive correlation meaning that as the staff agreeing that the school climate is positive and helps students learn increased, of the students passing the FCAT 2.0 Mathematics Test also increased.

Table 17

Pearson r and Sig. (1-tailed) - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

	Total %[a]	Passing FCAT Math	Blacks	Hispanics	Whites	ESOL	Economically Disadvantaged (SES)	School Climate (Parent)	School Climate (Student)	School Climate (Staff)
Pearson Correlation	Passing FCAT Math	1.000	-.597	.429	.668	-.134	-.830	.595	.741	.605
	Blacks	-.597	1.000	-.959	-.351	-.328	.407	-.546	-.511	-.478
	Hispanics	.429	-.959	1.000	.073	.472	-.161	.464	.410	.417
	Whites	.668	-.351	.073	1.000	-.394	-.891	.376	.417	.289
	ESOL	-.134	-.328	.472	-.394	1.000	.435	.085	.062	-.027
	Economically Disadvantaged (SES)	-.830	.407	-.161	-.891	.435	1.000	-.429	-.529	-.429
	School Climate (Parent)	.595	-.546	.464	.376	.085	-.429	1.000	.624	.474
	School Climate (Student)	.741	-.511	.410	.417	.062	-.529	.624	1.000	.554
	School Climate (Staff)	.605	-.478	.417	.289	-.027	-.429	.474	.554	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.156	.000	.000	.000	.000
	Blacks	.000	.	.000	.003	.006	.001	.000	.000	.000
	Hispanics	.000	.000	.	.290	.000	.111	.000	.001	.001
	Whites	.000	.003	.290	.	.001	.000	.002	.001	.013
	ESOL	.156	.006	.000	.001	.	.000	.263	.324	.419
	Economically Disadvantaged (SES)	.000	.001	.111	.000	.000	.	.000	.000	.000
	School Climate (Parent)	.000	.000	.000	.002	.263	.000	.	.000	.000
	School Climate (Student)	.000	.000	.001	.001	.324	.000	.000	.	.000
	School Climate (Staff)	.000	.000	.001	.013	.419	.000	.000	.000	.

Note. [a]*n* = 59.

For the primary research question, the independent variables with the strongest correlations to the dependent variable were the Economically Disadvantaged (SES) students and the results of the positive school climate question on the student survey. The independent variable with the weakest correlation to the dependent variable was the ESOL student population. The independent variables with moderate correlations were the Black student population, the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, and the results of the positive school climate question on the staff survey. The independent variables with a negative relationship with the dependent variable were the Black student population, the ESOL student population and the Economically Disadvantaged (SES) student population, meaning that as the value of these variables increased, a lower percentage of students passed the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, the results of the positive school climate question on the student survey, and the results of the positive school climate question on the staff survey, meaning that as the value of these variables increased, a higher percentage of students passed the FCAT 2.0 Mathematics Test.

Table 17 shows the results of the research hypothesis (H1). The P_{crit} established for this study is 0.01. The P_{calc} for the Black student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in

Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Hispanic student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the White student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the ESOL student population is 0.156, making it not statistically significant since 0.156 is not less than 0.01 so the research hypothesis (H1) is rejected, meaning no significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Economically Disadvantaged (SES) student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student

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population, and the school climate for the 2010 – 2011 school year. The P_{calc} for parents agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for students agreeing that the school climate is positive and helps them learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for staff agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year.

For each research hypothesis not rejected, a Type I Error has been made if any research hypothesis ends up being incorrect. There was a one percent chance of that happening. Moreover, for the primary research question, there was only one independent

variable that was not statistically significant, the percentage of the ESOL student population.

As shown in Table 18, the Sum of Squares (SS) Total for both models is 14379.222, which represents all the unique variance in the data. For Model 1, the Sum of Squares (SS) Regression is 9346.894, which is the variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 9747.905. For Model 1, the Sum of Squares (SS) Residual is 5032.328, which is the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 4631.317. For Model 1, Degrees of Freedom, *df*, for Regression is four and for Residual is 52, for a total of 56 *df*. For Model 2, Degrees of Freedom, *df*, for Regression is five and for Residual is 51, for a total of 56 *df*. The Mean Square is the variance in the ANOVA. The Mean Square for Model 1's Regression is 2336.723 and for Residual, it is 96.776. The Mean Square for Model 2's Regression is 1949.581 and for Residual, it is 90.810. For Model 1, the *F* value is 24.146 which is the test statistic ($TS_{calc\ or}\ F_{calc}$), testing the significance of R, R^2, and of the entire regression model. For Model 2, the *F* value is 21.469. For the Significant column, P_{calc}, Model 1 is statistically significant because $p < 0.001$ hence they are less than 0.01, as well as Model 2, thus it does not reject the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and racial and ethnic concentrations when controlling socio-economic status, ESOL student population, and school climate of public middle schools in Miami-Dade County for the 2010 – 2011 school year (Hinton et al., 2004). Hence, it indicates the presence of a negative relationship in Model 1 and Model 2 between the independent variables and

dependent variable. The independent variables may have overlapped in creating this

relationship with the dependent variables.

Table 18

ANOVA - Relationship of Racial and Ethnic Concentration (Hispanics) and FCAT 2.0
Mathematics Scores when controlling ESOL Student Population, and School Climate

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9346.894	4	2336.723	24.146	.000[b]
	Residual	5032.328	52	96.776		
	Total	14379.222	56			
2	Regression	9747.905	5	1949.581	21.469	.000[c]
	Residual	4631.317	51	90.810		
	Total	14379.222	56			

Note a. Dependent Variable: % Passing FCAT Math
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population,
% School Climate (Staff), % School Climate (Student)
c. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population,
% School Climate (Staff), % School Climate (Student), % of Hispanic student population

Table 19 shows how much each variable contributes to the research question for

this particular test. According to the Beta results, the strongest contribution on the

passing of the FCAT 2.0 Mathematics Test comes from the positive school climate

question of the student survey, -0.511 in Model 1 and also from the positive school

climate question of the student survey, .493 in Model 2.

For the Sig. column for Model 1, the independent variable making a significant

contribution to the dependent variable was the results of the positive school climate

question on the student survey ($p < 0.001$). For Model 2, the independent variable

making a significant contribution to the dependent variable was the results of the positive

school climate question on the student survey ($p < 0.001$). For Model 1, the independent

variables not making a significant contribution to the dependent variable were the ESOL

student population (0.039), the results of the positive school climate question on the

parent survey (0.097), and the results of the positive school climate question on the staff

survey (0.026). For Model 2, the independent variables not making a significant

contribution to the dependent variable were the Hispanic student population (0.041), the

ESOL student population (0.005), the results of the positive school climate question on

the parent survey (0.254), and the results of the positive school climate question on the

staff survey (0.102; Hinton et al., 2004).

Table 19

Coefficients - Relationship of Racial and Ethnic Concentration (Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population, and School Climate

Model	Total %	Standardized Coefficients Beta	t	Sig.
1	(Constant)		-.302	.764
	ESOL	-.175	-2.113	.039
	School Climate (Parent)	.182	1.690	.097
	School Climate (Student)	.511	4.504	.000
	School Climate (Staff)	.232	2.294	.026
2	(Constant)		.427	.671
	Hispanics	.230	2.101	.041
	ESOL	-.279	-2.961	.005
	School Climate (Parent)	.124	1.154	.254
	School Climate (Student)	.493	4.472	.000
	School Climate (Staff)	.170	1.664	.102

Moreover, in Table 20's Part column under Correlations, in Model 1, after

squaring the values, the ESOL student population contributes 2.99 % to the dependent

variable, meaning it also explains 2.99% of the unique variance in the dependent variable

and will cause the R^2 to drop 2.99% if it is not included in the model. The parents

agreeing that the school climate is positive and help students learn contributes 1.93% to

the dependent variable, meaning it also explains 1.93% of the unique variance in the

dependent variable and will cause the R^2 to drop 1.93% if it is not included in the model. The students agreeing that the school climate is positive and helps them learn contributes 13.69% to the dependent variable, meaning it also explains 13.69% of the unique variance in the dependent variable and will cause the R^2 to drop 13.69% if it is not included in the model. The staff agreeing that the school climate is positive and helps students learn contributes 3.53% to the dependent variable, meaning it also explains 3.53% of the unique variance in the dependent variable and will cause the R^2 to drop 3.53% if it is not included in the model. On the other hand, for Model 2, the Hispanic student population contributes 2.79% to the dependent variable, meaning it also explains 2.79% of variance in the dependent variable and will cause the R^2 to drop 2.79% if it is not included in the model. The ESOL student population contributes 5.52% to the dependent variable, meaning it also explains 5.52% of variance in the dependent variable and will cause the R^2 to drop 5.52% if it is not included in the model. The parents agreeing that the school climate is positive and help students learn contributes 0.85% to the dependent variable, meaning it also explains 0.85% of variance in the dependent variable and will cause the R^2 to drop 0.85% if it is not included in the model. The students agreeing that the school climate is positive and helps them learn contributes 12.6% to the dependent variable, meaning it also explains 12.6% of variance in the dependent variable and will cause the R^2 to drop 12.6% if it is not included in the model. The staff agreeing that the school climate is positive and helps students learn contributes 1.74% to the dependent variable, meaning it also explains 1.74% of variance in the dependent variable and will cause the R^2 to drop 1.74% if it is not included in the model. The strongest contribution to the dependent variable of the passing of the FCAT 2.0

Mathematics Test comes from the students agreeing that the school climate is positive

and helps them learn (13.69%), followed by the students agreeing that the school climate

is positive and helps them learn (12.6%) in Model 2. (See Appendix II for the

Collinearity Statistics explanation)

Table 20

Coefficients Continued - Relationship of Racial and Ethnic Concentration (Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population, and School Climate

Model		Correlations	Collinearity Statistics	
	Total %	Part	Tolerance	VIF
1	(Constant)			
	ESOL	-.173	.985	1.015
	School Climate (Parent)	.139	.584	1.713
	School Climate (Student)	.370	.524	1.909
	School Climate (Staff)	.188	.661	1.514
2	(Constant)			
	Hispanics	.167	.526	1.900
	ESOL	-.235	.711	1.406
	School Climate (Parent)	.092	.546	1. 831
	School Climate (Student)	.355	.521	1.921
	School Climate (Staff)	.132	.606	1.650

Whites, ESOL and School Climate

The primary research question was further tested using a combination of different

variables. Due to the presence of multicollinearity, the independent variables of the

Hispanic student population, the Black student population, and the Economically

Disadvantaged (SES) student population were removed in order to be able to analyze the

individual contribution of each independent variable to the dependent variable (Appendix

II, Table 65). On the other hand, the independent variables of the Hispanic student

population, the Black student population, and the Economically Disadvantaged (SES)

student population were only kept for the Pearson *r* and Sig. Table (Table 21) so that the correlation of those variables would be known.

As shown in Table 21, the correlations have different strengths. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation because the *r* is between -0.3 and -0.7. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the *r* is between 0.3 and 0.7. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the *r* is between 0.3 and 0.7. The ESOL student population has a -0.134 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a weak correlation since the *r* is between 0 and -0.3 but, it is also a negative correlation meaning that as the ESOL student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The Economically Disadvantaged (SES) student population has a -0.830 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since the *r* is between -0.7 and -1 but, it is also a negative correlation meaning that as the

Economically Disadvantaged (SES) increased, the percentage of the students passing the

FCAT 2.0 Mathematics Test decreased. The parents agreeing that the school climate is

positive and helps students learn has a 0.595 correlation with the percentage of the

students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning

that as the parents agreeing that the school climate is positive and helps students learn

increased, the percentage of the students passing the FCAT 2.0 Mathematics Test also

increased. It is a moderate correlation because the r is between 0.3 and 0.7. The students

agreeing that the school climate is positive and helps them learn has a 0.741 correlation

with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a

strong correlation since the r is between 0.7 and 1 but, it is also a positive correlation

meaning that as the students agreeing that the school climate is positive and helps them

learn increased, the percentage of the students passing the FCAT 2.0 Mathematics Test

also increased. The staff agreeing that the school climate is positive and helps students

learn has a 0.605 correlation with the percentage of the students passing the FCAT 2.0

Mathematics Test. It is a moderate correlation since the r is between 0.3 and 0.7 but it is

also a positive correlation meaning that as the staff agreeing that the school climate is

positive and helps students learn increased, of the students passing the FCAT 2.0

Mathematics Test also increased.

Table 21

Pearson r and Sig. (1-tailed) - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Total %[a]		Passing FCAT Math	Blacks	Hispanics	Whites	ESOL	Economically Disadvantaged (SES)	School Climate (Parent)	School Climate (Student)	School Climate (Staff)
Pearson Correlation	Passing FCAT Math	1.000	-.597	.429	.668	-.134	-.830	.595	.741	.605
	Blacks	-.597	1.000	-.959	-.351	-.328	.407	-.546	-.511	-.478
	Hispanics	.429	-.959	1.000	.073	.472	-.161	.464	.410	.417
	Whites	.668	-.351	.073	1.000	-.394	-.891	.376	.417	.289
	ESOL	-.134	-.328	.472	-.394	1.000	.435	.085	.062	-.027
	Economically Disadvantaged (SES)	-.830	.407	-.161	-.891	.435	1.000	-.429	-.529	-.429
	School Climate (Parent)	.595	-.546	.464	.376	.085	-.429	1.000	.624	.474
	School Climate (Student)	.741	-.511	.410	.417	.062	-.529	.624	1.000	.554
	School Climate (Staff)	.605	-.478	.417	.289	-.027	-.429	.474	.554	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.156	.000	.000	.000	.000
	Blacks	.000	.	.000	.003	.006	.001	.000	.000	.000
	Hispanics	.000	.000	.	.290	.000	.111	.000	.001	.001
	Whites	.000	.003	.290	.	.001	.000	.002	.001	.013
	ESOL	.156	.006	.000	.001	.	.000	.263	.324	.419
	Economically Disadvantaged (SES)	.000	.001	.111	.000	.000	.	.000	.000	.000
	School Climate (Parent)	.000	.000	.000	.002	.263	.000	.	.000	.000
	School Climate (Student)	.000	.000	.001	.001	.324	.000	.000	.	.000
	School Climate (Staff)	.000	.000	.001	.013	.419	.000	.000	.000	.

Note. [a]*n* = 59.

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For the primary research question, the independent variables with the strongest correlations to the dependent variable were the Economically Disadvantaged (SES) students and the results of the positive school climate question on the student survey. The independent variable with the weakest correlation to the dependent variable was the ESOL student population. The independent variables with moderate correlations were the Black student population, the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, and the results of the positive school climate question on the staff survey. The independent variables with a negative relationship with the dependent variable were the Black student population, the ESOL student population and the Economically Disadvantaged (SES) student population, meaning that as the value of these variables increased, a lower percentage of students passed the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the Hispanic student population, the White student population, the results of the positive school climate question on the parent survey, the results of the positive school climate question on the student survey, and the results of the positive school climate question on the staff survey, meaning that as the value of these variables increased, a higher percentage of students passed the FCAT 2.0 Mathematics Test.

Table 21 shows the results of the research hypothesis (H1). The P_{crit} established for this study is 0.01. The P_{calc} for the Black student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in

Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Hispanic student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the White student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the ESOL student population is 0.156, making it not statistically significant since 0.156 is not less than 0.01 so the research hypothesis (H1) is rejected, meaning no significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for the Economically Disadvantaged (SES) student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student

population, and the school climate for the 2010 – 2011 school year. The P_{calc} for parents agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for students agreeing that the school climate is positive and helps them learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year. The P_{calc} for staff agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and the racial and ethnic concentrations of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and the school climate for the 2010 – 2011 school year.

For each research hypothesis not rejected, a Type I Error has been made if any research hypothesis ends up being incorrect. There was a one percent chance of that happening. Moreover, for the primary research question, there was only one independent

variable that was not statistically significant, the percentage of the ESOL student population.

As shown in Table 22, the Sum of Squares (SS) Total for both models is 14379.222, which represents all the variance in the data. For Model 1, the Sum of Squares (SS) Regression is 9346.894, which is the unique variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 10813.531. For Model 1, the Sum of Squares (SS) Residual is 5032.328, which is the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 3565.691. For Model 1, Degrees of Freedom, *df*, for Regression is four and for Residual is 52, for a total of 56 *df*. For Model 2, Degrees of Freedom, *df*, for Regression is five and for Residual is 51, for a total of 56 *df*. The Mean Square is the variance in the ANOVA. The Mean Square for Model 1's Regression is 2336.723 and for Residual, it is 96.776. The Mean Square for Model 2's Regression is 2162.706 and for Residual, it is 69.916. For Model 1, the *F* value is 24.146 which is the test statistic ($TS_{calc\ or}F_{calc}$), testing the significance of R, R^2, and of the entire regression model. For Model 2, the *F* value is 30.933. For the Significant column, P_{calc}, Model 1 is statistically significant because $p < 0.001$ hence they are less than 0.01, as well as Model 2, thus it does not reject the research hypothesis (H1), meaning a significant negative relationship exists between the FCAT 2.0 mathematics scores and racial and ethnic concentrations when controlling socio-economic status, ESOL student population, and school climate of public middle schools in Miami-Dade County for the 2010 – 2011 school year (Hinton et al., 2004). Hence, it indicates the presence of a negative relationship in Model 1 and Model 2 between the independent variables and

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dependent variable. The independent variables may have overlapped in creating this

relationship with the dependent variables.

Table 22

ANOVA - Relationship of Racial and Ethnic Concentration (Whites) and FCAT 2.0
Mathematics Scores when controlling ESOL Student Population, and School Climate

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9346.894	4	2336.723	24.146	.000[b]
	Residual	5032.328	52	96.776		
	Total	14379.222	56			
2	Regression	10813.531	5	2162.706	30.933	.000[c]
	Residual	3565.691	51	69.916		
	Total	14379.222	56			

Note a. Dependent Variable: % Passing FCAT Math
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population,
% School Climate (Staff), % School Climate (Student)
c. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population,
% School Climate (Staff), % School Climate (Student), % of White student population

Table 23 shows how much each variable contributes to the research question for

this particular test. According to the Beta results, the strongest contribution on the

passing of the FCAT 2.0 Mathematics Test comes from the positive school climate

question of the student survey, -0.511 in Model 1 and also from the White student

population, .406 in Model 2.

For the Sig. column in Table 23, for Model 1, the independent variable making a

significant contribution to the dependent variable was the results of the positive school

climate question on the student survey ($p < 0.001$). For Model 2, the independent

variables making a significant contribution to the dependent variable were the White

student population ($p < 0.001$), the results of the positive school climate question on the

student survey ($p < 0.001$), and the results of the positive school climate question on the

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staff survey (0.010). For Model 1, the independent variables not making a significant

contribution to the dependent variable were the ESOL student population (0.039), the

results of the positive school climate question on the staff survey (0.026), and the results

of the positive school climate question on the parent survey (0.097). For Model 2, the

independent variables not making a significant contribution to the dependent variable

were the ESOL student population (0.993) and the results of the positive school climate

question on the parent survey (0.331; Hinton et al., 2004).

Table 23

Coefficients - Relationship of Racial and Ethnic Concentration (Whites) and FCAT 2.0
Mathematics Scores when controlling ESOL Student Population, and School Climate

Model		Standardized Coefficients	t	Sig.
	Total %	Beta		
1	(Constant)		-.302	.764
	ESOL	-.175	-2.113	.039
	School Climate (Parent)	.182	1.690	.097
	School Climate (Student)	.511	4.504	.000
	School Climate (Staff)	.232	2.294	.026
2	(Constant)		.621	.537
	Whites	.406	4.580	.000
	ESOL	.001	.009	.993
	School Climate (Parent)	.092	.981	.331
	School Climate (Student)	.387	3.872	.000
	School Climate (Staff)	.230	2.679	.010

Moreover, Table 24's Part column under Correlations, in Model 1, after squaring

the values, the ESOL student population contributes 2.99 % to the dependent variable,

meaning it also explains 2.99% of the unique variance in the dependent variable and will

cause the R^2 to drop 2.99% if it is not included in the model. The parents agreeing that

the school climate is positive and help students learn contributes 1.93% to the dependent

variable, meaning it also explains 1.93% of the unique variance in the dependent variable

and will cause the R^2 to drop 1.93% if it is not included in the model. The students

agreeing that the school climate is positive and helps them learn contributes 13.69% to

the dependent variable, meaning it also explains 13.69% of the unique variance in the

dependent variable and will cause the R^2 to drop 13.69% if it is not included in the model.

The staff agreeing that the school climate is positive and helps students learn contributes

3.53% to the dependent variable, meaning it also explains 3.53% of the unique variance

in the dependent variable and will cause the R^2 to drop 3.53% if it is not included in the

model. On the other hand, for Model 2, the White student population contributes 10.2%

to the dependent variable, meaning it also explains 10.2% of variance in the dependent

variable and will cause the R^2 to drop 10.2% if it is not included in the model. The ESOL

student population contributes 0.00% to the dependent variable, meaning it also explains

0.00% of variance in the dependent variable and will cause the R^2 to drop 0.00% if it is

not included in the model. The parents agreeing that the school climate is positive and

help students learn contributes 0.46% to the dependent variable, meaning it also explains

0.46% of variance in the dependent variable and will cause the R^2 to drop 0.46% if it is

not included in the model. The students agreeing that the school climate is positive and

helps them learn contributes 7.29% to the dependent variable, meaning it also explains

7.29% of variance in the dependent variable and will cause the R^2 to drop 7.29% if it is

not included in the model. The staff agreeing that the school climate is positive and helps

students learn contributes 3.50% to the dependent variable, meaning it also explains

3.50% of variance in the dependent variable and will cause the R^2 to drop 3.50% if it is

not included in the model. The strongest contribution to the dependent variable of the

passing of the FCAT 2.0 Mathematics Test comes from the students agreeing that the

school climate is positive and helps them learn (13.69%) in Model 1, followed by the

White student population (10.2%) in Model 2. (See Appendix II for the Collinearity

Statistics explanation)

Table 24

Coefficients Continued - Relationship of Racial and Ethnic Concentration (Whites) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population, and School Climate

Model		Correlations	Collinearity Statistics	
	Total %	Part	Tolerance	VIF
1	(Constant)			
	ESOL	-.173	.985	1.015
	School Climate (Parent)	.139	.584	1.713
	School Climate (Student)	.370	.524	1.909
	School Climate (Staff)	.188	.661	1.514
2	(Constant)			
	Whites	.319	.619	1.617
	ESOL	.001	.760	1.317
	School Climate (Parent)	.068	.558	1.792
	School Climate (Student)	.270	.486	2.058
	School Climate (Staff)	.187	.661	1.514

Relationship between Schools' Racial and Ethnic Concentration and FCAT 2.0

Mathematics Scores when controlling ESOL Student Population

Whites, Hispanics and ESOL

The study is driven by secondary research questions which tests different

relationships between the dependent variable and independent variables. For this

particular test, significant unique variance is sought between the schools' racial and

ethnic concentration and the FCAT 2.0 Mathematics scores when controlling the ESOL

student population. There was a high correlation between the White student population,

the Black student population, and the Hispanic student population, and so the Black

student population was left out in order to eliminate the multicollinearity (Appendix II,

Table 68). On the other hand, the independent variable of Black student population was kept for the Pearson *r* and Sig. Table (Table 25) so that the correlation of this variable would be known.

As shown in Table 25, the correlations have different strengths. The ESOL student population has a -0.134 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a weak correlation since the *r* is between 0 and -0.3 but, it is also a negative correlation meaning that as the ESOL student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the *r* is between 0.3 and 0.7 but, it is also a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the *r* is between 0.3 and 0.7. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation because the *r* is between -0.3 and -0.7.

Table 25

Pearson r and Sig. (1-tailed) - Relationship of Racial and Ethnic Concentration (Whites, Blacks, Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Total %[a]		Passing FCAT Math	ESOL	Blacks	Whites	Hispanics
Pearson Correlation	Passing FCAT Math	1.000	-.134	-.597	.668	.429
	ESOL	-.134	1.000	-.328	-.394	.472
	Blacks	-.597	-.328	1.000	-.351	-.959
	Whites	.668	-.394	-.351	1.000	.073
	Hispanics	.429	.472	-.959	.073	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.156	.000	.000	.000
	ESOL	.156	.	.006	.001	.000
	Blacks	.000	.006	.	.003	.000
	Whites	.000	.001	.003	.	.290
	Hispanics	.000	.000	.000	.290	.

Note. a = 59.

For this secondary research question, there was no independent variable with a strong correlation to the dependent variable. The independent variable with the weakest correlation to the dependent variable was the ESOL student population. The independent variables with moderate correlations were the Hispanic student population, the Black student population, and the White student population. The independent variable with a negative relationship with the dependent variable were the Black student population and the ESOL student population, meaning that as the value of these variables increased, a lower percentage of students passed the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the White student population and the Hispanic student population, meaning that as the value of these variables increased, a higher percentage of students passed the FCAT 2.0 Mathematics Test.

Table 25 shows the results of the research hypothesis (H2). The P_{crit} established

for this study is 0.01. The P_{calc} for the ESOL student population is 0.156, making it not

statistically significant since 0.156 is not less than 0.01 so the research hypothesis is

rejected (H2), meaning no significant negative relationship exists between racial and

ethnic concentrations and the FCAT 2.0 mathematics scores when controlling the ESOL

student population. The P_{calc} for the White student population is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H2), meaning a significant negative relationship exists between racial and ethnic

concentrations and the FCAT 2.0 mathematics scores when controlling the ESOL student

population. The P_{calc} for the Hispanic student population is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H2), meaning a significant negative relationship exists between racial and ethnic

concentrations and the FCAT 2.0 mathematics scores when controlling the ESOL student

population. The P_{calc} for the Black student population is $p < 0.001$, making it statistically

significant since it is less than 0.01 and not rejecting the research hypothesis (H2),

meaning a significant negative relationship exists between racial and ethnic

concentrations and the FCAT 2.0 mathematics scores when controlling the ESOL student

population.

For each research hypothesis that is rejected, a Type I Error has been made if any

research hypothesis ends up being incorrect. There was a one percent chance of that

happening. Moreover, for this secondary research question, there was only one

independent variable that was not statistically significant, the ESOL student population.

As shown in Table 26, the Sum of Squares (SS) Total for both models is

14892.765, representing all the variance in the data. For Model 1, the Sum of Squares

(SS) Regression is 267.392, the unique variance that can be explained. For Model 2, the

Sum of Squares (SS) Regression is 8906.996, which is the variance that can be explained.

For Model 1, the Sum of Squares (SS) Residual is 14625.373, the variance that cannot be

explained. For Model 2, the Sum of Squares (SS) Residual is 5985.770, the variance that

cannot be explained. For Model 1, Degrees of Freedom, df, for Regression is one and for

Residual is 57, for a total of 58 df. For Model 2, Degrees of Freedom, df, for Regression

is three and for Residual is 55, for a total of 58 df. The Mean Square is the variance in

the ANOVA. For Regression of Model 1, it is 267.392 and for Residual, it is 256.585.

For Regression of Model 2, it is 2968.999 and for Residual, it is 108.832. For Model 1,

the F value is 1.042 which is the test statistic (TS_{calc} or F_{calc}). For Model 2, the F value is

27.281 which is the test statistic (TS_{calc} or F_{calc}). For the Significant column, $P_{calc,}$ Model

1 is not statistically significant since 0.312 is not less than 0.01, thus it does reject the

research hypothesis (H2), meaning no significant negative relationship exists between

racial and ethnic concentrations and the FCAT 2.0 mathematics scores when controlling

the ESOL student population. Model 2 is statistically significant because $p < 0.001$

hence it is less than 0.01, thus it does not reject the research hypothesis (H2), meaning a

significant negative relationship exists between racial and ethnic concentrations and the

FCAT 2.0 mathematics scores when controlling the ESOL student population. (Hinton et

al., 2004)

Table 26

ANOVA - Relationship of Racial and Ethnic Concentration (Whites and Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	267.392	1	267.392	1.042	.312[b]
1	Residual	14625.373	57	256.585		
	Total	14892.765	58			
	Regression	8906.996	3	2968.999	27.281	.000[c]
2	Residual	5985.770	55	108.832		
	Total	14892.765	58			

Note. a. Dependent Variable: % Passing FCAT Math
b. Predictor: (Constant), % of ESOL student population
c. Predictors: (Constant), % of ESOL student population, % of White student population, % of Hispanic student population

Table 27 shows how much each variable contributes to the research question for this particular test. According to the Beta results, the strongest contribution on the passing of the FCAT 2.0 Mathematics Test comes from the White student population, 0.595, in Model 2.

For the Sig. column, the independent variables making a significant contribution to the dependent variable were the White student population ($p < 0.000$) and the Hispanic student population ($p < 0.000$) in Model 2. The independent variable not making a significant contribution to the dependent variable was the ESOL student population in Model 1 (0.312) and Model 2 (0.351).

Table 27

Coefficients - Relationship of Racial and Ethnic Concentration (Whites and Hispanics)
and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Model	Total %	Standardized Coefficients Beta	t	Sig.
1	(Constant)		15.983	.000
	ESOL	-.134	-1.021	.312
2	(Constant)		11.674	.000
	ESOL	-.104	-.940	.351
	Whites	.595	6.061	.000
	Hispanics	.434	4.243	.000

Moreover, Table 28's Part column under Correlations, for Model 1, the ESOL

student population contributes 1.80% to the dependent variable, meaning it also explains

1.80% of the unique variance in the dependent variable and will cause the R^2 to drop

1.80% if it is not included in the model. On the other hand, for Model 2, the ESOL

student population contributes 0.64% to the dependent variable, meaning it also explains

0.64% of variance in the dependent variable and will cause the R^2 to drop 0.64% if it is

not included in the unique model. The White student population contributes 26.8% to the

dependent variable, meaning it also explains 26.8% of the variance in the dependent

variable and will cause the R^2 to drop 26.8% if it is not included in the model. The

Hispanic student population contributes 13.2% to the dependent variable, meaning it also

explains 13.2% of the variance in the dependent variable and will cause the R^2 to drop

13.2% if it is not included in the model. The strongest contribution to the dependent

variable of the passing of the FCAT 2.0 Mathematics Test comes from the White student

population (26.8%), followed by the Hispanic student population (13.2%). (See

Appendix II for the Collinearity Statistics explanation)

Table 28

Coefficients Continued - Relationship of Racial and Ethnic Concentration (Whites and Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Model		Correlations	Collinearity Statistics	
		Part	Tolerance	VIF
1	(Constant)			
	ESOL	-.134	1.000	1.000
2	(Constant)			
	ESOL	-.080	.592	1.690
	Whites	.518	.758	1.320
	Hispanics	.363	.697	1.435

Whites, Blacks and ESOL

The secondary research question was further tested using a combination of different variables. For this particular test, significant unique variance is sought between the schools' racial and ethnic concentration and the FCAT 2.0 Mathematics scores when controlling the ESOL student population. There was a high correlation between the White student population, the Black student population, and the Hispanic student population, and so the Hispanic student population was left out in order to eliminate the multicollinearity (Appendix II, Table 71). On the other hand, the independent variable of the Hispanic student population was kept for the Pearson *r* and Sig. Table (Table 29) so that the correlation of this variable would be known.

As shown in Table 29, the correlations have different strengths. The ESOL student population has a -0.134 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a weak correlation since the *r* is between 0 and -0.3 but, it is also a negative correlation meaning that as the ESOL student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test

decreased. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the r is between 0.3 and 0.7 but, it is also a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation because the r is between 0.3 and 0.7. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation because the r is between -0.3 and -0.7.

Table 29

Pearson r and Sig. (1-tailed) - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) with the FCAT 2.0 Mathematics Scores when controlling the ESOL Student Population

Total %[a]		Passing FCAT Math	ESOL	Blacks	Whites	Hispanics
Pearson Correlation	Passing FCAT Math	1.000	-.134	-.597	.668	.429
	ESOL	-.134	1.000	-.328	-.394	.472
	Blacks	-.597	-.328	1.000	-.351	-.959
	Whites	.668	-.394	-.351	1.000	.073
	Hispanics	.429	.472	-.959	.073	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.156	.000	.000	.000
	ESOL	.156	.	.006	.001	.000
	Blacks	.000	.006	.	.003	.000
	Whites	.000	.001	.003	.	.290
	Hispanics	.000	.000	.000	.290	.

Note. a = 59.

For this secondary research question, there was no independent variable with a strong correlation to the dependent variable. The independent variable with the weakest correlation to the dependent variable was the ESOL student population. The independent variables with moderate correlations were the Hispanic student population, the Black student population, and the White student population. The independent variable with a negative relationship with the dependent variable were the Black student population and the ESOL student population, meaning that as the value of these variables increased, a lower percentage of students passed the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the White student population and the Hispanic student population, meaning that as the value of these variables increased, a higher percentage of students passed the FCAT 2.0 Mathematics Test.

Table 29 shows the results of the research hypothesis (H2). The P_{crit} established for this study is 0.01. The P_{calc} for the ESOL student population is 0.156, making it not statistically significant since 0.156 is not less than 0.01 so the research hypothesis is rejected (H2), meaning no significant negative relationship exists between racial and ethnic concentrations and the FCAT 2.0 mathematics scores when controlling the ESOL student population. The P_{calc} for the White student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H2), meaning a significant negative relationship exists between racial and ethnic concentrations and the FCAT 2.0 mathematics scores when controlling the ESOL student population. The P_{calc} for the Hispanic student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H2), meaning a significant negative relationship exists between racial and ethnic concentrations and the FCAT 2.0 mathematics scores when controlling the ESOL student population. The P_{calc} for the Black student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H2), meaning a significant negative relationship exists between racial and ethnic concentrations and the FCAT 2.0 mathematics scores when controlling the ESOL student population.

For each research hypothesis not rejected, a Type I Error has been made if any research hypothesis ends up being incorrect. There was a one percent chance of that happening. Moreover, for this secondary research question, there was only one independent variable that was not statistically significant, the ESOL student population.

As shown in Table 30, the Sum of Squares (SS) Total for both models is 14892.765, representing all the variance in the data. For Model 1, the Sum of Squares (SS) Regression is 267.392, which is the unique variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 8988.996, the variance that can be explained. For Model 1, the Sum of Squares (SS) Residual is 14625.373, the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 5903.769, the variance that cannot be explained. For Model 1, Degrees of Freedom, df, for Regression is one and for Residual is 57, for a total of 58 df. For Model 2, Degrees of Freedom, df, for Regression is three and for Residual is 55, for a total of 58 df. The Mean Square is the variance in the ANOVA. For Regression of Model 1, it is 267.392 and for Residual, it is 256.585. For Regression of Model 2, it is 2996.332 and for Residual, it is 107.341. For Model 1, the F value is 1.042 which is the test statistic (TS_{calc} or F_{calc}). For Model 2, the F value is 27.914 which is the test statistic (TS_{calc} or F_{calc}). For the Significant column, $P_{calc,}$ Model 1 is not statistically significant since 0.312 is not less than 0.05, thus it does reject the research hypothesis (H2), meaning no significant negative relationship exists between racial and ethnic concentrations and the FCAT 2.0 Mathematics scores when controlling the ESOL student population. Model 2 is statistically significant because $p < 0.001$ hence it is less than 0.01, thus it does not reject the research hypothesis (H2), meaning a significant negative relationship exists between racial and ethnic concentrations and the FCAT 2.0 Mathematics scores when controlling the ESOL student population. (Hinton et al., 2004)

Table 30

ANOVA - Relationship of Racial and Ethnic Concentration (Whites and Blacks) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	267.392	1	267.392	1.042	.312[b]
	Residual	14625.373	57	256.585		
	Total	14892.765	58			
2	Regression	8988.996	3	2996.332	27.914	.000[c]
	Residual	5903.769	55	107.341		
	Total	14892.765	58			

Note. a. Dependent Variable: % Passing FCAT Math
b. Predictor: (Constant), % of ESOL student population
c. Predictors: (Constant), % of ESOL student population, % of White student population, % of Black student population

Table 31 shows how much each variable contributes to the research question for this particular test. According to the Beta results, the strongest contribution on the passing of the FCAT 2.0 Mathematics Test comes from the Black student population, -0.471 and the White student population, 0461 in Model 2.

For the Sig. column, the independent variables making a significant contribution to the dependent variable were the White student population ($p < 0.001$) and the Black student population ($p < 0.001$) in Model 2. The independent variable not making a significant contribution to the dependent variable was the ESOL student population in Model 1 (0.312) and Model 2 (0.336).

Table 31

Coefficients - Relationship of Racial and Ethnic Concentration (Whites and Blacks) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Model	Total %	Standardized Coefficients Beta	t	Sig.
1	(Constant)		15.983	.000
	ESOL	-.134	-1.021	.312
2	(Constant)		12.236	.000
	ESOL	-.107	-.970	.336
	Whites	.461	4.156	.000
	Blacks	-.471	-4.361	.000

Moreover, Table 32's Part column under Correlations, for Model 1, the ESOL student population contributes 1.80% to the dependent variable, meaning it also explains 1.80% of the unique variance in the dependent variable and will cause the R^2 to drop 1.80% if it is not included in the model. On the other hand, for Model 2, the ESOL student population contributes 0.67% to the dependent variable, meaning it also explains 0.67% of variance in the dependent variable and will cause the R^2 to drop 0.67% if it is not included in the model. The White student population contributes 12.5% to the dependent variable, meaning it also explains 12.5% of variance in the dependent variable and will cause the R^2 to drop 12.5% if it is not included in the model. The Black student population contributes 13.69% to the dependent variable, meaning it also explains 13.69% of variance in the dependent variable and will cause the R^2 to drop 13.69% if it is not included in the model. The strongest contribution to the dependent variable of the passing of the FCAT 2.0 Mathematics Test comes from the Black student population (13.69%), followed by the White student population (12.5%). (See Appendix II for the Collinearity Statistics explanation)

Table 32

Coefficients Continued - Relationship of Racial and Ethnic Concentration (Whites and Blacks) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Model		Correlations	Collinearity Statistics	
		Part	Tolerance	VIF
1	(Constant)			
	ESOL	-.134	1.000	1.000
2	(Constant)			
	ESOL	-.082	.596	1.678
	Whites	.353	.586	1.707
	Blacks	-.370	.619	1.616

Relationship between FCAT 2.0 Mathematics Scores and Socio-Economic Status

The study is driven by another secondary research question which tests the relationships between the dependent variable and one independent variable. For this particular test, significant variance is sought between the FCAT 2.0 Mathematics scores of the public middle school students and socio-economic status (SES).

As shown in Table 33, the correlation between of the students passing the FCAT 2.0 Mathematics Test and the Economically Disadvantaged (SES) student population is -0.830. It is a strong correlation because the *r* is between -0.7 and -1 but, it is also a negative correlation meaning that as the Economically Disadvantaged student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased.

Table 33 shows the result of the research hypothesis (H3). The P_{crit} established for this study is 0.01. The P_{calc} for the relationship between the Economically Disadvantaged (SES) student population and the students passing the FCAT 2.0 Mathematics Test is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H3), meaning a significant negative

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relationship exists between the FCAT 2.0 Mathematics scores and socio-economic status.

A Type I Error has been made if the research hypothesis ends up being incorrect. There

was a one percent chance of that happening.

Table 33

Pearson r and Sig. (1-tailed) - Relationship of FCAT 2.0 Mathematics Scores and Socio-
Economic Status

		Passing FCAT Math	Economically Disadvantaged
Total %[a]			
Pearson Correlation	Passing FCAT Math	1.000	-.830
	Economically Disadvantaged	-.830	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000
	Economically Disadvantaged	.000	.

Note. a = 59.

As shown in 34, the Sum of Squares (SS) Total is 14892.765, representing all the

variance in the data. The Sum of Squares (SS) Regression is 10250.929, the variance that

can be explained. The Sum of Squares (SS) Residual is 4641.837, the variance that

cannot be explained. The Degrees of Freedom, *df*, for Regression is one and for Residual

is 57, for a total of 58 *df*. The Mean Square is the variance in the ANOVA. For

Regression, it is 10250.929 and for Residual, it is 81.436. The *F* value is 125.878 which

is the test statistic (TS_{calc} or F_{calc}). For the Significant column, $P_{calc,}$ it is statistically

significant because $p < 0.001$ hence it is less than 0.01, thus it does not reject the research

hypothesis (H3), meaning a significant negative relationship exists between the FCAT

2.0 mathematics scores and socio-economic status. (Hinton et al., 2004)

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Table 34

ANOVA - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	10250.929	1	10250.929	1215.878	.000[b]
1	Residual	4641.837	57	81.436		
	Total	14892.765	58			

Note. a. Dependent Variable: % Passing FCAT Math
b. Predictor: (Constant), % of Economically Disadvantage student population

Table 35 shows how much the variable contributes to the research question for this particular test. According to the Beta results, the Economically Disadvantaged (SES) student population has a strong contribution on the passing of the FCAT 2.0 Mathematics Test. For the Sig. column, the Economically Disadvantaged (SES) student population makes a significant contribution to the dependent variable ($p < 0.001$).

Table 35

Coefficients - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status

Model		Standardized Coefficients	t	Sig.
	Total %	Beta		
	(Constant)		20.583	.000
1	Economically Disadvantaged (SES)	-.830	-11.220	.000

Moreover, Table 36's Part column under Correlations, after squaring the values the Economically Disadvantaged student population contributes 68.89% to the dependent variable, meaning it also explains 68.89% of variance in the dependent variable and will cause the R^2 to drop 68.89% if it is not included in the model. (See Appendix II for the Collinearity Statistics explanation)

Table 36

Coefficients Continued - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status

Model		Correlations	Collinearity Statistics	
		Part	Tolerance	VIF
1	(Constant) Economically Disadvantaged	-.830	1.000	1.000

Relationship between FCAT 2.0 Mathematics Scores and Socio-Economic Status

when controlling Racial and Ethnic Concentrations

Whites, Hispanics and Socio-Economic Status

The study is driven by secondary research questions which tests different relationships between the dependent variable and independent variables. For this particular test, significant variance is sought between the FCAT 2.0 Mathematics scores and socio-economic status when controlling the racial and ethnic concentrations (Whites and Hispanics). There was a high correlation between the White student population, the Black student population, and the Hispanic student population, and so the Black student population was left out in order to eliminate the multicollinearity (Appendix II, Table 76). On the other hand, the independent variable of the Black student population was kept for the Pearson *r* and Sig. Table (Table 37) so that the correlation of this variable would be known.

As shown inTable 37, the correlations have different strengths. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the *r* is between 0.3 and 0.7 but, it is also a positive correlation meaning that as the White student population

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increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation since the r is between 0.3 and 0.7. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation since the r is between -0.3 and -0.7. The Economically Disadvantaged (SES) student population has a -0.830 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Economically Disadvantaged (SES) student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a strong correlation because the r is between -0.7 and -1.

Table 37

Pearson r and Sig. (1-tailed) - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites, Blacks, Hispanics)

Total %[a]		Passing FCAT Math	Whites	Hispanics	Blacks	Economically Disadvantaged
Pearson Correlation	Passing FCAT Math	1.000	.668	.429	-.597	-.830
	Whites	.668	1.000	.073	-.351	-.891
	Hispanics	.429	.073	1.000	-.959	-.161
	Blacks	-.597	-.351	-.959	1.000	.407
	Economically Disadvantaged (SES)	-.830	-.891	-.161	.407	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.000
	Whites	.000	.	.290	.003	.000
	Hispanics	.000	.290	.	.000	.111
	Blacks	.000	.003	.000	.	.001
	Economically Disadvantaged (SES)	.000	.000	.111	.001	.

Note. a = 59.

For this secondary research question, the independent variable with the strongest correlation to the dependent variable was the Economically Disadvantaged (SES) student population, followed by the White student population. The independent variables with the moderate correlation to the dependent variable were the Hispanic student population and the Black student population. The independent variables with a negative relationship with the dependent variable were the Black student population and the Economically Disadvantaged (SES) student population, meaning that as the value of these variables increased, a lower percentage of students passed the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the White student population and the Hispanics student population, meaning that as the value

of these variables increased, a higher percentage of students passed the FCAT 2.0

Mathematics Test.

Table 37 displays the results of the research hypothesis (H4). The P_{crit} established

for this study is 0.01. The P_{calc} for the White student population is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H4), meaning a significant negative relationship exists between the FCAT 2.0

Mathematics scores and socio-economic status when controlling racial and ethnic

concentrations. The P_{calc} for the Hispanic student population is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H4), meaning a significant negative relationship exists between the FCAT 2.0

Mathematics scores and socio-economic status when controlling racial and ethnic

concentrations. The P_{calc} for the Black student population is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H4), meaning a significant negative relationship exists between the FCAT 2.0

Mathematics scores and socio-economic status when controlling racial and ethnic

concentrations. The P_{calc} for the Economically Disadvantaged student population is $p <$

0.001, making it statistically significant since it is less than 0.01 and not rejecting the

research hypothesis (H4), meaning a significant negative relationship exists between the

FCAT 2.0 Mathematics scores and socio-economic status when controlling racial and

ethnic concentrations.

For each research hypothesis that is rejected, a Type I Error has been made if any

research hypothesis ends up being incorrect. There was a one percent chance of that

happening. Moreover, for this secondary research question, all variables were statistically significant.

As shown in Table 38, the Sum of Squares (SS) Total for both models is 14892.765, which represents all the variance in the data. For Model 1, the Sum of Squares (SS) Regression is 8810.772, which is the unique variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 11762.765, which is the variance that can be explained. For Model 1, the Sum of Squares (SS) Residual is 6081.993, which is the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 3130.000, which is the variance that cannot be explained. For Model 1, Degrees of Freedom, df, for Regression is two and for Residual is 56, for a total of 58 df. For Model 2, Degrees of Freedom, df, for Regression is three and for Residual is 55, for a total of 58 df. The Mean Square is the variance in the ANOVA. For Regression of Model 1, it is 4405.386 and for Residual, it is 108.607. For Regression of Model 2, it is 3920.922 and for Residual, it is 56.909. For Model 1, the F value is 40.563 which is the test statistic (TS_{calc} or F_{calc}). For Model 2, the F value is 68.898 which is the test statistic (TS_{calc} or F_{calc}). For the Significant column, $P_{calc,}$ Model 1 is statistically significant since $p < 0.001$ hence it is less than 0.01, thus it does not reject the research hypothesis (H4), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and socio-economic status when controlling racial and ethnic concentrations. Model 2 is statistically significant because $p < 0.001$ hence it is less than 0.01, thus it does not reject the research hypothesis (H4), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and socio-economic status when controlling racial and ethnic concentrations. (Hinton et al., 2004)

Table 38

ANOVA - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status
when controlling Racial and Ethnic Concentration (Whites & Hispanics)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8810.772	2	4405.386	40.563	.000[b]
	Residual	6081.993	56	108.607		
	Total	14892.765	58			
2	Regression	11762.765	3	3920.922	68.898	.000[c]
	Residual	3130.000	55	56.909		
	Total	14892.765	58			

Note. a. Dependent Variable: % Passing FCAT Math
b. Predictor: (Constant), % of White student population, % of Hispanic student population
c. Predictors: (Constant), % of White student population, % of Hispanic student population, % of Economically Disadvantaged student population

Table 39 shows how much each variable contributes to the research question for

this particular test. According to the Beta results, the strongest contribution on the

passing of the FCAT 2.0 Mathematics Test comes from the Economically Disadvantaged

(SES) student population, -1.002, in Model 2, followed by the White student population,

0.640, in Model 1.

For the Sig. column, the independent variables making a significant contribution

to the dependent variable are the Economically Disadvantaged (SES) student population

($p < 0.001$) and the Hispanic student population ($p < 0.001$) in Model 2. The independent

variable not making a significant contribution to the dependent variable is the White

student population in Model 2 (0.080), but it does make a significant contribution in

Model 1, $p < 0.001$. (Hinton et al., 2004)

Table 39

Coefficients - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites & Hispanics)

Model		Standardized Coefficients	t	Sig.
	Total %	Beta		
1	(Constant)		12.830	.000
	Whites	.640	7.478	.000
	Hispanics	.382	4.458	.000
2	(Constant)		10.007	.000
	Whites	-.245	-1.781	.080
	Hispanics	.285	4.499	.000
	Economically Disadvantaged (SES)	-1.002	-7.202	.000

Moreover, Table 40's Part column under Correlations, for Model 1, the White student population contributes 40.8% to the dependent variable, meaning it also explains 40.8% of the unique variance in the dependent variable and will cause the R^2 to drop 40.8% if it is not included in the model. The Hispanic student population contributes 14.5% to the dependent variable, meaning it also explains 14.5% of the unique variance in the dependent variable and will cause the R^2 to drop 14.5% if it is not included in the model. On the other hand, for Model 2, the White student population contributes 1.21% to the dependent variable, meaning it also explains 1.21% of variance in the dependent variable and will cause the R^2 to drop 1.21% if it is not included in the model. The Hispanic student population contributes 7.73% to the dependent variable, meaning it also explains 7.73% of variance in the dependent variable and will cause the R^2 to drop 7.73% if it is not included in the model. The Economically Disadvantaged (SES) student population contributes 19.8% to the dependent variable, meaning it also explains 19.8% of variance in the dependent variable and will cause the R^2 to drop 19.8% if it is not included in the model. The strongest contribution to the dependent variable of the passing

of the FCAT 2.0 Mathematics Test comes from the White student population (40.8%) in

Model 1 and Economically Disadvantaged (SES) student population (19.8%) in Model 2.

(See Appendix II for the Collinearity Statistics explanation).

Table 40

Coefficients Continued - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites & Hispanics)

Model		Correlations	Collinearity Statistics	
		Part	Tolerance	VIF
1	(Constant)			
	Whites	.639	.995	1.005
	Hispanics	.381	.995	1.005
2	(Constant)			
	Whites	-.110	.202	4.961
	Hispanics	.278	.950	1.052
	Economically Disadvantaged (SES)	-.445	.197	5.066

Whites, Blacks and Socio-Economic Status

The secondary research question was further tested using a combination of

different variables. For this particular test, significant variance is sought between the

FCAT 2.0 Mathematics scores and socio-economic status when controlling the racial and

ethnic concentrations (Whites and Blacks). There was a high correlation between the

White student population, the Black student population, and the Hispanic student

population, and so the Hispanic student population was left out in order to eliminate the

multicollinearity (Appendix II, Table 79). On the other hand, the independent variable of

the Hispanic student population was kept for the Pearson *r* and Sig. Table (Table 41) so

that the correlation of this variable is known.

As shown in Table 41, the correlations have different strengths. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the r is between 0.3 and 0.7 but, it is also a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation since the r is between 0.3 and 0.7. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation since the r is between -0.3 and -0.7. The Economically Disadvantaged (SES) student population has a -0.830 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Economically Disadvantaged (SES) student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a strong correlation because the r is between -0.7 and -1.

Table 41

Pearson r and Sig. (1-tailed) - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites, Blacks, Hispanics)

Total %[a]		Passing FCAT Math	Whites	Hispanics	Blacks	Economically Disadvantaged
Pearson Correlation	Passing FCAT Math	1.000	.668	.429	-.597	-.830
	Whites	.668	1.000	.073	-.351	-.891
	Hispanics	.429	.073	1.000	-.959	-.161
	Blacks	-.597	-.351	-.959	1.000	.407
	Economically Disadvantaged (SES)	-.830	-.891	-.161	.407	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.000
	Whites	.000	.	.290	.003	.000
	Hispanics	.000	.290	.	.000	.111
	Blacks	.000	.003	.000	.	.001
	Economically Disadvantaged (SES)	.000	.000	.111	.001	.

Note. a = 59.

For this secondary research question, the independent variable with the strongest correlation to the dependent variable was the Economically Disadvantaged (SES) student population, followed by the White student population. The independent variables with the moderate correlation to the dependent variable were the Hispanic student population and the Black student population. The independent variables with a negative relationship with the dependent variable were the Black student population and the Economically Disadvantaged (SES) student population, meaning that as the value of these variables increased, a lower percentage of students passed the FCAT 2.0 Mathematics Test. The independent variables with a positive relationship with the dependent variable were the White student population and the Hispanics student population, meaning that as the value

of these variables increased, a higher percentage of students passed the FCAT 2.0

Mathematics Test.

Table 41 displays the results of the research hypothesis (H4). The P_{crit} established

for this study is 0.01. The P_{calc} for the White student population is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H4), meaning a significant negative relationship exists between the FCAT 2.0

Mathematics scores and socio-economic status when controlling racial and ethnic

concentrations. The P_{calc} for the Hispanic student population is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H4), meaning a significant negative relationship exists between the FCAT 2.0

Mathematics scores and socio-economic status when controlling racial and ethnic

concentrations. The P_{calc} for the Black student population is $p < 0.001$, making it

statistically significant since it is less than 0.01 and not rejecting the research hypothesis

(H4), meaning a significant negative relationship exists between the FCAT 2.0

Mathematics scores and socio-economic status when controlling racial and ethnic

concentrations. The P_{calc} for the Economically Disadvantaged student population is $p <$

0.001, making it statistically significant since it is less than 0.01 and not rejecting the

research hypothesis (H4), meaning a significant negative relationship exists between the

FCAT 2.0 Mathematics scores and socio-economic status when controlling racial and

ethnic concentrations.

For each research hypothesis not rejected, a Type I Error has been made if any

research hypothesis ends up being incorrect. There is a one percent chance of that

happening. Moreover, for this secondary research question, all variables were statistically significant.

As shown in Table 42, the Sum of Squares (SS) Total for both models is 14892.765, representing all the variance in the data. For Model 1, the Sum of Squares (SS) Regression is 8888.069, which is the unique variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 11785.185, the variance that can be explained. For Model 1, the Sum of Squares (SS) Residual is 6004.696, the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 3107.580, the variance that cannot be explained. For Model 1, Degrees of Freedom, df, for Regression is two and for Residual is 56, for a total of 58 df. For Model 2, Degrees of Freedom, df, for Regression is three and for Residual is 55, for a total of 58 df. The Mean Square is the variance in the ANOVA. For Regression of Model 1, it is 4444.034 and for Residual, it is 107.227. For Regression of Model 2, it is 3928.395 and for Residual, it is 56.501. For Model 1, the F value is 41.445 which is the test statistic (TS_{calc} or F_{calc}). For Model 2, the F value is 69.527 which is the test statistic (TS_{calc} or F_{calc}). For the Significant column, P_{calc}, Model 1 is statistically significant since $p < 0.001$ hence it is less than 0.01, thus it does not reject the research hypothesis (H4), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and socio-economic status when controlling racial and ethnic concentrations. Model 2 is statistically significant because $p < 0.001$ hence it is less than 0.01, thus it does not reject the research hypothesis (H4), meaning a significant negative relationship exists between the FCAT 2.0 Mathematics scores and socio-economic status when controlling racial and ethnic concentrations. (Hinton et al., 2004)

Table 42

ANOVA - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites & Blacks)

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8888.069	2	4444.034	41.445	.000[b]
1	Residual	6004.696	56	107.227		
	Total	14892.765	58			
	Regression	11785.185	3	3928.395	69.527	.000[c]
2	Residual	3107.580	55	56.501		
	Total	14892.765	58			

Note. a. Dependent Variable: % Passing FCAT Math
b. Predictor: (Constant), % of White student population, % of Black student population
c. Predictors: (Constant), % of White student population, % of Black student population, % of Economically Disadvantaged student population

Table 43 shows how much each variable contributes to the research question for this particular test. According to the Beta results, the strongest contribution on the passing of the FCAT 2.0 Mathematics Test comes from the Economically Disadvantaged (SES) student population, -0.995, in Model 2, followed by the White student population, 0.523, in Model 1.

For the Sig. column, the independent variables that make a significant contribution to the dependent variable were the Black student population ($p < 0.001$) and the Economically Disadvantaged (SES) student population ($p < 0.001$) in Models 1 and 2. The White student population makes a significant contribution to the dependent variable in Model 1 ($p < 0.001$) but, not in Model 2 (0.020).

Table 43

Coefficients - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites & Blacks)

Model	Total %	Standardized Coefficients Beta	t	Sig.
1	(Constant)		23.020	.000
	Whites	.523	5.771	.000
	Blacks	-.414	-4.567	.000
2	(Constant)		11.696	.000
	Whites	-.326	-2.403	.020
	Blacks	-.307	-4.559	.000
	Economically Disadvantaged (SES)	-.995	-7.161	.000

Moreover, Table 44's Part column under Correlations, for Model 1, the White student population contributes 24% to the dependent variable, meaning it also explains 24% of the unique variance in the dependent variable and will cause the R^2 to drop 24% if it is not included in the model. The Black student population contributes 15% to the dependent variable, meaning it also explains 15% of the unique variance in the dependent variable and will cause the R^2 to drop 15% if it is not included in the model. On the other hand, for Model 2, the White student population contributes 2.19% to the dependent variable, meaning it also explains 2.19% of variance in the dependent variable and will cause the R^2 to drop 2.19% if it is not included in the model. The Black student population contributes 7.90% to the dependent variable, meaning it also explains 7.90% of variance in the dependent variable and will cause the R^2 to drop 7.90% if it is not included in the model. The Economically Disadvantaged (SES) student population contributes 19.4% to the dependent variable, meaning it also explains 19.4% of variance in the dependent variable and will cause the R^2 to drop 19.4% if it is not included in the model. The strongest contribution to the dependent variable of the passing of the FCAT

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2.0 Mathematics Test comes from the White student population (24%) in Model 1 and

Economically Disadvantaged (SES) student population (19.4%) in Model 2. (See

Appendix II for the Collinearity Statistics explanation)

Table 44

Coefficients Continued - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites & Blacks)

Model		Correlations	Collinearity Statistics	
		Part	Tolerance	VIF
1	(Constant)			
	Whites	.490	.877	1.141
	Blacks	-.387	.877	1.141
2	(Constant)			
	Whites	-.148	.206	4.844
	Blacks	-.281	.834	1.199
	Economically Disadvantaged (SES)	-.441	.197	5.087

Relationship between School Climate and FCAT 2.0 Mathematics Scores when

controlling Racial and Ethnic Concentrations

Whites, Hispanics and School Climate

The study is driven by secondary research questions which tests different

relationships between the dependent variable and independent variables. For this

particular test, significant variance is sought between school climate and the FCAT 2.0

Mathematics scores when controlling the racial and ethnic concentrations (Whites and

Hispanics). There was a high correlation between the White student population, the

Black student population, and the Hispanic student population thus, the Black student

population were left out in order to eliminate the multicollinearity (Appendix II, Table

82). On the other hand, the independent variable of the Black student population was

kept for the Pearson r and Sig. Table (Table 45) so that the correlation of this variable would be known.

As shown in Table 45, the correlations have different strengths. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the r is between 0.3 and 0.7 but, it is also a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation since the r is between 0.3 and 0.7. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation since the r is between -0.3 and -0.7. The parents agreeing that the school climate is positive and helps students learn has a 0.595 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the parents agreeing that the school climate is positive and helps students learn increased while the percentage of the students passing the FCAT 2.0 Mathematics Test also increased. It is a moderate correlation since the r is between 0.3 and 0.7. The students agreeing that the school climate is positive and helps them learn has a 0.741 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test.

It is a strong correlation since the r is between 0.7 and 1 but, it is also a positive

correlation meaning that as the students agreeing that the school climate is positive and

helps them learn increased while the percentage of the students passing the FCAT 2.0

Mathematics Test also increased. The staff agreeing that the school climate is positive

and helps students learn has a 0.605 correlation with the percentage of the students

passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the r is

between 0.3 and 0.7 but it is also a positive correlation meaning that as the staff agreeing

that the school climate is positive and helps students learn increased while the percentage

of the students passing the FCAT 2.0 Mathematics Test also increased.

Table 45

Pearson r and Sig. (1-tailed) - Relationship of School Climate and FCAT 2.0
Mathematics Scores when controlling Racial and Ethnic Concentration (Whites, Blacks,
& Hispanics)

	Total %[a]	Passing FCAT Math	Whites	Hispanics	Blacks	School Climate (Parent)	School Climate (Student)	School Climate (Staff)
Pearson Correlation	Passing FCAT Math	1.000	.668	.429	-.597	.595	.741	.605
	Whites	.668	1.000	.073	-.351	.376	.417	.289
	Hispanics	.429	.073	1.000	-.959	.464	.410	.417
	Blacks	-.597	-.351	-.959	1.000	-.546	-.511	-.478
	School Climate (Parent)	.595	.376	.464	-.546	1.000	.624	.474
	School Climate (Student)	.741	.417	.410	-.511	.624	1.000	.554
	School Climate (Staff)	.605	.289	.417	-.478	.474	.554	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.000	.000	.000
	Whites	.000	.	.290	.003	.002	.001	.013
	Hispanics	.000	.290	.	.000	.000	.001	.001
	Blacks	.000	.003	.000	.	.000	.000	.000
	School Climate (Parent)	.000	.002	.000	.000	.	.000	.000
	School Climate (Student)	.000	.001	.001	.000	.000	.	.000
	School Climate (Staff)	.000	.013	.001	.000	.000	.000	.

Note. a = 59.

For this secondary research question, the independent variable with the strongest

correlation to the dependent variable was percentage of students agreeing that the school

climate is positive and helps them learn. The other independent variables had moderate

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correlations to the dependent variable: the White student population, the Hispanic student population, the Black student population, the parents agreeing that the school climate is positive and helps students learning, and staff agreeing that the school climate is positive and helps students learning. All independent variables had a positive relationship with the dependent variable, meaning that as the value of these variables increased, a higher percentage of students passed the FCAT 2.0 Mathematics Test, except for the Black student population that had a negative relationship.

Table 45 displays the results of the research hypothesis (H5). The P_{crit} established for this study is 0.01. The P_{calc} for the White student population is $p < 0.001$, making it statistically significant since it is less than and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic concentrations. The P_{calc} for the Hispanic student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic concentrations. The P_{calc} for the Black student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic concentrations. The P_{calc} for the parents agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT 2.0 Mathematics

scores when controlling racial and ethnic concentrations. The P_{calc} for the students agreeing that the school climate is positive and helps them learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship between school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic concentrations. The P_{calc} for the staff agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic concentrations.

For each research hypothesis not rejected, a Type I Error has been made if any research hypothesis ends up being incorrect. There is a one percent chance of that happening. Moreover, for this secondary research question, all variables were statistically significant.

As shown in Table 46, the Sum of Squares (SS) Total for both models is 14379.222, representing all the variance in the data. For Model 1, the Sum of Squares (SS) Regression is 8506.953, which is the unique variance that can be explained. For Model 2, the Sum of Squares (SS) Regression is 11025.213, the variance that can be explained. For Model 1, the Sum of Squares (SS) Residual is 5872.269, the variance that cannot be explained. For Model 2, the Sum of Squares (SS) Residual is 3354.009, the variance that cannot be explained. For Model 1, Degrees of Freedom, *df*, for Regression is two and for Residual is 54, for a total of 56 *df*. For Model 2, Degrees of Freedom, *df*, for Regression is five and for Residual is 51, for a total of 56 *df*. The

Mean Square is the variance in the ANOVA. For Regression of Model 1, it is 4253.476

and for Residual, it is 108.746. For Regression of Model 2, it is 2205.043 and for

Residual, it is 65.765. For Model 1, the *F* value is 39.114 which is the test statistic

(TS_{calc} or F_{calc}). For Model 2, the *F* value is 33.529 which is the test statistic (TS_{calc} or

F_{calc}). For the Significant column, $P_{calc,}$ Model 1 is statistically significant since *p* <

0.001 hence it is less than 0.01, thus it does not reject the research hypothesis (H5),

meaning a significant negative relationship exists between school climate and the FCAT

2.0 Mathematics scores when controlling racial and ethnic concentrations. Model 2 is

statistically significant because *p* < 0.001 hence it is less than 0.01, thus it does not

reject the research hypothesis (H5), meaning a significant negative relationship exists

between school climate and the FCAT 2.0 Mathematics scores when controlling racial

and ethnic concentrations. (Hinton et al., 2004)

Table 46

ANOVA - Relationship of School Climate and FCAT 2.0 Mathematics Scores when controlling Racial and Ethnic Concentration (Whites & Hispanics)

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8506.953	2	4253.476	39.114	.000[b]
1	Residual	5872.269	54	108.746		
	Total	14379.222	56			
	Regression	11025.213	5	2205.043	33.529	.000[c]
2	Residual	3354.009	51	65.765		
	Total	14379.222	56			

Note. a. Dependent Variable: % Passing FCAT Math
b. Predictor: (Constant), % of White student population, % of Hispanic student population
c. Predictors: (Constant), % of White student population, % of Hispanic student population, School Climate

Table 47 shows how much each variable contributes to the research question for this particular test. According to the Beta results, the strongest contribution on the passing of the FCAT 2.0 Mathematics Test comes from the White student population, 0.640 in Model 1 and 0.432 in Model 2.

For the Sig. column, the independent variables making a significant contribution to the dependent variable were the White student population ($p < 0.001$) and the Hispanic student population ($p < 0.001$) in Model 1, as well as the White student population ($p < 0.001$) and the positive school climate question of the student survey ($p < 0.001$) in Model 2. The independent variables not making a significant contribution to the dependent variable were the Hispanic student population (0.079), the positive school climate question of the staff survey (0.025), and the positive school climate question of the parent survey (0.635) in Model 2.

Table 47

Coefficients - Relationship of School Climate and FCAT 2.0 Mathematics Scores when controlling Racial and Ethnic Concentration (Whites & Hispanics)

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		12.600	.000
	Whites	.640	7.343	.000
	Hispanics	.382	4.378	.000
2	(Constant)		1.105	.274
	Whites	.432	5.615	.000
	Hispanics	.145	1.794	.079
	School Climate (Parent)	.045	.478	.635
	School Climate (Student)	.365	3.782	.000
	School Climate (Staff)	.197	2.315	.025

Moreover, Table 48's Part column under Correlations, for Model 1, the White student population contributes 40.8% to the dependent variable, meaning it also explains

40.8% of the unique variance in the dependent variable and will cause the R^2 to drop 40.8% if it is not included in the model. The Hispanic student population contributes 14.5% to the dependent variable, meaning it also explains 14.5% of the unique variance in the dependent variable and will cause the R^2 to drop 14.5% if it is not included in the model. On the other hand, for Model 2, the White student population contributes 14.4% to the dependent variable, meaning it also explains 14.4% of variance in the dependent variable and will cause the R^2 to drop 14.4% if it is not included in the model. The Hispanic student population contributes 1.46% to the dependent variable, meaning it also explains 1.46% of variance in the dependent variable and will cause the R^2 to drop 1.46% if it is not included in the model. The positive school climate question of the parent survey contributes 0.10% to the dependent variable, meaning it also explains 0.10% of variance in the dependent variable and will cause the R^2 to drop 0.10% if it is not included in the model. The positive school climate question of the student survey contributes 6.55% to the dependent variable, meaning it also explains 6.55% of variance in the dependent variable and will cause the R^2 to drop 6.55% if it is not included in the model. The positive school climate question of the staff survey contributes 2.46% to the dependent variable, meaning it also explains 2.46% of variance in the dependent variable and will cause the R^2 to drop 2.46% if it is not included in the model. The strongest contribution to the dependent variable of the passing of the FCAT 2.0 Mathematics Test comes from the White student population (40.8%) in Model 1, followed by the Hispanic student population (14.5%) in Model 1. (See Appendix II for the Collinearity Statistics explanation)

Table 48

Coefficients Continued - Relationship of School Climate and FCAT 2.0 Mathematics Scores when controlling Racial and Ethnic Concentration (Whites & Hispanics)

Model		Correlations	Collinearity Statistics	
		Part	Tolerance	VIF
1	(Constant)			
	Whites	.639	.995	1.005
	Hispanics	.381	.995	1.005
2	(Constant)			
	Whites	.380	.774	1.293
	Hispanics	.121	.703	1.422
	School Climate (Parent)	.032	.528	1.895
	School Climate (Student)	.256	.491	2.036
	School Climate (Staff)	.157	.633	1.580

Whites, Blacks and School Climate

This secondary research question was further tested using a combination of different variables. For this particular test, significant variance is sought between school climate and the FCAT 2.0 Mathematics scores when controlling the racial and ethnic concentrations (Whites and Blacks). There was a high correlation between the White student population, the Black student population, and the Hispanic student population thus, the Hispanic student population were left out in order to eliminate the multicollinearity (Appendix II, Table 85). On the other hand, the independent variable of the Hispanic student population was kept for the Pearson *r* and Sig. Table (Table 49) so that the correlation of this variable would be known.

As shown in Table 49, the correlations have different strengths. The White student population has a 0.668 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the *r* is between 0.3 and

0.7 but, it is also a positive correlation meaning that as the White student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. The Hispanic student population has a 0.429 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the Hispanic student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test increased. It is a moderate correlation since the r is between 0.3 and 0.7. The Black student population has a -0.597 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a negative correlation meaning that as the Black student population increased, the percentage of the students passing the FCAT 2.0 Mathematics Test decreased. It is a moderate correlation since the r is between -0.3 and -0.7. The parents agreeing that the school climate is positive and helps students learn has a 0.595 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a positive correlation meaning that as the parents agreeing that the school climate is positive and helps students learn increased while the percentage of the students passing the FCAT 2.0 Mathematics Test also increased. It is a moderate correlation since the r is between 0.3 and 0.7. The students agreeing that the school climate is positive and helps them learn has a 0.741 correlation with the percentage of the students passing the FCAT 2.0 Mathematics Test. It is a strong correlation since the r is between 0.7 and 1 but, it is also a positive correlation meaning that as the students agreeing that the school climate is positive and helps them learn increased while the percentage of the students passing the FCAT 2.0 Mathematics Test also increased. The staff agreeing that the school climate is positive and helps students learn has a 0.605 correlation with the percentage of the students

passing the FCAT 2.0 Mathematics Test. It is a moderate correlation since the r is

between 0.3 and 0.7 but it is also a positive correlation meaning that as the staff agreeing

that the school climate is positive and helps students learn increased while the percentage

of the students passing the FCAT 2.0 Mathematics Test also increased.

Table 49

Pearson r and Sig. (1-tailed) - Relationship of School Climate and FCAT 2.0
Mathematics Scores when controlling Racial and Ethnic Concentration (Whites, Blacks,
& Hispanics)

	Total %[a]	Passing FCAT Math	Whites	Hispanics	Blacks	School Climate (Parent)	School Climate (Student)	School Climate (Staff)
Pearson Correlation	Passing FCAT Math	1.000	.668	.429	-.597	.595	.741	.605
	Whites	.668	1.000	.073	-.351	.376	.417	.289
	Hispanics	.429	.073	1.000	-.959	.464	.410	.417
	Blacks	-.597	-.351	-.959	1.000	-.546	-.511	-.478
	School Climate (Parent)	.595	.376	.464	-.546	1.000	.624	.474
	School Climate (Student)	.741	.417	.410	-.511	.624	1.000	.554
	School Climate (Staff)	.605	.289	.417	-.478	.474	.554	1.000
Sig. (1-tailed)	Passing FCAT Math	.	.000	.000	.000	.000	.000	.000
	Whites	.000	.	.290	.003	.002	.001	.013
	Hispanics	.000	.290	.	.000	.000	.001	.001
	Blacks	.000	.003	.000	.	.000	.000	.000
	School Climate (Parent)	.000	.002	.000	.000	.	.000	.000
	School Climate (Student)	.000	.001	.001	.000	.000	.	.000
	School Climate (Staff)	.000	.013	.001	.000	.000	.000	.

Note. $a = 59$.

For this secondary research question, the independent variable with the strongest

correlation to the dependent variable was percentage of students agreeing that the school

climate is positive and helps them learn. The independent variables with moderate

correlations to the dependent variable were the White student population, the Hispanic student population, the Black student population, the parents agreeing that the school climate is positive and helps students learning, and staff agreeing that the school climate is positive and helps students learning. All independent variables had a positive relationship with the dependent variable, meaning that as the value of these variables increased, a higher percentage of students passed the FCAT 2.0 Mathematics Test, except for the Black student population that had a negative relationship.

Table 49 displays the results of the research hypothesis (H5). The P_{crit} established for this study is 0.01. The P_{calc} for the White student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic concentrations. The P_{calc} for the Hispanic student population $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic concentrations. The P_{calc} for the Black student population is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic concentrations. The P_{calc} for the parents agreeing that the school climate is positive and helps students learn is $p < 0.001$, making it statistically significant since it is less than 0.01 and not rejecting the research hypothesis (H5), meaning a significant negative relationship exists between school climate and the FCAT

2.0 Mathematics scores when controlling racial and ethnic concentrations. The P_{calc} for

the students agreeing that the school climate is positive and helps them learn is $p < 0.001$,

making it statistically significant since it is less than 0.01 and not rejecting the research

hypothesis (H5), meaning a significant negative relationship exists between school

climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic

concentrations. The P_{calc} for the staff agreeing that the school climate is positive and

helps students learn is $p < 0.001$, making it statistically significant since it is less than

0.01 and not rejecting the research hypothesis (H5), meaning a significant negative

relationship exists between school climate and the FCAT 2.0 Mathematics scores when

controlling racial and ethnic concentrations.

For each research hypothesis not rejected, a Type I Error has been made if any

research hypothesis ends up being incorrect. There is a one percent chance of that

happening. Moreover, for this secondary research question, all variables were

statistically significant.

As shown in Table 50, the Sum of Squares (SS) Total for both models is

14379.222, which represents all the variance in the data. For Model 1, the Sum of

Squares (SS) Regression is 8581.584, which is the unique variance that can be explained.

For Model 2, the Sum of Squares (SS) Regression is 11035.906, which is the variance

that can be explained. For Model 1, the Sum of Squares (SS) Residual is 5797.638,

which is the variance that cannot be explained. For Model 2, the Sum of Squares (SS)

Residual is 3343.316, which is the variance that cannot be explained. For Model 1,

Degrees of Freedom, *df*, for Regression is two and for Residual is 54, for a total of 56 *df*.

For Model 2, Degrees of Freedom, *df*, for Regression is five and for Residual is 51, for a

total of 56 *df*. The Mean Square is the variance in the ANOVA. For Regression of

Model 1, it is 4290.792 and for Residual, it is 107.364. For Regression of Model 2, it is

2207.181 and for Residual, it is 65.555. For Model 1, the *F* value is 39.965 which is the

test statistic (TS_{calc} or F_{calc}). For Model 2, the *F* value is 33.669 which is the test statistic

(TS_{calc} or F_{calc}). For the Significant column, $P_{calc,}$ Model 1 is statistically significant since

$p < 0.001$ hence it is less than 0.01, thus it does not reject the research hypothesis (H5),

meaning a significant negative relationship exists between school climate and the FCAT

2.0 Mathematics scores when controlling racial and ethnic concentrations. Model 2 is

statistically significant because $p < 0.001$ hence it is less than 0.01, thus it does not reject

the research hypothesis (H5), meaning a significant negative relationship exists between

school climate and the FCAT 2.0 Mathematics scores when controlling racial and ethnic

concentrations. (Hinton et al., 2004)

Table 50

*ANOVA - Relationship of School Climate and FCAT 2.0 Mathematics Scores when
controlling Racial and Ethnic Concentration (Whites & Blacks)*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8581.584	2	4290.792	39.965	.000[b]
	Residual	5797.638	54	107.364		
	Total	14379.222	56			
2	Regression	11035.906	5	2207.181	33.669	.000[c]
	Residual	3343.316	51	65.555		
	Total	14379.222	56			

Note. a. Dependent Variable: % Passing FCAT Math
b. Predictor: (Constant), % of White student population, % of Black student population
c. Predictors: (Constant), % of White student population, % of Black student population,
School Climate

Table 51 shows how much each variable contributes to the research question for this particular test. According to the Beta results, the strongest contribution on the passing of the FCAT 2.0 Mathematics Test comes from the White student population, 0.523 in Model 1 and 0.388 in Model 2.

For the Sig. column, the independent variables making a significant contribution to the dependent variable were the White student population ($p < 0.001$) and the Black student population ($p < 0.001$) in Model 1, as well as the White student population ($p < 0.001$), and the positive school climate question of the student survey ($p < 0.001$) in Model 2. The independent variable not making a significant contribution to the dependent variable is the Black student population (0.071) and the positive school climate question of the parent survey (0.647), and the positive school climate question of the staff survey (0.025) in Model 2.

Table 51

Coefficients - Relationship of School Climate and FCAT 2.0 Mathematics Scores when controlling Racial and Ethnic Concentration (Whites & Blacks)

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)		22.608	.000
	Whites	.523	5.667	.000
	Blacks	-.414	-4.484	.000
2	(Constant)		1.646	.106
	Whites	.388	5.112	.000
	Blacks	-.159	-1.842	.071
	School Climate (Parent)	.043	.461	.647
	School Climate (Student)	.363	3.763	.000
	School Climate (Staff)	.196	2.304	.025

Moreover, Table 52's Part column under Correlations, for Model 1, the White student population contributes 24% to the dependent variable, meaning it also explains

24% of the unique variance in the dependent variable and will cause the R^2 to drop 24%

if it is not included in the model. The Black student population contributes 15% to the

dependent variable, meaning it also explains 15% of the unique variance in the dependent

variable and will cause the R^2 to drop 15% if it is not included in the model. On the other

hand, for Model 2, the White student population contributes 11.9% to the dependent

variable, meaning it also explains 11.9% of variance in the dependent variable and will

cause the R^2 to drop 11.9% if it is not included in the model. The Black student

population contributes 1.54% to the dependent variable, meaning it also explains 1.54%

of variance in the dependent variable and will cause the R^2 to drop 1.54% if it is not

included in the model. The positive school climate question of the parent survey

contributes 0.10% to the dependent variable, meaning it also explains 0.10% of variance

in the dependent variable and will cause the R^2 to drop 0.10% if it is not included in the

model. The positive school climate question of the student survey contributes 6.45% to

the dependent variable, meaning it also explains 6.45% of variance in the dependent

variable and will cause the R^2 to drop 6.45% if it is not included in the model. The

positive school climate question of the staff survey contributes 2.43% to the dependent

variable, meaning it also explains 2.43% of variance in the dependent variable and will

cause the R^2 to drop 2.43% if it is not included in the model. The strongest contribution

to the dependent variable of the passing of the FCAT 2.0 Mathematics Test comes from

the White student population (24%) in Model 1, followed by the Black student population

(15%) in Model 1. (See Appendix II for the Collinearity Statistics explanation)

Table 52

Coefficients Continued - Relationship of School Climate and FCAT 2.0 Mathematics
Scores when controlling Racial and Ethnic Concentration (Whites & Black)

Model		Correlations	Collinearity Statistics	
		Part	Tolerance	VIF
1	(Constant)			
	Whites	.490	.877	1.141
	Blacks	-.387	.877	1.141
2	(Constant)			
	Whites	.345	.790	1.266
	Blacks	-.124	.612	1.633
	School Climate (Parent)	.031	.527	1.897
	School Climate (Student)	.254	.490	2.040
	School Climate (Staff)	.156	.632	1.581

Chapter 4 presented the relationship between the scores of FCAT 2.0

Mathematics Test and the racial and ethnic concentrations, ESOL student population,

socio-economic status, and school climate. Lastly, Chapter 5 will summarize the findings

of the study and discuss the implications of the study for educational policy, theory, and

further research.

CHAPTER 5

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

This quantitative study analyzed the relationship between the FCAT 2.0 mathematics scores of public middle school students in Miami-Dade County, Florida and the racial and ethnic concentrations (Whites, Blacks, and Hispanics), ESOL student population, socio-economic status, and school climate for the 2010 – 2011 school year. Data were gathered from various documents published by the Florida Department of Education and Miami-Dade County Public Schools: FLDOE's *FCAT School Accountability Report* (2010-2011 Edition), FLDOE's *2011 AYP Report* (2010-2011 Edition), and MDCPS' *School Climate Survey Individual Results* (2010-2011 Edition). Multiple Linear Regression was used to analyze the data and test the hypotheses, determining significant relationships between the independent variables and dependent variable.

Miami-Dade County Public Schools have racial and ethnic concentrations, ESOL student populations, different levels of socio-economic statuses, and varying school climate, like many school districts in metropolitan areas. "Miami-Dade County is one of the most ethnically/racially diverse metropolitan areas in the United States and continues to experience a profound demographic transformation that has major implications for educational policies, minority student academic achievement, and the concept of equal educational opportunity" (Moore, 2002, p.209). Even though all school districts are unique, this study on Miami-Dade County can provide insight to school districts with similar characteristics.

Mathematics achievement has been hindered by various factors such as racial and ethnic concentrations (Whites, Blacks and Hispanics), socio-economic status, ESOL student population, and school climate. These variables all interact with one another, in some cases too much, to create multicollinearity, but the data supports the research findings.

It is evident that Miami-Dade County Public Schools must continue its efforts to improve the performance of students on the FCAT 2.0 Mathematics Test despite the challenges which students may face that are beyond their control. Racial and ethnic concentrations in schools, socio-economic status of students, size of the ESOL student population, and how positive the school climate is hampers the efforts to provide all students with an equal and quality education but it should not restrict the progress of providing it. Every possible effort needs to be made to ensure that all students receive an equal and quality education. The No Child Left Behind Act focuses on closing "the achievement gap with accountability, flexibility and choice, so that no child is left behind" declared that "all men are created equal" (One Hundred Seventh Congress of the United States of America, 2008). Despite the challenges students face, they are all equal, so they should all receive an equal and quality education. If the poor academic performance of students is because of the educational institutions and policies, society fails to adhere to providing all students with an equal and quality education. Thus, all school districts must constantly strive to provide all students with an equal and quality education.

Summary of Relationship between FCAT 2.0 Math Scores and Racial and Ethnic

Concentrations, Socio-Economic Status, ESOL Student Population, and School

Climate

The study postulated the following five research hypotheses regarding the relationship between the FCAT 2.0 mathematics scores, racial and ethnic concentration, socio-economic status, ESOL student population, and school climate for the 2010-2011 school year in the public middle schools in Miami-Dade County.

1. There is a significant negative relationship between the FCAT 2.0 mathematics scores and racial and ethnic concentration of public middle schools in Miami-Dade County when controlling socio-economic status, ESOL student population, and school climate for the 2010-2011 school year. This research hypothesis was not rejected because as stated in Table 5, Table 9, Table 13, Table 17, and Table 21, a statistically significant negative relationship exists between the independent variables and dependent variable, $p < 0.001$ since it is less than 0.01.

To test this hypothesis, several tests were done, grouping the independent variables differently due to multicollinearity. By removing one or more of the highly correlated independent variables, it was possible to analyze the individual contribution of each independent variable to the FCAT 2.0 Mathematics scores. For the Blacks, socio-economic status, ESOL, and school climate test, these independent variables together have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 5). The independent variables that did have a statistically significant relationship with the FCAT 2.0 Mathematics scores were the Economically Disadvantaged (SES) student population ($p < 0.001$) and the positive school climate question of the student survey

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(0.002) in Model 1 and the Economically Disadvantaged (SES) student population ($p <$ 0.001) and the positive school climate question of the student survey (0.002) in Model 2. On the other hand, specific independent variables individually did not have a statistically significant relationship with the FCAT 2.0 Mathematics scores such as the ESOL student population (0.047), the positive school climate question of the parent survey (0.347), and the positive school climate question of the staff survey (0.029) for Model 1 and the Black student population (0.214), the ESOL student population (0.299), the positive school climate question of the parent survey (0.535), and the positive school climate question of the staff survey (0.063) for Model 2 (Table 7). For this test, after squaring the values in the Part column under Correlations in Table 8, the strongest contribution on the dependent variable comes from the Economically Disadvantaged (SES) student population at 20.1% in Model 1 and 14.2% in Model 2.

For the Blacks, Whites, ESOL and school climate test, these independent variables together have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 9). The independent variables that did have a statistically significant relationship with the FCAT 2.0 Mathematics scores were the positive school climate question of the student survey ($p < 0.001$) in Model 1 and the White student population (0.001) and the positive school climate question of the student survey ($p <$ 0.001) in Model 2. On the other hand, specific independent variables individually did not have a statistically significant relationship with the FCAT 2.0 Mathematics scores such as the ESOL student population (0.039), the positive school climate question of the parent survey (0.097), and the positive school climate question of the staff survey (0.026) for Model 1 and the Black student population (0.039), the ESOL student population (0.296),

the positive school climate question of the parent survey (0.631), and the positive school climate question of the staff survey (0.047) for Model 2 (Table 11). For this test, after squaring the values in the Part column under Correlations in Table 12, the strongest contribution on the dependent variable comes from the positive school climate question of the student survey at 13.69% in Model 1 and 6.76% in Model 2.

For the Whites, Hispanics, ESOL and school climate test, these independent variables together have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 13). The independent variables that did have a statistically significant relationship with the FCAT 2.0 Mathematics scores were the positive school climate question of the student survey ($p < 0.001$) in Model 1 and the White student population ($p < 0.001$) and the positive school climate question of the student survey ($p < 0.001$) in Model 2. On the other hand, specific independent variables individually did not have a statistically significant relationship with the FCAT 2.0 Mathematics scores such as the ESOL student population (0.039), the positive school climate question of the parent survey (0.097), and the positive school climate question of the staff survey (0.026) for Model 1 and the Hispanic student population (0.043), the ESOL student population (0.301), the positive school climate question of the parent survey (0.619), and the positive school climate question of the staff survey (0.046) for Model 2 (Table 15). For this test, after squaring the values in the Part column under Correlations in Table 16, the strongest contribution on the dependent variable comes from the positive school climate question of the student survey at 13.69% in Model 1, followed by the White student population at 9.36% in Model 2.

For the Hispanics, ESOL and school climate test, these independent variables together have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 17). The independent variables that did have a statistically significant relationship with the FCAT 2.0 Mathematics scores were the positive school climate question of the student survey ($p < 0.001$) in Model 1 and the ESOL student population (0.005) and the positive school climate question of the student survey ($p < 0.001$) in Model 2. On the other hand, specific independent variables individually did not have a statistically significant relationship with the FCAT 2.0 Mathematics scores such as the On the other hand, specific independent variables individually did not have a statistically significant relationship with the FCAT 2.0 Mathematics scores such as the ESOL student population (0.039), the positive school climate question of the parent survey (0.097), and the positive school climate question of the staff survey (0.026) for Model 1 and the Hispanic student population (0.041), the positive school climate question of the parent survey (0.254), and the positive school climate question of the staff survey (0.102) for Model 2 (Table 19). For this test, after squaring the values in the Part column under Correlations in Table 20, the strongest contribution on the dependent variable comes from the positive school climate question of the student survey at 13.69% in Model 1 and 12.6% in Model 2.

For the Whites, ESOL and school climate test, these independent variables together have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 21). The independent variables that did have a statistically significant relationship with the FCAT 2.0 Mathematics scores were the positive school climate question of the student survey ($p < 0.001$) in Model 1 and the White student population (p

< 0.001), the positive school climate question of the student survey ($p < 0.001$), and the positive school climate question of the staff survey (0.010) in Model 2. On the other hand, specific independent variables individually did not have a statistically significant relationship with the FCAT 2.0 Mathematics scores such as the ESOL student population (0.039), the positive school climate question of the parent survey (0.097), and the positive school climate question of the staff survey (0.026) for Model 1 and the ESOL student population (0.993) and the positive school climate question of the parent survey (0.331) in Model 2 (Table 23). For this test, after squaring the values in the Part column under Correlations in Table 24, the strongest contribution on the dependent variable comes from the positive school climate question of the student survey at 13.69% in Model 1, followed by the White student population at 10.2% in Model 2.

2. There is a significant negative relationship between the FCAT 2.0 mathematics scores and racial and ethnic concentration when controlling the ESOL student population of the school. This research hypothesis is rejected for Model 1 because as stated in Table 26 and Table 30, no statistically significant relationship exists between the ESOL student population and dependent variable (0.312 > 0.01). For Model 2, this research hypothesis is not rejected because as stated in Table 26 and Table 30, a statistically significant relationship exists between the independent variables and the dependent variable, $p < 0.001$ since it is less than 0.01.

To test this hypothesis, several tests were done, grouping the independent variables differently due to multicollinearity. By removing one or more of the highly correlated independent variables, it was possible to analyze the individual contribution of each independent variable. For the Whites, Hispanic and ESOL test, these independent

variables together, Model 2, have a statistically significant relationship with the FCAT

2.0 Mathematics scores (Table 25) but when the ESOL student population is being

controlled for, no statistically significant relationship exists with the dependent variable.

Additionally, for Model 1 (0.312) and Model 2 (0.351), the ESOL student population did

not have a statistically significant relationship with the FCAT 2.0 Mathematics scores

(Table 27). In Model 2, the White student population ($p < 0.001$) and the Hispanic

student population ($p < 0.001$) did have a statistically significant relationship with the

FCAT 2.0 Mathematics scores. For this test, after squaring the values in the Part column

under Correlations in Table 28, the strongest contribution on the dependent variable

comes from the White student population at 26.8%, followed by the Hispanic student

population at 13.2%.

For the Whites, Blacks and ESOL test, these independent variables together,

Model 2, have a statistically significant relationship with the FCAT 2.0 Mathematics

scores (Table 29) but when the ESOL student population is being controlled for, it has no

statistically significant relationship with the dependent variable. Additionally, for Model

1 (0.312) and Model 2 (0.336), the ESOL student population did not have a statistically

significant relationship with the FCAT 2.0 Mathematics scores (Table 31). In Model 2,

the White student population ($p < 0.001$) and the Black student population ($p < 0.001$) did

have a statistically significant relationship with the FCAT 2.0 Mathematics scores. For

this test, after squaring the values in the Part column under Correlations in Table 32, the

strongest contribution on the dependent variable comes from the Black student

population at 13.69%, followed by the White student population at 12.5%.

3. There is a significant negative relationship between the FCAT 2.0 mathematics scores and SES. This research hypothesis is not rejected because as stated in Table 33 and Table 34 there is a statistically significant relationship between the Economically Disadvantaged (SES) student population and the FCAT 2.0 Mathematics scores, $p < 0.001$ since it is less than 0.01. For this test, after squaring the values in the Part column under Correlations in Table 36, the Economically Disadvantaged student population has a contribution of 68.89% on the FCAT 2.0 Mathematics scores.

4. There is a significant negative relationship between the FCAT 2.0 mathematics scores and SES when controlling racial and ethnic concentrations. This research hypothesis is not rejected for Model 1 and Model 2 because as stated in Table 37 and Table 41, there is a statistically significant relationship between the independent variables and dependent variable, $p < 0.001$ since it is less than 0.01.

To test this hypothesis, several tests were done, grouping the independent variables differently due to multicollinearity. By removing one or more of the highly correlated independent variables, it was possible to analyze the individual contribution of each independent variable. For the Whites, Hispanics and socio-economic status test, these independent variables together, Model 2, have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 37) as well as when the racial and ethnic concentrations are being controlled in Model 1. The independent variables that did have a statistically significant relationship with the FCAT 2.0 Mathematics scores were the White student population ($p < 0.001$) and the Hispanic student population ($p < 0.001$) in Model 1 and the Hispanic student population ($p < 0.001$) and the Economically Disadvantaged (SES) student population ($p < 0.001$) in Model 2. On the other hand, for

Model 2, the White student population did not have a statistically significant (0.080) relationship with the FCAT 2.0 Mathematics scores (Table 39). For this test, after squaring the values in the Part column under Correlations in Table 40, the strongest contribution on the dependent variable comes from the White student population at 40.8% in Model 1, followed by the Economically Disadvantaged (SES) student population at 19.8% in Model 2.

For the Whites, Blacks and socio-economic status test, these independent variables together, Model 2, have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 41) as well as when the racial and ethnic concentrations are being controlled in Model 1 The independent variables that did have a statistically significant relationship with the FCAT 2.0 Mathematics scores were the White student population ($p < 0.001$) and the Black student population ($p < 0.001$) in Model 1 and the Black student population ($p < 0.001$) and the Economically Disadvantaged (SES) student population ($p < 0.001$) in Model 2 (Table 43). On the other hand, for Model 2, the White student population (0.20) did not have a statistically significant relationship with the FCAT 2.0 Mathematics scores. For this test, after squaring the values in the Part column under Correlations in Table 44, the strongest contribution on the dependent variable comes from the White student population at 24% in Model, followed by Economically Disadvantaged (SES) student population at 19.4% in Model 2. .

5. There is a significant negative relationship between the FCAT 2.0 mathematics scores and school climate when controlling racial and ethnic concentrations. This research hypothesis is not rejected for Model 1 and Model 2 because as stated in Table 45

and Table 49, there is a statistically significant relationship between the independent variables and dependent variable, $p < 0.001$ since it is less than 0.01.

To test this hypothesis, several tests were done, grouping the independent variables differently due to multicollinearity. By removing one or more of the highly correlated independent variables, it was possible to analyze the individual contribution of each independent variable. For the Whites, Hispanics and school climate test, these independent variables together, Model 2, have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 45) as well as when the racial and ethnic concentrations are being controlled in Model 1. The independent variables that did have a statistically significant relationship with the FCAT 2.0 Mathematics scores were the White student population ($p < 0.001$) and the Hispanic student population ($p < 0.001$) in Model 1 and the White student population ($p < 0.001$) and the positive school climate question in the student survey ($p < 0.001$) in Model 2 (Table 47). On the other hand, for Model 2, the Hispanic student population (0.079), the positive school climate question of the parent survey (0.635), and the positive school climate question in the staff survey (0.025) did not have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 47). For this test, after squaring the values in the Part column under Correlations in Table 48, the strongest contribution on the dependent variable comes from Model 1, the White student population at 40.8%, followed by the Hispanic student population at 14.5% in Model 1.

For the Whites, Blacks and school climate test, these independent variables together, Model 2, have a statistically significant relationship with the FCAT 2.0 Mathematics scores (Table 49) as well as when the racial and ethnic concentrations are

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being controlled in Model 1. The independent variables that did have a statistically

significant relationship with the FCAT 2.0 Mathematics scores were the White student

population ($p < 0.001$) and the Black student population ($p < 0.001$) in Model 1 and the

White student population ($p < 0.001$) and the positive school climate question in the

student survey ($p < 0.001$) in Model 2 (Table 51). On the other hand, for Model 2, the

Black student population (0.071), the positive school climate question of the parent

survey (0.647), and the positive school climate question of the staff survey (0.025) did

not have a statistically significant relationship with the FCAT 2.0 Mathematics scores

(Table 51). For this test, after squaring the values in the Part column under Correlations

in Table 52, the strongest contribution on the dependent variable comes from Model 1,

the White student population at 24%, followed by the Black student population at 15% in

Model 2.

Hence, the results of the quantitative study found that all five research hypotheses

were not rejected, meaning statistically significant relationships were found between the

independent variables and dependent variable. For the second research hypothesis and its

two tests, when controlling the ESOL student population (Model 1), there was no

statistically significant relationship with the FCAT 2.0 Mathematics scores. On the other

hand, for Model 2, combining the White student population, the Hispanic student

population and the ESOL student population for Test 1 and the White student population,

the Black student population, and the ESOL student population for Test 2, there was a

statistically significant relationship with the FCAT 2.0 Mathematics scores, thus not

rejecting the research hypothesis.

Moreover, the Economically Disadvantaged (SES) student population was the strongest correlated variable with the passing of the FCAT 2.0 Mathematics Test, followed by the positive school climate question of the student survey and the White student population. The relationship was that the higher the Economically Disadvantaged (SES) student population variable, the lower number of students who passed the FCAT 2.0 Mathematics Test. This relationship was negative and strong. For the test on the relationship between the dependent variable and the Black student population, socio-economic status, the ESOL student population, and the school climate, socio-economic status had a correlation of -0.830 (Table 5). For the test on the relationship between the dependent variable and socio-economic status, socio-economic status had a correlation of -0.830 (Table 33). For the test on the relationship between the dependent variable and the White student population, the Hispanic student population, and socio-economic status, socio-economic status had a correlation of -0.830 (Table 37). For the test on the relationship between the dependent variable and the White student population, the Black student population, and socio-economic status, socio-economic status had a correlation of -0.830 (Table 41). The independent variable of socio-economic status is the single most powerful predictor of academic achievement and supports the major finding of the Coleman Report (Coleman, 1966).

Furthermore, the more students agreed that their school climate was positive and helped them learn, the more students passed the FCAT 2.0 Mathematics Test. This relationship was positive and strong. For the test on the relationship between the dependent variable and the Black student population, the ESOL student population, socio-economic status, and school climate, the school climate from the students'

perception had a correlation of 0.741 (Table 5). For the test on the relationship between the dependent variable and the Black student population, the White student population, the ESOL student population, and school climate, the school climate from the students' perception had a correlation of 0.741 (Table 9). For the test on the relationship between the dependent variable and the White student population, the Hispanic student population, the ESOL student population, and school climate, the school climate from the students' perception had a correlation of 0.741 (Table 13). For the test on the relationship between the dependent variable and the Hispanic student population, the ESOL student population, and school climate, the school climate from the students' perception had a correlation of 0.741 (Table 17). For the test on the relationship between the dependent variable and the White student population, the ESOL student population, and school climate, the school climate from the students' perception had a correlation of 0.741 (Table 21). For the test on the relationship between the dependent variable and the White student population, the Hispanic student population, and school climate, the school climate from the students' perception had a correlation of 0.741 (Table 45). For the test on the relationship between the dependent variable and the White student population, the Black student population, and school climate, the school climate from the students' perception had a correlation of 0.741 (Table 49). The more students agreed that their school climate was positive and helped them learn, the more passed the FCAT 2.0 Mathematics Test, having the second largest relation to the dependent variable. Feeling safe and comfortable and knowing that they are learning helps students succeed. Having a strong positive correlation between the school climate and achievement will only reflect in higher academic achievement and aspirations for the students (Chenoweth, 2007).

Additionally, the larger the White student population, the more students passed the FCAT 2.0 Mathematics Test. For the test on the relationship between the dependent variable and the Black student population, the White student population, the ESOL student population, and school climate, the White student population had a correlation of 0.668 (Table 9). For the test on the relationship between the dependent variable and the White student population, the Hispanic student population, the ESOL student population, and school climate, the White student population had a correlation of 0.668 (Table 13). For the test on the relationship between the dependent variable and the White student population, the ESOL student population, and school climate, the White student population had a correlation of 0.668 (Table 21). For the test on the relationship between the dependent variable and the White student population, the Hispanic student population, and ESOL student population, the White student population had a correlation of 0.668 (Table 25). For the test on the relationship between the dependent variable and the White student population, the Black student population, and the ESOL student population, the White student population had a correlation of 0.668 (Table 29). For the test on the relationship between the dependent variable and the White student population, the Hispanic student population, and socio-economic status, the White student population had a correlation of 0.668 (Table 37). For the test on the relationship between the dependent variable and the White student population, the Black student population, and socio-economic status, the White student population had a correlation of 0.668 (Table 41). Due to racial and ethnic dimensions in Miami-Dade County, there is no public middle school with the White student population as the majority. But, for students attending public middle schools that have a White student population, they are exposed to

better educational opportunities and resources. Borman et al. (2004) stated that "access to predominantly White institutions would enhance the social mobility and life chances" for racial and ethnic minority students (p.607). These three variables have a significant relation to the passing of the FCAT 2.0 Mathematics Test. Thus, the results of the data analysis are consistent with the researching findings.

Table 1 and Table 2 provide percentages for each independent variable group tested in this study. The Economically Disadvantaged (SES) student population independent variable, which was the strongest correlated variable with passing of the FCAT 2.0 Mathematics Test, holds the largest percentage for sample population tested in this study at 79.3% (Table 1). The variable with the second strongest correlation with the passing of the FCAT 2.0 Mathematics Test is the students that agreed that their school climate is positive and helped them learn. This variable actually holds the third largest percentage for sample population tested in this study at 44.1% (Table 2). Interestingly, the Hispanic student population has the second largest percentage for sample population tested yet this independent variable is not in the top three strongest correlated variables. The third strongest correlated variable with the passing of the FCAT 2.0 Mathematics Test is the White student population. This variable actually holds the smallest percentage, 8.0%, for the sample population tested yet this independent variable was the third strongest correlated variable with the dependent variable (Table 1).

Table 1 and Table 2 show that the data for this study is based on a large population of over 54,000 students and that the top three variables with strongest correlation with the passing of the FCAT 2.0 Mathematics Test (Economically Disadvantaged student population, students that agreed their school climate was positive

and helped them learn, White student population) represented a significant portion of the population. Economically Disadvantaged (SES) student population and students that agreed their school climate was positive and helped them learn were greater than 44% of the population while the White student population, although only 8% of the population, was still a significant portion of the population.

Discussion and Implications for Improving Student Performance on the FCAT 2.0 Mathematics Test

This quantitative study focused on exploring whether a relationship exists between public middle school students' performance on the FCAT 2.0 Mathematics Test and racial and ethnic concentrations, socio-economic status, ESOL student population, and school climate in Miami-Dade County, Florida. The major findings from this study clearly show that there is a strong relationship between the independent variables of socio-economic status, the positive school climate question on the student survey, and the White student population on the dependent variable. There is a strong negative relationship between the amount of Economically Disadvantaged (SES) students, decreasing the scores on the FCAT 2.0 Mathematics Test. Additionally, there is a strong positive relationship between the amount of students who agreed that their school climate was positive and helped them learn, increasing the scores on the FCAT 2.0 Mathematics Test. Lastly, there is a strong positive relationship between the White student population and increasing the scores on the FCAT 2.0 Mathematics Test.

Socio-economic Status

This study on Miami-Dade County Public Schools, being a large and diverse school district, has important implications on similar school districts such as Chicago,

Los Angeles, and New York. These and other school districts face similar problems, especially those with high levels of Economically Disadvantaged (SES) students. High levels of economically disadvantaged families have a negative relation to the mathematics achievement of public middle school students in Miami-Dade County. There may be just one parent, lack of involvement, interest, support, no adult supervision, absence of books and educational resources at home, and no structure at home, all necessary for students to succeed (Hofferth & Sandberg, 2001). Low socio-economic status is also connected with other factors such as high levels of racial and ethnic concentrations in neighborhoods and schools, high ESOL population in schools, and negative school climate among many factor that have an adverse relationship to improve the academic achievement of minority populations (Williams, 1999).

This study found that there is a strong relation between being economically disadvantaged (having a low socio-economic status) and the FCAT 2.0 Mathematics scores in Miami-Dade County. Low socio-economic status is composed of various intricate and complex factors such as segregation, poverty, homeownership, parental influence, parental involvement, parents' education, and family structure. Previous studies such as Coleman (1966), Berliner and Biddle (1995), Valencia (1997), Borman et al. (2004), Street (2005) and Cortes Jr. (2010) found that socio-economic status has a negative relationship on students' academic achievement. "Minorities are more likely to live in low income households or in single parent families, their parents are likely to have less education and they often attend underfunded schools" (Ethington & Wilson, 2010, p.20).

As the study demonstrated, Miami-Dade County Public Schools has a large student population that comes from low socio-economic status households. "Students who reside in substandard housing and attend schools with limited resources are expected to attain the same level of success as students who attend schools with a plethora of educational resources that are located in middle-class neighborhoods" (Ethington & Wilson, 2010, pp. 19-20). Despite various educational policies that have been established like Title I, Title VII, Goals 2000, and No Child Left Behind, the needs of Economically Disadvantaged (SES) students continues to not be met, even with the options from school choice: vouchers, magnet programs, and charter schools. Families using the school choice option may leave behind the problem in their child's home public school, but allowing families to abandon the problem is not the same as addressing it (Gersti-Pepin, 2002). As stated by Gersti-Pepin (2002), policymakers create educational policies that appear to make schools better, but the educational policies are not ensuring that all students receive the same quality education.

Meeting the needs of Economically Disadvantaged (SES) students, which include lack of parent support and involvement, bad nutrition, absence of books and educational resources at home, dangerous neighborhoods, lack of good hygiene, no structure, and unstable sleeping patterns among many is difficult due to various outside factors that are intricate and complex (Hofferth & Sandberg, 2001). There are other factors that include inadequate resources at the schools and insufficient professional development opportunities for teachers, causing teachers to want to teach at schools that equip them with the necessities for students to succeed or leave the field altogether (Ethington & Wilson, 2010). These outside factors include the economic situation of the family,

county, state, and nation, politics, parental choices, crime rates, and demographic conditions. All these factors are beyond the control of educators, but these factors are part of low socio-economic status and so greatly relate to students' academic achievement.

Miami-Dade County Public Schools have made efforts to meet the needs of Economically Disadvantaged (SES) students by adopting educational policies such as Title I, Title VII, Goals 2000, and No Child Left Behind. Unfortunately, the funds provided by these educational policies have not been sufficient or used incorrectly to meet the needs of Economically Disadvantaged (SES) students (Gonzalez, 2005). With a county population of 2,496,435 people, only a little more than half the population of Miami-Dade County, 58.3%, own their home, and 17.1% are living below the poverty line (U.S. Census Bureau, 2010a). It is difficult to meet the great amount of needs of students living below the poverty line. Thus, educational policies such as Title I, Title VII, Goals 2000, and No Child Left Behind and school choice such as vouchers, magnet programs, and charter schools have had little relation on meeting the need of Miami-Dade County Public School students.

School Climate

Additionally, this study found that the second strongest relationship comes from the results of the positive school climate question on the student survey. In this study, students, parents, and school staff were surveyed about the climate of the school. School climate, positively or negatively, relates to students' academic achievement and behavior. The study concluded that the more students agreed that the climate at their schools was positive and helped them learn, the higher they scored on the FCAT 2.0 Mathematics

Test in Miami-Dade County Public Schools. The positive school climate question on the parent survey and on the staff survey did not have such a strong relationship as the positive school climate question of the student survey. This would suggest that ultimately, students decide if their school climate is positive and helps them learn. The image of the school and their experiences there will be reflected on their academic achievement (Carwell, 2012). The students' perception of education has a stronger relationship because they are the ones learning, not their parents or the staff. Regardless, all stakeholders have a relationship with the school climate.

The climate of a school is vital to the students' success. How the stakeholders feel and act towards it, sets the tone in the school. There are several outside factors that relate to the school's climate that are uncontrollable, intricate and complex. "The problems associated with poor climate at many schools with high minority student populations are blamed for shortchanging those students" (Doyal, 2009, p. 22). Doyal (2009) added that "these schools suffer from poor discipline, poor funding, low staff morale, and lower parental involvement, factors that are blamed for a very high teacher attrition rate and a less qualified caliber of teachers" (p. 22). Personal school experiences of stakeholders, inadequate resources at schools and homes, low morale at schools, lack of funding for schools, limited professional development for teachers, absence of educational programs at schools, high levels of low socio-economic status at schools, and limited extracurricular activities relate to the school's climate. All these factors are beyond the educator's control, yet they have a great relationship with the students' success.

The school climate or environment "plays a major role in motivational declines and in student achievement loss" in the schools (Gordon, 2011, p. 48). Schools should make it a goal for students to feel that the school climate is positive and helps them learn. With this mind set, students will achieve higher. "Students will have more positive self-images, higher academic achievement, higher operations, and improved social skills when the school's climate and culture are positive" (Carwell, 2012, p. 56). Meeting the needs of the students, parents, and staff in regards to the school they attend, send their child to, or work at should create a positive climate at the school. Educational policies have been passed such as Title I, Title VII, Goals 2000, and No Child Left Behind to meet the needs which will in turn improve school climate.

Racial and Ethnic Concentration

Furthermore, this study found that the third strongest relationship comes from the White student population. In Miami-Dade County Public Schools, the schools have either a high level of Black concentration or a high level of Hispanic concentration. Borman et al. (2004) stated that "a much lower percentage of students passed the FCAT in Black segregated schools than in White segregated schools" (p. 625). This study concluded that the greater the White student population was at the schools, the higher the students scored on the FCAT 2.0 Mathematics Test in Miami-Dade County Public Schools.

During the 1970s, "Black and Hispanic students were attending college at rates comparable with Whites" (Darling-Hammond, 2011, p. 17). Besides the comparable college attendance rates, "urban schools were spending as much as suburban schools", "paying their teachers as well" and "gaps in educational attainment had closed

substantially" (Darling-Hammond, 2011, p. 17). This progress was suspended under the presidency of Ronald Reagan due to various educational reforms that did not meet the needs of standardized testing, per-pupil spending, growing enrollment, immigration, poverty, English language instruction and special education (Darling-Hammond, 2011). Not all students and schools were receiving the same quality education and resources.

Despite the efforts of the ruling of the *Brown v Board of Education* case (1954), *Lau v Nichols* (1974), the *Plyler v Doe* case (1982), the *Williams v State of California* case (2000), the Elementary and Secondary Education Act of 1965, Title I, Title VII, Goals 2000, and the No Child Left Behind Act, an achievement gap has continued to exist between Black, Hispanic and White students. "In 2011… the achievement gap between minority and White students in reading and math is larger than it was in 1988…" (Darling-Hammond, 2011, p.14). These rulings and educational policies need to be revisited and reevaluated to see how they are and are not being followed.

"Education is supposed to be the prime engine for social mobility in America" (Kahlenberg, 2006, p.1). In order for education to serve as the engine for social mobility, it needs to offer all students regardless of their socio-economic or racial and ethnic background a quality education, despite their racial and ethnic identities. This would then truly allow for social mobility. As concluded in the study, social mobility is present in schools with higher enrollment of Whites than other schools. The relationships of racial and ethnic concentrations and low socio-economic status are diminished for Black and Hispanic students attending public middle schools in Miami-Dade County with higher enrollment of White students than other schools.

While the efforts continue to meet the needs of the students through educational policies, doing so will not only improve academic achievement but it will be reflected onto the community and its future. "Instructional programs that produce learning climates in which all students achieve, regardless of their socio-economic or minority background" should be offered at all schools (Fadael, 2011, pp. 34 – 35). These educational policies may need to be reviewed to assure that they are being implemented correctly to meet the needs of the Economically Disadvantaged (SES) students. Policy makers and educators need to review the programs that have come about from educational policies and assess if the program outcomes have been a success. Dr. Martin Luther King Jr. stated "the job of the school is to teach so well that family background is no longer an issue" (Rouse & Barrow, 2006, p.100).

Recommendations for Improving Student Performance on the
FCAT 2.0 Mathematics Test

The overall failure of measures, such as Title I, Title VII, Goals 2000, and No Child Left Behind, designed to meet the needs of the students and provide a quality education were techniques that did not attack the root of the needs of the students and the lack of quality education. Almost 60 years since the ruling of the *Brown v Board of Education* case which stated that separate was not equal and still today, students in schools with high Black concentrations, high Hispanic concentrations, or high concentrations of low socio-economic status are not receiving the same quality education as schools with high White concentrations and high concentrations of high or middle socio-economic status.

"Schools in segregated minority communities are populated by large numbers of minority students afflicted by pervasive poverty and all of the many problems that are inherent in poverty-stricken communities" (Moore, 2002, p. 219). Poverty-stricken communities consist of low socio-economic status, poor climate and a high minority population, all reflective in the communities' schools.

In order to realize the ideal of offering a quality education to all students, a few steps must be taken to transform the status quo. The current educational policies such as Title I, Title VII, and No Child Left Behind need to be re-evaluated to make sure that their focus is to meet the needs of the students and provide a quality education. Analyzing how their funding is being used will bring to light if funding lacks or is being misused. Also, establishing a rigorous accountability system that truly measures the assistance given by these educational policies will help protect the funds provided and reassure educators, parents, and students that the educational policies are carrying out their purpose and goals. If need be, the passing of new educational policies that are designed to truly meet the needs of all the students regardless of their socio-economic or racial and ethnic background and provide them with the same quality education might help solve this problem.

Researching school districts or metropolitan areas in similar situations to see how they are resolving this problem might help provide a solution (Moore, 2002). These school districts or metropolitan areas need to have concentrations of Blacks, Whites, and Hispanics, as well as English Language Learners. They may have effective practices already in place that may help Miami-Dade County Public Schools meet the needs of their students and provide them all with the same quality education.

Conducting a district-wide analysis of the educational resources and technology available at each school to compare and contrast the inventory might provide another step toward providing resources to the neediest schools. This would highlight which schools lack resources or have out-of-date or broken resources. As analyzed in the results of the study, schools with high concentration of low socio-economic status had a lower percentage of the students passing the FCAT 2.0 Mathematics Test. Equipping all schools throughout the district with equally modern and high quality educational resources and technology is one step towards providing all students with the same quality education (Cobb & Glass, 2009).

Moreover, school choice programs, such as vouchers, magnet programs and charter schools, provide parents with the option of being able to send their child to a different school than their public home school, but only leave the problem behind at the home school. If in addition to these programs, more focus was placed on analyzing the problems that exist in public schools and addressing them, it could finally begin improving the academic achievement of the students attending the public schools (Gersti-Pepin, 2002). Leaving the problems behind and ignoring them will not bring forth a solution.

Students who do not pass the FCAT 2.0 Mathematics Test should be required to take additional classes of mathematics which will help reinforce their mathematical skills. Offering tutoring sessions before the start of the school day, after the end of the school day and on Saturdays to students not passing the FCAT 2.0 Mathematics Test will help students better grasp the mathematical concepts. This extra learning time will allow for re-teaching and reinforcing of the mathematical concepts.

Additionally, offering after school care led by certified teachers who can provide good classroom management and help students with their homework assignments can help provide students with the structure and attention they may lack at home. Providing adequate assistance with academics and instilling good behavior can help improve the students' academic achievement in mathematics and all subject areas. This holds the potential to improve the FCAT 2.0 Mathematics scores and school climate.

Another suggestion is to continue surveying students, parents and staff to find out the needs of the students at the school and how they could be met. This survey will bring forth the areas in which the students have needs that are not being met, and can potentially improve the students' academic achievement.

Furthermore, offering the Economically Disadvantaged (SES) students the choice of eating breakfast and dinner, as well as lunch, for free or a reduced price on a daily basis. This will help students eat three nutritionally-balanced meals a day and help them stay healthy and focus better in their classes. Reducing illness from poor nutrition can help improve students' academic achievement in mathematics and all subject areas (Cortes, Jr. 2010). This can lead to improvement in the FCAT 2.0 Mathematics scores and school climate.

Another possibility is to establish a lending system of educational resources so that low socio-economic families can have educational resources in their homes that they are not otherwise able to afford for the children. These educational resources range from books to technology and can enhance the child's grasp of knowledge and understanding of concepts in mathematics and all subject areas (Cobb & Glass, 2009). This can lead to improvement in the FCAT 2.0 Mathematics scores and school climate.

Also, school climate is essential to the students' success in school. Students, parents, and staff should continue to be surveyed to find out how the school climate can be improved. This can bring to everyone's attention the areas in need of improvement in a school environment. Requesting a response from all schools, staff members, parents, and students can provide a larger perspective for areas in need of improvement, unlike the current survey that looks at only a subsample of the school community. Additionally, having all schools promote a positive self-image and attitude can relate to the students' academic achievement in mathematics and all subject areas (Perkins-Gough, 2008). This can lead to improvements in the FCAT 2.0 Mathematics scores and school climate.

Lastly, another suggestion is hosting parent workshops to inform them about their child's education and gain their support in meeting their children's needs. When parents are knowledgeable of their child's education, they are more likely to be pleased with the school which will relate to their child's academic achievement (Muller, 1995). This effort will also increase parent involvement.

Recommendations for Future Research

Like many metropolitan areas, Miami-Dade County Public Schools is experiencing demographic changes due to the economy and racial and ethnic concentrations (Miami-Dade County Public Schools, 2013). These changes relate to society, especially the education system. The needs that arise from these changes must be discovered, researched, and met so that education continues to be the way for social mobility. Education policy makers, educational leaders, and educators must work closely together to make sure the students' needs are being met. These are numerous areas in

need of exploration that will provide insight and direction in addressing the needs of the students.

The study could be replicated in other metropolitan areas such as Chicago, Los Angeles, New York. It can help establish if similar relationships exist between students' mathematics achievement, as measured by the state standardized test, and racial and ethnic concentrations, socio-economic status, ESOL student population, and school climate in their public schools. If relationships exist between these variables, these other metropolitan areas may then need to review how the needs of their students are being met.

This study could be replicated with Miami-Dade County Public Schools to see if a relationship exists with racial and ethnic concentrations, socio-economic status, ESOL student population, school climate, and the scores on the FCAT 2.0 for Reading, Writing, and Science. If these same variables are influencing other subject areas, it will be other areas that need to be addressed as well.

Additionally, conducting a quantitative study that measures homeownership and its relationship on students' performance on the FCAT 2.0 Mathematics Test will bring forth the value of a stable home. Such a relationship might be established if schools collected data and reported it along with the other data used in this study. When students move frequently throughout their childhood, they miss valuable learning time because of the move and then adjusting to their new school and its curriculum.

A mixed-methods study can be conducted that examines the School Improvement Plan (SIP), how aware the faculty and staff are of the schools' goals, how the goals are being reached, along with its relationship of the students passing the FCAT 2.0

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Mathematics Test. When all stakeholders are aware of the ultimate goal(s) of the school, everyone is working together, and all aspects of the school have the opportunity to succeed.

Investigating the level and quality of professional development being given to public middle school teachers will bring forth if staff is equipped with the latest trends, strategies, resources, and manipulatives in education. When the staff is aware of the latest advances in education, they are able to provide their students with an enhanced learning experience which is then reflected on their academic performance.

Conclusion

The results of this quantitative study found that all five research hypotheses were not rejected. Hence, statistically significant relationships were found between the independent variables and the dependent variable. On the other hand, for the second research hypothesis and its two tests, when controlling the ESOL student population (Model 1), no statistically significant relationship was found with the FCAT 2.0 Mathematics scores, rejecting the research hypothesis (H2; Table 26 and Table 30). In other words, when controlling the ESOL student population, the FCAT 2.0 Mathematics scores increased as the racial and ethnic concentrations increased. In Model 2, combining the White student population, the Hispanic student population and the ESOL student population for test 1 (Table 26) and the White student population and the ESOL student population for test 2 (Table 30), there was a statistically significant relationship with the FCAT 2.0 Mathematics scores, thus not rejecting the research hypothesis. In other words, as the racial and ethnic concentrations and the ESOL student population in schools increased, the FCAT 2.0 Mathematics scores decreased.

Additionally, the results of this quantitative study found three independent variables to have strong correlations with the dependent variable. The three independent variables were Economically Disadvantaged (SES) student population with the strongest correlation, followed by the School Climate Student Survey and the White student population. This study brought forth that Miami-Dade County Public Schools is characterized by high levels of low socio-economic status which relate to various parts of society such as education.

The American Creed consists of the values of liberty, social justice, the rule of law, equal education, economic and political opportunities and primacy of the individual. It is "the moral force goading society to eliminate racial and ethnic discrimination and reduce the degree of inequality – socioeconomic, political, and educational – between the White majority and most minority groups in the nation" (Moore, 2002, p. 231). Even though these values are part of the foundation of the United States, "the ideal of *E pluribus Unum* – out of many, one", they are encouraged but not completely followed (Moore, 2002, p. 231). Since the ruling of the *Brown v Board of Education* case that separate facilities were not equal, policies have been passed in the past several decades to reform schools such as Title I, Title VII, Goals 2000 and No Child Left Behind. Each with a different purpose and goal, but in search of the ultimate result of helping students be academically successful. Despite these initiatives, gaps between racial and ethnic groups and low, middle and high socio-economic status groups are still not being fully addressed.

In Miami-Dade County, the majority of the public schools have a high concentration of either Blacks or Hispanics. This is reflective of the county's

demographics. This study brought forth that the schools with the largest concentrations of Whites had more students passing the FCAT 2.0 Mathematics Test. Moreover, despite the efforts of school choice, the needs of all racial and ethnic and socio-economic groups of students are not being met. Of course, the students who exercise their school choice option have a different educational path. Unfortunately, vouchers, magnet programs, and charter schools are not meeting all the needs of the students. These initiatives were created to help integrate schools and years later, the results of vouchers, magnet programs, and charter schools are yet to be seen. They are just providing an escape for students from their home school. But, the problem is only being left behind and passed on to the other students. Educational policies must be reformed to address the problems present in the traditional public middle schools, focusing on how all students can receive the same quality education regardless of the racial and ethnic concentrations in the individual schools.

School climate was found to be vital in this study. The students' perception of their school climate being positive and helping them learn has a relationship with their scores on the FCAT 2.0 Mathematics Test. The more students agreed that their school climate was positive and helped them learn, the more passed the FCAT 2.0 Mathematics Test. Educational leaders, educators, parents, and students need to focus on what has to be addressed in order to improve the school climate. The students' perspectives are not the only important ones, but also that of educators', parents', and all stakeholders' who need to agree that the school climate is positive and helps students learn. If not, a negative climate will be present and relate to the students' academic achievement.

Moore (2002) stated

The primary ideas upon which America was built – the essential equality and

moral worth of all human beings, the inalienable rights to freedom, social justice,

and equal opportunity, and the universality of human nature- will continue to be

the moral force pushing the United States to close the gap between our ideals and

the realities for numerous minority groups throughout the nation. (p. 236)

The question at hand is how this can be accomplished since previous reforms and policies

have not been completely successful. Educational policy makers, educational leaders and

educators need to find ways to meet the needs of all students and provide them with a

universal, high quality education which will in turn reduce the gaps in achievement

between the groups. Focusing on Miami-Dade County Public Schools, some negative

relationships on the students' scores of the FCAT 2.0 Mathematics Test are racial and

ethnic concentration, socio-economic status and school climate. If the needs created by

these relationships were to be met, students' academic achievement would improve.

Providing all students with the same quality education is not easy due to the variety of

needs students have. Regardless, educational policy makers, educational leaders, and

educators need to focus on meeting the needs of the students to assure they all receive the

same quality education.

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APPENDIX I

MIAMI-DADE COUNTY PUBLIC SCHOOLS 2010-2011 SCHOOL YEAR DATA

School Name	% White	% Black	% Hispanic	% Other	% ELL	% SES	% Pass FCAT Math	Climate Parents	Climate Students	Climate Staff
Allapattah	1.29	60.14	38.27	0.29	5.47	89.64	32	69	18	50
Andover	0.91	90.97	6.66	1.28	6.02	82.12	60	60	42	69
Arvida	19.29	12.83	64.92	2.35	3.49	52.85	82	89	74	94
Brownsville	0.15	73.84	25.87	0.15	5.96	94.48	35	-	-	83
Campbell Drive	2.85	54.62	41.85	0.41	8.02	91.44	36	52	43	58
Carol City	0.37	86.89	11.86	0.37	2.5	91.89	39	74	36	77
Centennial	6.91	45.77	45.65	1.31	5.6	85.46	43	76	44	84
Charles R. Drew	0	95.42	4.58	0	0.87	95.64	35	65	42	44
Citrus Grove	1.29	4.45	93.77	0.4	20.28	94.07	35	82	33	73
Country Club	3.67	19.27	75.41	1.44	9.78	79.94	58	81	56	50
Cutler Ridge	13.72	36.06	48.18	1.75	7.59	86.42	42	72	42	33
Doral	9.03	12.65	76	2.32	8.77	56.77	69	61	46	86
George Washington Carver	30.6	6.8	59.6	2.8	3.2	30.8	97	92	79	96
Glades	12.23	2.09	83.33	1.84	8.29	66.08	77	87	69	95
Hammocks	10.44	7.56	79.29	2.55	8.46	65.65	68	82	48	80
Henry H. Filer	1.36	0.85	97.71	0.08	30.51	90.59	63	90	56	84
Herbert A. Ammons	17.74	12.83	65.12	3.36	0.52	48.92	93	95	73	97

School Name	% White	% Black	% Hispanic	% Other	% ELL	% SES	% Pass FCAT Math	Climate Parents	Climate Students	Climate Staff
Hialeah	2.17	3.18	94.65	0	16.69	91.21	47	72	46	72
Hialeah Gardens	2.85	1.43	95.04	0.51	13.35	83.11	64	86	73	94
Highland Oaks	18.8	47.47	30.13	2.75	5.67	67.55	67	76	60	91
Homestead	3.82	33.89	61.22	0.46	8.09	92.98	45	77	46	65
Horace Mann	0.8	84.71	13.83	0.53	14.23	92.95	51	84	47	45
Howard A. Doolin	5.47	2.21	90.89	1.3	14.45	84.38	58	80	46	86
Howard D. Mcmillan	6.57	0.82	89.79	2.46	9.51	79.58	76	89	72	72
John F. Kennedy	3.84	68.17	24.29	3.41	10.22	87.74	65	74	59	75
Jorge Mas Canosa	10.87	5.95	81.05	1.58	7.32	69.96	67	84	56	87
Jose De Diego	0.77	46.62	52.42	0	9.48	93.81	33	83	43	40
Jose Marti	1.77	1.09	95.92	1.22	21.74	91.58	56	61	47	73
Kinloch Park	2.58	0.6	96.56	0.17	26.29	90.98	57	86	57	84
Lake Stevens	0.63	53.13	45.94	0	7.03	90.63	61	76	40	92
Lamar Louise Curry	6.74	1.71	87.29	4.27	4.74	62.9	84	88	79	96
Lawton Chiles	5.45	40.96	51.87	1.71	3.32	75.19	49	64	33	35
Madison	0.31	62.1	37.6	0	8.47	91.06	43	48	40	35
Mays Community	2.57	52.57	43.57	1.1	7.54	93.2	45	65	36	95

School Name	% White	% Black	% Hispanic	% Other	% ELL	% SES	% Pass FCAT Math	Climate Parents	Climate Students	Climate Staff
Miami Edison	0.81	88.24	10.34	0	15.62	95.94	45	84	48	28
Miami Lakes	4.11	10.67	84.06	0.77	10.28	82.78	69	89	43	90
Miami Springs	4.94	13.28	81.1	0.49	17.42	83.94	57	73	55	71
Nautilus	22.03	11.36	65.16	1.2	7.86	72.42	70	77	45	80
Norland	0.25	94.32	4.17	0.51	2.02	82.95	52	62	33	76
North Dade	0.51	88.57	10.58	0	2.22	88.74	42	77	22	64
North Miami	0.48	88.01	9.96	1.35	20.12	94.2	44	74	48	61
Palm Springs	2.24	1.31	95.99	0.47	20.73	89.45	66	85	78	91
Palmetto	40.63	12.75	39.95	5.83	3.13	27.62	83	90	62	94
Parkway	0.72	94.74	4.31	0.24	1.67	89.95	39	62	45	73
Paul W. Bell	2.96	0.13	96.1	0.81	15.48	89.37	52	85	63	92
Ponce De Leon	10.65	15.03	73.11	1.2	11.43	76.46	64	84	48	59
Redland	10.29	36.5	51.77	0.8	5.79	88.26	42	66	37	50
Richmond Heights	7.09	49.75	40.63	1.39	4.43	82.03	55	77	-	100
Riviera	5.81	1.38	91.01	1.66	13.14	82.85	57	93	45	77
Rockway	4.15	2.12	93.42	0.24	13.71	74.61	74	83	65	93
Ruben Dario	2.01	2.13	95.51	0.35	16.55	86.64	65	75	45	83

School Name	% White	% Black	% Hispanic	% Other	% ELL	% SES	% Pass FCAT Math	Climate Parents	Climate Students	Climate Staff
Shenandoah	2.69	3.14	94.08	0	13.45	89.6	50	87	60	90
South Miami	19.24	12	66.67	1.71	4.76	48.1	83	88	67	90
Southwood	31.06	22.28	42	3.17	2.23	42.81	80	84	54	66
Thomas Jefferson	0.21	92.18	7.19	0.42	20.08	91.12	39	68	50	63
W. R. Thomas	4.96	1.12	93.12	0.48	12.48	76.96	65	91	64	79
West Miami	2.61	0.17	96.95	0.17	21.86	87.46	57	62	33	60
Westview	0.84	83.53	15.63	0	10.92	93.78	43	67	45	67
Zelda Glazer	3.9	0.42	94.29	1.25	7.6	69.2	74	93	55	100

APPENDIX II

Relationship between FCAT 2.0 Mathematics Scores and Racial and Ethnic

Concentration when controlling Socio-Economic Status, ESOL Student Population

and School Climate

Blacks, SES, ESOL and School Climate

Multicollinearity occurs when two or more independent variables are highly correlated with each other (Hinton, Brownlow, McMurray, & Cozens, 2004). The presence of multicollinearity makes it difficult to analyze the individual contribution of each independent variable in predicting the dependent variable. If multicollinearity exists, in the Coefficient Table, under the column of Collinearity Statistics, the Tolerance results would be less than 0.10 and the VIF results would be greater than ten. For this particular test, there was a high correlation between the White student population, the Black student population, and the Hispanic student population; thus, the White student population and the Hispanic student population were left out in order to eliminate multicollinearity (Table 53).

Table 53

Collinearity Statistics - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks, Whites, Hispanics) when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Economically Disadvantaged (SES)	.466	2.147
	ESOL	.671	1.490
	School Climate (Parent)	.563	1.777
	School Climate (Student)	.450	2.224
	School Climate (Staff)	.647	1.546
	Whites	.006	164.940
	Blacks	.000	2248.333
	Hispanics	.001	1968.984
2	Economically Disadvantaged (SES)	.134	7.473
	ESOL	.463	2.160
	School Climate (Parent)	.521	1.921
	School Climate (Student)	.416	2.405
	School Climate (Staff)	.586	1.708

Table 54 displays the Mean and Standard Deviations for the test of measuring the relationship of racial and ethnic concentration (Blacks), socio-economic status (SES), ESOL student population, and school climate with the FCAT 2.0 Mathematics scores. Each Mean is the measure of the average score for its corresponding data set. It is the average of students passing the FCAT 2.0 Mathematics Test, Black student population, ESOL student population, Economically Disadvantaged (SES) student population and the average of parents, students, and staff agreeing that the school climate is positive and helps learning for all public middle schools in Miami-Dade County. The Standard Deviation is the measure of the average difference of a score from its Mean for its corresponding data set. The larger the Standard Deviation number is, the less grouped the data are around the Mean. From the data in Table 54, the ESOL student population

has the smallest Standard Deviation (6.74569) while the Black student population has the

largest Standard Deviation (34.11801).

Table 54

Descriptive Statistics – Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks) when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	58.05	16.015
Blacks	32.1257	34.11801
ESOL	10.3166	6.74569
Economically Disadvantaged (SES)	79.8648	16.27095
School Climate (Parent)	77.53	11.181
School Climate (Student)	50.72	13.865
School Climate (Staff)	73.75	19.056

Note. [a]$n = 59$.

As shown in Table 55, there are two models because Model 1 is controlling the

ESOL student population, socio-economic status, and school climate while Model 2

incorporates all the independent variables. For Model 1, there is a strong correlation of

0.922, *R*, of the independent variable the Black student population when controlling the

ESOL student population, socio-economic status, and school climate with the dependent

variable. For Model 2, there is a strong correlation of 0.925, *R*, between the independent

variables and dependent variable. For Model 1, the R^2 is 0.851, which is the amount of

unique variance in the dependent variable that can be explained by the independent

variable the Black student population when controlling ESOL student population, socio-

economic status, and school climate. The independent variables explain 85.1% of the

unique variance. For Model 2, the R^2 is 0.866, which is the amount of variance in the

dependent variable that can be explained by all the independent variables. The

independent variables explain 86.6% of the variance. The Adjusted R^2 for Model 1 is 0.836, which adjusts for any bias by correcting the R^2's value, hence the Adjusted R^2 was used for the study because it is more accurate for explaining variance. Using the Adjusted R^2, the Black student population when controlling ESOL student population, socio-economic status, and school climate explain 83.6% of the unique variance. For Model 2, it is 0.844 and all the independent variables explain 84.4% of the variance. The Standard Error of the Estimate represents "a measure of the variability of the multiple correlation" and is 6.482 for Model 1 and 6.445 for Model 2 in this test (Hinton et al., 2004, pg. 315). The R^2 Change allows the change to R^2 to be identified when an independent variable was being added, removed, or controlled. The R^2 Change is 0.851 for Model 1 and 0.005 for Model 2. The R^2 Change for Model 1 and Model 2 are not the same as the R^2 because there are variables being controlled for in this particular test. The F Change is 58.252 for Model 1 and 1.583 for Model 2 which is the test statistic ($TS_{calc\ or}$ F_{calc}). For Model 1, the first Degree of Freedom, $df1$, is five and the second Degree of Freedom, $df2$, is 51. For Model 2, the first Degree of Freedom, $df1$, is one and the second Degree of Freedom, $df2$, is 50. These are the values in the test that are free to vary. The Significant F Change, P_{calc}, is $p < 0.001$ for Model 1, which is statistically significant because it is less than 0.01. For Model 2, the Significant F Change, P_{calc}, is 0.214, which is not statistically significant because 0.214 is not less than 0.01. (Hinton et al., 2004)

Table 55

Model Summary - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks) when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.922[a]	.851	.836	6.482	.851	58.252	5	51	.000
2	.925[b]	.866	.844	6.445	.005	1.583	1	50	.214

Note. a. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % School Climate (Student), % of Economically Disadvantaged (SES)
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % of Black student population, % School Climate (Student), % of Economically Disadvantaged (SES)

Additionally, Table 8 (Chapter 4) displays data that makes it known if multicollinearity was present amongst the independent variables being tested. To test this hypothesis, the White student population and the Hispanic student population were not included because they created multicollinearity. Including those two independent variables would have made it difficult to analyze the individual contribution that each independent variable would make to the dependent variable. If the Tolerance is below 0.1 and the Variance Inflation Factor (VIF) is greater than 10, multicollinearity is present (Pallant, 2010). In testing this hypothesis, with these variables, multicollinearity is not present and it is possible to analyze the individual contribution that each independent variable made to the dependent variable.

Blacks, Whites, ESOL and School Climate

Due to the presence of multicollinearity, the independent variables of the Hispanic student population and the Economically Disadvantaged (SES) student population were

removed in order to be able to analyze the individual contribution of each independent

variable to the dependent variable (Table 56).

Table 56

Collinearity Statistics - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks, Whites, Hispanics) when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Economically Disadvantaged (SES)	.466	2.147
	ESOL	.671	1.490
	School Climate (Parent)	.563	1.777
	School Climate (Student)	.450	2.224
	School Climate (Staff)	.647	1.546
2	Whites	.006	164.940
	Blacks	.000	2248.333
	Hispanics	.001	1968.984
	Economically Disadvantaged (SES)	.134	7.473
	ESOL	.463	2.160
	School Climate (Parent)	.521	1.921
	School Climate (Student)	.416	2.405
	School Climate (Staff)	.586	1.708

Table 57 displays the Mean and Standard Deviations for the test of measuring the

relationship of racial and ethnic concentration (Blacks and Whites), ESOL student

population, and school climate with the FCAT 2.0 Mathematics scores. It is the average

of students passing the FCAT 2.0 Mathematics Test, Black student population, White

student population, ESOL student population, and the average of parents, students, and

staff agreeing that the school climate is positive and helps learning for all public middle

schools in Miami-Dade County Public Schools. From the data in Table 57, the ESOL

student population has the smallest Standard Deviation (6.69547), meaning it is closely

grouped around the Mean. The Black student population has the largest Standard

Deviation (34.03266), meaning it is less grouped around the Mean.

Table 57

Descriptive Statistics – Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic Concentration (Blacks, Whites) when controlling ESOL Student Population and School Climate

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Blacks	33.1314	34.03266
Whites	6.6620	8.50480
ESOL	10.1430	6.69547
School Climate (Parent)	77.52	11.082
School Climate (Student)	50.72	13.865
School Climate (Staff)	74.36	19.068

Note. [a]$n = 59$.

As shown in Table 58, there are two models because Model 1 is controlling the

ESOL student population and school climate while Model 2 incorporates all the

independent variables. For Model 1, there is a strong correlation of 0.806, R, of the

independent variables Black student population and White student population when

controlling the ESOL student population and school climate with the dependent variable.

For Model 2, there is a strong correlation of 0.879, R, between the independent variables

and dependent variable. For Model 1, the R^2 is 0.623, which means that the Black

student population and the White student population when controlling the ESOL student

population and school climate explain 62.3% of the unique variance. For Model 2, the R^2

is 0.773, which means that all the independent variables explain 77.3% of the unique

variance. For Model 1, the Adjusted R^2 is 0.650, less because it adjusts for any bias by

correcting the R^2 value, hence the Adjusted R^2 was used for the study because it is more

accurate for explaining variance. Using the Adjusted R^2, the independent variable

explains 65% of the variance. For Model 2, the Adjusted R^2 is 0.745, less because it

adjusts for any bias by correcting the R^2 value, hence the Adjusted R^2 was used for the

study because it is more accurate for explaining variance. Using the Adjusted R^2, all the

independent variables explain 74.5% of the variance. The Standard Error of the Estimate

is 9.837 in Model 1 and 8.087 in Model 2. The R^2 Change is .650 for Model 1 and .123

for Model 2. The R^2 Change for Model 1 and Model 2 are not the same as the R^2 because

there are variables being controlled for in this particular test. The *F* Change is 24.146 for

Model 1 and 13.469 for Model 2 which is the test statistic ($TS_{calc\ or}\ F_{calc}$). For Model 1,

the first Degree of Freedom, *df1*, is four and the second Degree of Freedom, *df2*, is 52.

For Model 2, the first Degree of Freedom, *df1*, is two and the second Degree of Freedom,

df2, is 50. The Significant *F* Change, P_{calc}, is $p < 0.001$ for Model 1 and Model 2, which

are statistically significant because they are less than 0.01. (Hinton et al., 2004)

Table 58

Model Summary - Relationship of FCAT 2.0 Mathematics Scores and Racial and Ethnic
Concentration (Blacks, Whites) when controlling ESOL Student Population and School
Climate

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.806[a]	.650	.623	9.837	.650	24.146	4	52	.000
2	.879[b]	.773	.745	8.087	.123	13.469	2	50	.000

Note. a. Predictors: (Constant), % of School Climate (Parent), % of ESOL student
population, % School Climate (Staff), % School Climate (Student)
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population,
% School Climate (Staff), % of Black student population, % School Climate (Student), %
of White student population

Additionally, Table 12 (Chapter 4) displays data that makes it known if multicollinearity was present amongst the independent variables being tested. To test this hypothesis, the Hispanic student population and the Economically Disadvantaged (SES) student population were not included because they created multicollinearity, and thus would have made it difficult to analyze the individual contribution that each independent variable would make to the dependent variable.

Whites, Hispanics, ESOL and School Climate

Due to the presence of multicollinearity, the independent variables of the Black student population and the Economically Disadvantaged (SES) student population were removed in order to be able to analyze the individual contribution of each independent variable to the dependent variable (Table 59).

Table 59

Collinearity Statistics - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Economically Disadvantaged (SES)	.466	2.147
	ESOL	.671	1.490
	School Climate (Parent)	.563	1.777
	School Climate (Student)	.450	2.224
	School Climate (Staff)	.647	1.546
2	Whites	.006	164.940
	Blacks	.000	2248.333
	Hispanics	.001	1968.984
	Economically Disadvantaged (SES)	.134	7.473
	ESOL	.463	2.160
	School Climate (Parent)	.521	1.921
	School Climate (Student)	.416	2.405
	School Climate (Staff)	.586	1.708

Table 60 displays the Mean and Standard Deviations for the test of measuring the

relationship of racial and ethnic concentration (Whites and Hispanics), ESOL student

population, and school climate with the FCAT 2.0 Mathematics scores. It is the average

students passing the FCAT 2.0 Mathematics Test, White student population, Hispanic

student population, ESOL student population, and the average of parents, students, and

staff agreeing that the school climate is positive and helps learning for all public middle

schools in Miami-Dade County Public Schools. From the data in Table 60, the ESOL

student population has the smallest Standard Deviation (6.69547), meaning it is closely

grouped around the Mean. The Hispanic student population has the largest Standard

Deviation (32.03428), meaning it is less closely grouped around the Mean.

Table 60

Descriptive Statistics – Relationship of Racial and Ethnic Concentration (Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population and School Climate

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Whites	6.6620	8.50480
Hispanics	58.7660	32.03428
ESOL	10.1430	6.69547
School Climate (Parent)	77.52	11.082
School Climate (Student)	50.72	13.865
School Climate (Staff)	74.36	19.068

Note. [a]$n = 59$.

As shown in Table 61, there are two models because Model 1 is controlling the

ESOL student population and school climate while Model 2 incorporates all the

independent variables. For Model 1, there is a strong correlation of 0.806, *R*, of the

independent variables White student population and Hispanic student population when

controlling the ESOL student population and school climate with the dependent variable.

For Model 2, there is a strong correlation of 0.879, R, between the independent variables

and dependent variable. For Model 1, the R^2 is 0.650, which means that the White

student population and the Hispanic student population when controlling the ESOL

student population and school climate explain 65% of the unique variance. For Model 2,

the R^2 is 0.773, which means that all the independent variables explain 77.3% of the

variance. For Model 1, the Adjusted R^2 is 0.623, less because it adjusts for any bias by

correcting the R^2 value, hence the Adjusted R^2 was used for the study because it is more

accurate for explaining variance. Using the Adjusted R^2, the White student population

and the Hispanic student population when controlling ESOL student population and

school climate explain 62.3% of the unique variance. For Model 2, the Adjusted R^2 is

0.744, less because it adjusts for any bias by correcting the R^2 value, hence the Adjusted

R^2 was used for the study because it is more accurate for explaining variance. Using the

Adjusted R^2, all the independent variable explains 74.4% of the variance. The Standard

Error of the Estimate is 9.837 in Model 1 and 8.102 in Model 2. The R^2 Change is .650

for Model 1 and .122 for Model 2. The R^2 Change for Model 1 and Model 2 are not the

same as the R^2 because there are variables being controlled for in this particular test. The

F Change is 24.146 for Model 1 and 13.329 for Model 2 which is the test statistic (TS_{calc}

$_{or}F_{calc}$). For Model 1, the first Degree of Freedom, $df1$, is four and the second Degree of

Freedom, $df2$, is 52. For Model 2, the first Degree of Freedom, $df1$, is two and the second

Degree of Freedom, $df2$, is 50. The Significant F Change, P_{calc}, is $p < 0.001$ for Model 1

and Model 2, which is statistically significant because they are less than 0.01. (Hinton et

al., 2004)

Table 61

Model Summary - Relationship of Racial and Ethnic Concentration (Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population and School Climate

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.806[a]	.650	.623	9.837	.650	24.146	4	52	.000
2	879[b]	.773	.744	8.102	.122	13.329	2	50	.000

Note. a. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % School Climate (Student)
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % of Hispanic student population, % School Climate (Student), % of White student population

Additionally, Table 16 (Chapter 4) displays data that makes it known if

multicollinearity was present amongst the independent variables being tested. To test this

hypothesis, the Black student population and the Economically Disadvantaged (SES)

student population were not included because they created multicollinearity, and thus

would have made it difficult to analyze the individual contribution that each independent

variable would make to the dependent variable.

Hispanics, ESOL and School Climate

Due to the presence of multicollinearity, the independent variables of the Black

student population, the White student population, and the Economically Disadvantaged

(SES) student population were removed in order to be able to analyze the individual

contribution of each independent variable to the dependent variable (Table 62).

Table 62

Collinearity Statistics - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Economically Disadvantaged (SES)	.466	2.147
	ESOL	.671	1.490
	School Climate (Parent)	.563	1.777
	School Climate (Student)	.450	2.224
	School Climate (Staff)	.647	1.546
2	Whites	.006	164.940
	Blacks	.000	2248.333
	Hispanics	.001	1968.984
	Economically Disadvantaged (SES)	.134	7.473
	ESOL	.463	2.160
	School Climate (Parent)	.521	1.921
	School Climate (Student)	.416	2.405
	School Climate (Staff)	.586	1.708

Table 63 displays the Mean and Standard Deviations for the test of measuring the relationship of racial and ethnic concentration (Hispanics), ESOL student population, and school climate with the FCAT 2.0 Mathematics scores. It is the average of students passing the FCAT 2.0 Mathematics Test, Hispanic student population, ESOL student population, and the average of the parents, students, and staff agreeing that the school climate is positive and helps learning for all public middle schools in Miami-Dade County Public Schools. From the data in Table 63, the ESOL student population has the smallest Standard Deviation (6.69547), meaning it is closely grouped around the Mean. The Hispanic student population has the largest Standard Deviation (32.03428), meaning it is less grouped around the Mean.

Table 63

Descriptive Statistics – Relationship of Racial and Ethnic Concentration (Hispanics) when controlling ESOL Student Population, and School Climate with the FCAT 2.0 Mathematics Scores

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Hispanics	58.7660	32.03428
ESOL	10.1430	6.69547
School Climate (Parent)	77.52	11.082
School Climate (Student)	50.72	13.865
School Climate (Staff)	74.36	19.068

Note. [a]$n = 59$.

As shown in Table 64, there are two models because Model 1 is controlling the ESOL student population and school climate while Model 2 incorporates all the independent variables. For Model 1, there is a strong correlation of 0.806, R, of the independent variable Hispanic student population when controlling the ESOL student population and school climate with the dependent variable. For Model 2, there is a strong correlation of 0.823, R, between the independent variables and the dependent variable. For Model 1, the R^2 is 0.650, which means the Hispanic student population when controlling the ESOL student population and school climate explain 65% of the unique variance. For Model 2, the R^2 is 0.678, which means that all the independent variables explain 67.8% of the variance. For Model 1, the Adjusted R^2 is 0.623, less because it adjusts for any bias by correcting the R^2 value, hence the Adjusted R^2 was used for the study because it is more accurate for explaining variance. Using the Adjusted R^2, the Hispanic student population explains 62.3% of the unique variance when controlling ESOL student population and school climate. For Model 2, the Adjusted R^2 is 0.646, less because it adjusts for any bias by correcting the R^2 value, hence the Adjusted R^2 was used

for the study because it is more accurate for explaining variance. Using the Adjusted R^2, all the independent variable explains 64.6% of the variance. The Standard Error of the Estimate is 9.837 in Model 1 and 9.529 in Model 2. The R^2 Change is .650 for Model 1 and .028 for Model 2. The R^2 Change for Model 1 and Model 2 are not the same as the R^2 because there are variables being controlled for in this particular test. The F Change is 24.146 for Model 1 and 4.416 for Model 2 which is the test statistic ($TS_{calc \ or} F_{calc}$). For Model 1, the first Degree of Freedom, $df1$, is four and the second Degree of Freedom, $df2$, is 52. For Model 2, the first Degree of Freedom, $df1$, is one and the second Degree of Freedom, $df2$, is 51. The Significant F Change, P_{calc}, is $p < 0.001$ for Model 1, making it statistically significant. For Model 2, the Significant F Change is 0.041 making it not statistically significant since it is not less than 0.01. (Hinton et al., 2004)

Table 64

Model Summary - Relationship of Racial and Ethnic Concentration (Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population, and School Climate

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.806[a]	.650	.623	9.837	.650	24.146	4	52	.000
2	.823[b]	.678	.646	9.529	.028	4.416	1	51	.041

Note. a. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % School Climate (Student)
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % School Climate (Student), % of Hispanic student population

Additionally, Table 20 (Chapter 4) displays data that makes it known if multicollinearity was present amongst the independent variables being tested. To test this hypothesis, the White student population, the Black student population and the

Economically Disadvantaged (SES) student population were not included because they

created multicollinearity, and thus would have made it difficult to analyze the individual

contribution that each independent variable would make to the dependent variable.

Whites, ESOL and School Climate

Due to the presence of multicollinearity, the independent variables of the Hispanic

student population, the Black student population, and the Economically Disadvantaged

(SES) student population were removed in order to be able to analyze the individual

contribution of each independent variable to the dependent variable (Table 65).

Table 65

Collinearity Statistics - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) and FCAT 2.0 Mathematics Scores when controlling Economically Disadvantaged (SES), ESOL Student Population, and School Climate

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Economically Disadvantaged (SES)	.466	2.147
	ESOL	.671	1.490
	School Climate (Parent)	.563	1.777
	School Climate (Student)	.450	2.224
	School Climate (Staff)	.647	1.546
2	Whites	.006	164.940
	Blacks	.000	2248.333
	Hispanics	.001	1968.984
	Economically Disadvantaged (SES)	.134	7.473
	ESOL	.463	2.160
	School Climate (Parent)	.521	1.921
	School Climate (Student)	.416	2.405
	School Climate (Staff)	.586	1.708

Table 66 displays the Mean and Standard Deviations for the test of measuring the

relationship of racial and ethnic concentration (Whites), ESOL student population, and

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school climate with the FCAT 2.0 Mathematics scores. It is the average of students

passing the FCAT 2.0 Mathematics Test, White student population, ESOL student

popilation, and the average of parents, students, and staff agreeing that the school climate

is positive and helps learning for all public middle schools in Miami-Dade County Public

Schools. From the data in Table 66, the ESOL student population has the smallest

Standard Deviation (6.69547), meaning it is closely grouped around the Mean. The staff

agreeing that the school climate is positive and helps students learn has the largest

Standard Deviation (19.068), meaning it is less grouped around the Mean.

Table 66

Descriptive Statistics – Relationship of Racial and Ethnic Concentration (Whites) and
FCAT 2.0 Mathematics Scores when controlling ESOL Student Population, and School
Climate

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Whites	6.6620	8.50480
ESOL	10.1430	6.69547
School Climate (Parent)	77.52	11.082
School Climate (Student)	50.72	13.865
School Climate (Staff)	74.36	19.068

Note. [a]$n = 59$.

As shown in Table 67, there are two models because Model 1 is controlling the

ESOL student population and school climate while Model 2 incorporates all the

independent variables. For Model 1, there is a strong correlation of 0.806, *R*, of the

independent variable White student population when controlling the ESOL student

population and school climate with the dependent variable. For Model 2, there is a strong

correlation of 0.867, *R*, between the independent variables and the dependent variable.

For Model 1, the R^2 is 0.650, which means the White student population when controlling

the ESOL student population and school climate explain 65% of the unique variance. For

Model 2, the R^2 is 0.752, which means that the independent variables explain 75.2% of

the variance. For Model 1, the Adjusted R^2 is 0.623, less because it adjusts for any bias

by correcting the R^2 value, hence the Adjusted R^2 was used for the study because it is

more accurate for explaining variance. Using the Adjusted R^2, the White student

population when controlling the ESOL student population and school climate explain

62.3% of the unique variance. For Model 2, the Adjusted R^2 is 0.728, less because it

adjusts for any bias by correcting the R^2 value, hence the Adjusted R^2 was used for the

study because it is more accurate for explaining variance. Using the Adjusted R^2, all the

independent variable explains 72.8% of the variance. The Standard Error of the Estimate

is 9.837 in Model 1 and 8.362 in Model 2. The R^2 Change is 0.650 for Model 1 and 0.102

for Model 2. The R^2 Change for Model 1 and Model 2 are not the same as the R^2 because

there are variables being controlled for in this particular test. The F Change is 24.146 for

Model 1 and 20.977 for Model 2 which is the test statistic ($TS_{calc\ or}\ F_{calc}$). For Model 1,

the first Degree of Freedom, $df1$, is four and the second Degree of Freedom, $df2$, is 52.

For Model 2, the first Degree of Freedom, $df1$, is one and the second Degree of Freedom,

$df2$, is 51. The Significant F Change, P_{calc}, is $p < 0.001$ for Model 1 and Model 2, which

is statistically significant because it is less than 0.01. (Hinton et al., 2004)

Table 67

Model Summary - Relationship of Racial and Ethnic Concentration (Whites) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population, and School Climate

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.806[a]	.650	.623	9.837	.650	24.146	4	52	.000
2	.867[b]	.752	.728	8.362	.102	20.977	1	51	.000

Note. a. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % School Climate (Student)
b. Predictors: (Constant), % of School Climate (Parent), % of ESOL student population, % School Climate (Staff), % School Climate (Student), % of White student population

Additionally, Table 24 (Chapter 4) displays data that makes it known if multicollinearity was present amongst the independent variables being tested. To test this hypothesis, the Hispanic student population, the Black student population and the Economically Disadvantaged (SES) student population were not included because they created multicollinearity, and thus would have made it difficult to analyze the individual contribution that each independent variable would make to the dependent variable.

Relationship between Schools' Racial and Ethnic Concentration and FCAT 2.0

Mathematics Scores when controlling ESOL Student Population

Whites, Hispanics and ESOL

For this particular test, there was a high correlation between the White student population, the Black student population, and the Hispanic student population, and so the Black student population was left out in order to eliminate the multicollinearity (Table 68).

Table 68

Collinearity Statistics - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) with the FCAT 2.0 Mathematics Scores when controlling the ESOL Student Population

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	ESOL	1.000	1.000
2	(Constant)		
	ESOL	.566	1.766
	Whites	.007	140.425
	Hispanics	.001	1581.642
	Blacks	.001	1781.366

Table 69 displays the Mean and Standard Deviations for the test of measuring the relationship of racial and ethnic concentration (Whites and Hispanics) and the FCAT 2.0 Mathematics scores when controlling the ESOL student population. From the data in Table 69, the ESOL student population has the smallest Standard Deviation (6.69547), meaning it is closely grouped around the mean. The Hispanic student population has the largest Standard Deviation (32.03428), meaning it is less grouped around the mean.

Table 69

Descriptive Statistics – Relationship of Racial and Ethnic Concentration (Whites and Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
ESOL	10.1430	6.69547
Whites	6.6620	8.50480
Hispanics	58.7660	32.03428

Note. a = 59

As shown in Table 70, there are two models because Model 1 is controlling the ESOL student population while Model 2 incorporates all the independent variables

(Whites, Hispanics, and ESOL). For Model 1, there is a weak correlation of 0.134, R, of the independent variables White student population and Hispanic student population when controlling ESOL student population with the dependent variable. For Model 2, there is a strong correlation of 0.773, R, between the independent variables and dependent variable. The R^2 for Model 1 is 0.018, which means that the White student population and the Hispanic student population when controlling ESOL student population explain 1.8% of the unique variance. The R^2 for Model 2 is 0.598, which is the amount of variance in the dependent variable that can be explained by all the independent variables. All the independent variables can explain 59.8% of the variance. The Adjusted R^2 was used for the study because it is more accurate for explaining variance. The Adjusted R^2 for Model 1 is 0.001, less because it adjusts for any bias by correcting the R^2's value. Using the Adjusted R^2, the White student population and the Hispanic student population explains 0.1% of the unique variance. The Adjusted R^2 for Model 2 is 0.576, less because it adjusts for any bias by correcting the R^2's value. Using the Adjusted R^2, the White student population and the Hispanic student population explain 57.6%. The Standard Error of the Estimate is 16.018 for Model 1 and 10.432 for Model 2 in this test. The R^2 Change allows the change to R^2 be identified when the independent variable is controlled for. For each model, the R^2 Change is the same as the R^2 but both models do not have the same value because there was a variable controlled for in this particular test. For Model 1, the R^2 Change is 0.018 and for Model 2, it is 0.580. The F Change for Model 1 is 1.042 and for Model 2 is 39.692 which is the test statistic (TS_{calc} or F_{calc}). For Model 1, the first Degree of Freedom, $df1$, is 1 and the second Degree of Freedom, $df2$, is 57. For Model 2, the first Degree of Freedom, $df1$, is 2 and the second Degree of

Freedom, *df2*, is 55. The Significant *F* Change, P_{calc}, is 0.312 for Model 1, meaning the

ESOL student population was not statistically significant because 0.312 is not less than

0.01. The Significant *F* Change, P_{calc}, is $p < 0.001$ for Model 2, making the White

student population and Hispanic student population statistically significant because it is

less than 0.01. (Hinton et al., 2004)

Table 70

Model Summary - Relationship of Racial and Ethnic Concentration (Whites and Hispanics) and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.134[a]	.018	.001	16.018	.018	1.042	1	57	.312
2	.773[b]	.598	.576	10.432	.580	39.692	2	55	.000

Note. a. Predictors: (Constant), % of ESOL student population
b. Predictors: (Constant), % of ESOL student population, % of White student population, % of Hispanic student population
c. Dependent Variable: % Passing FCAT Math

Additionally, Table 28 (Chapter 4) displays data that makes it known if

multicollinearity was present amongst the independent variables being tested. To test this

hypothesis, the Black student population was not included because it created

multicollinearity, and thus would have made it difficult to analyze the individual

contribution that each independent variable would make to the dependent variable.

Whites, Blacks and ESOL

For this particular test, there was a high correlation between the White student

population, the Black student population, and the Hispanic student population, and so the

Hispanic student population was left out in order to eliminate the multicollinearity (Table

71).

Table 71

Collinearity Statistics - Relationship of Racial and Ethnic Concentration (Blacks, Whites, Hispanics) with the FCAT 2.0 Mathematics Scores when controlling the ESOL Student Population

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	ESOL	1.000	1.000
2	(Constant)		
	ESOL	.566	1.766
	Whites	.007	140.425
	Hispanics	.001	1581.642
	Blacks	.001	1781.366

Table 72 displays the Mean and Standard Deviations for the test of measuring the

relationship of racial and ethnic concentration (Whites and Blacks) and the FCAT 2.0

Mathematics scores when controlling the ESOL student population. From the data in

Table 72, the ESOL student population has the smallest Standard Deviation (6.69547),

meaning it is closely grouped around the Mean. The Black student population has the

largest Standard Deviation (34.03266), meaning it is less grouped around the Mean.

Table 72

Descriptive Statistics – Relationship of Racial and Ethnic Concentration (Blacks, Whites) with the FCAT 2.0 Mathematics Scores when controlling the ESOL Student Population

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
ESOL	10.1430	6.69547
Whites	6.6620	8.50480
Blacks	33.1314	34.03266

Note. a = 59.

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As shown in Table 73, there are two models because Model 1 is controlling the

ESOL student population while Model 2 incorporates all the independent variables

(Whites, Blacks, and ESOL). For Model 1, there is a weak correlation of 0.134, R, of the

independent variables White student population and Black student population when

controlling the ESOL student population with the dependent variable. For Model 2, there

is a strong correlation of 0.777, R, between the independent variables and dependent

variable. The R^2 for Model 1 is 0.018, which is the amount of unique variance in the

dependent variable that can be explained by the White student population and the Black

student population when controlling the ESOL student population. The White student

population and the Black student population when controlling the ESOL student

population explain 1.8% of the unique variance. The R^2 for Model 2 is 0.604, which is

the amount of variance in the dependent variable that can be explained by all the

independent variables. All the independent variables can explain 60.4% of the variance.

The Adjusted R^2 was used for the study because it is more accurate for explaining

variance. The Adjusted R^2 for Model 1 is 0.001, less because it adjusts for any bias by

correcting the R^2's value. The Adjusted R^2, the White student population and the Black

student population when controlling the ESOL student population explains 0.1% of the

variance. The Adjusted R^2 for Model 2 is 0.582, less because it adjusts for any bias by

correcting the R^2's value. The Adjusted R^2, the ESOL student population, all the

independent variables explain 58.2%. The Standard Error of the Estimate is 16.018 for

Model 1 and 10.361 for Model 2 in this test. The R^2 Change allows the change to R^2 to

be identified when the independent variable is controlled for. For each model, the R^2

Change is the same as the R^2 but both models do not have the same value because there

was a variable controlled for in this particular test. For Model 1, the R^2 Change is 0.018

and for Model 2, it is 0.586. The F Change for Model 1 is 1.042 and for Model 2 is

40.626 which is the test statistic (TScalc or Fcalc). For Model 1, the first Degree of

Freedom, $df1$, is 1 and the second Degree of Freedom, $df2$, is 57. For Model 2, the first

Degree of Freedom, $df1$, is 2 and the second Degree of Freedom, $df2$, is 55. The

Significant F Change, P_{calc}, is 0.312 for Model 1, meaning the ESOL student population

is not statistically significant because 0.312 is not less than 0.01. The Significant F

Change, P_{calc}, is $p < 0.001$ for Model 2, making the ESOL student population, the White

student population and the Black student population statistically significant because it is

less than 0.01. (Hinton et al., 2004)

Table 73

Model Summary - Relationship of Racial and Ethnic Concentration (Whites and Blacks)
and FCAT 2.0 Mathematics Scores when controlling ESOL Student Population

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.134[a]	.018	.001	16.018	.018	1.042	1	57	.312
2	.777[b]	.604	.582	10.361	.586	40.626	2	55	.000

Note. a. Predictors: (Constant), % of ESOL student population
b. Predictors: (Constant), % of ESOL student population, % of White student population,
% of Black student population
c. Dependent Variable: % Passing FCAT Math

Additionally, Table 32 (Chapter 4) displays data that makes it known if

multicollinearity was present amongst the independent variables being tested. To test this

hypothesis, the Hispanic student population was not included because it created

multicollinearity, and thus would have made it difficult to analyze the individual

contribution that each independent variable would make to the dependent variable.

Relationship between FCAT 2.0 Mathematics Scores and Socio-Economic Status

Table 74 displays the Mean and Standard Deviations for the test of measuring the

relationship of the FCAT 2.0 Mathematics scores and socio-economic status.

Table 74

Descriptive Statistics – Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Economically Disadvantaged (SES)	80.1490	16.10261

Note. a = 59.

As shown in Table 75, there is a strong correlation of 0.830, *R*, of the

Economically Disadvantaged (SES) student population with the dependent variable. The

R^2 is 0.688, which is the amount of variance in the dependent variable that can be

explained by the Economically Disadvantaged (SES) student population. The

Economically Disadvantaged (SES) student population explains 68.8% of the variance.

The Adjusted R^2 was used for the study because it is more accurate for explaining

variance. The Adjusted R^2 is 0.683, less because it adjusts for any bias by correcting the

R^2's value. Using the Adjusted R^2, the Economically Disadvantaged (SES) student

population explains 68.3% of the variance. The Standard Error of the Estimate is 9.024

in this test. The R^2 Change and the R^2 are the same (0.688) since no variable was

controlled in this particular test. The *F* Change for Model 1 is 125.878 which is the test

statistic (TS_{calc} or F_{calc}). The first Degree of Freedom, *df1*, is 1 and the second Degree of

Freedom, *df2*, is 57. The Significant *F* Change, P_{calc}, is $p < 0.001$, making the

Economically Disadvantaged (SES) student population statistically significant because it

is less than 0.01. (Hinton et al., 2004)

Table 75

Model Summary - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.830[a]	.688	.683	9.024	.688	125.878	1	57	.000

Note. a. Predictors: (Constant), Total % of Economically Disadvantaged student population
b. Dependent Variable: Total % Passing FCAT Math

Additionally, Table 36 (Chapter 4) displays data that makes it known if

multicollinearity is present amongst the independent variables being tested. Since there

is only one independent variable being tested, there is no multicollinearity.

Relationship between FCAT 2.0 Mathematics Scores and Socio-Economic Status

when controlling Racial and Ethnic Concentrations

Whites, Hispanics and Socio-Economic Status

For this particular test, there was a high correlation between the White student

population, the Black student population, and the Hispanic student population, and so the

Black student population was left out in order to eliminate the multicollinearity (Table

76).

Table 76

Collinearity Statistics - Relationship of the FCAT 2.0 Mathematics Scores and Socio-economic Status when controlling Racial and Ethnic Concentration (Blacks, Whites, Hispanics)

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Hispanics	.001	1502.030
	Blacks	.001	1704.048
	Whites	.007	136.782
2	(Constant)		
	Hispanics	.001	1721.873
	Blacks	.001	1961.514
	Whites	.007	142.519
	Economically Disadvantaged (SES)	.171	5.832

Table 77 displays the Mean and Standard Deviations for the test of measuring the

relationship between FCAT 2.0 Mathematics scores and the Economically Disadvantaged

(SES) student population when controlling racial and ethnic concentrations (Whites and

Hispanics). From the data in Table 77, the White student population has the smallest

Standard Deviation (8.50480), meaning it is closely grouped around the Mean. The

Hispanic student population has the largest (32.03428), meaning it is less grouped around

the Mean.

Table 77

Descriptive Statistics – Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites & Hispanics)

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Whites	6.6620	8.50480
Hispanics	58.7660	32.03428
Economically Disadvantaged (SES)	80.1490	16.10261

Note. a = 59.

As shown in Table 78, there are two models because Model 1 is controlling the racial and ethnic concentrations (Whites and Hispanics) while Model 2 incorporates all the independent variables (Whites, Hispanics, and Economically Disadvantaged). For Model 1, there is a strong correlation of 0.769, R, of the socio-economic status when controlling the White student population and the Hispanic student population with the dependent variable. For Model 2, there is a strong correlation of 0.889, R, between all the independent variables and the dependent variable. The R^2 for Model 1 is 0.592, which is the amount of the unique variance in the dependent variable that can be explained by socio-economic status when controlling the White student population and the Hispanic student population, explaining 59.2% of the variance. The R^2 for Model 2 is 0.790, which is the amount of variance in the dependent variable that can be explained by all the independent variables. All the independent variables can explain 79.0% of the variance. The Adjusted R^2 was used for the study because it is more accurate for explaining variance. The Adjusted R^2 for Model 1 is 0.577, less because it adjusts for any bias by correcting the R^2's value. Using the Adjusted R^2, socio-economic status explains 57.7% of the variance when controlling the White student population and the Hispanic

student population. The Adjusted R^2 for Model 2 is 0.778, less because it adjusts for any

bias by correcting the R^2's value. Using the Adjusted R^2, all independent variables

explain 77.8%. The Standard Error of the Estimate is 10.421 for Model 1 and 7.544 for

Model 2 in this test. For each model, the R^2 Change is the same as the R^2 but both models

do not have the same value because there was a variable controlled for in this particular

test. For Model 1, the R^2 Change is 0.592 and for Model 2, it is 0.198. The F Change for

Model 1 is 40.563 and for Model 2 is 51.872 which is the test statistic (TS_{calc} or F_{calc}).

For Model 1, the first Degree of Freedom, $df1$, is two and the second Degree of Freedom,

$df2$, is 56. For Model 2, the first Degree of Freedom, $df1$, is one and the second Degree

of Freedom, $df2$, is 55. The Significant F Change, P_{calc}, is $p < 0.001$ for Model 1,

meaning that socio-economic status, when controlling the White student population and

Hispanic student population, was statistically significant because it is less than 0.01. The

Significant F Change, P_{calc}, is $p < 0.001$ for Model 2, meaning that the White student

population, the Hispanic student population, and the Economically Disadvantaged (SES)

student population were statistically significant because it is less than 0.01. (Hinton et

al., 2004)

Table 78

*Model Summary - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic
Status when controlling Racial and Ethnic Concentration (Whites & Hispanics)*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.769[a]	.592	.577	10.421	.592	40.563	2	56	.000
2	.889[b]	.790	.778	7.544	.198	51.872	1	55	.000

Note. a. Predictors: (Constant), % of Hispanic student population, % of White student
population
b. Predictors: (Constant), % of Hispanic student population, % of White student
population, % of Economically Disadvantaged student population
c. Dependent Variable: % Passing FCAT Math

Additionally, Table 40 (Chapter 4) displays data that makes it known if

multicollinearity was present amongst the independent variables being tested. To test this

hypothesis, the Black student population was not included because it created

multicollinearity, and thus would have made it difficult to analyze the individual

contribution that each independent variable would make to the dependent variable.

Whites, Blacks and Socio-Economic Status

For this particular test, there was a high correlation between the White student

population, the Black student population, and the Hispanic student population, and so the

Hispanic student population was left out in order to eliminate the multicollinearity (Table

79).

Table 79

Collinearity Statistics - Relationship of the FCAT 2.0 Mathematics Scores and Socio-economic Status when controlling Racial and Ethnic Concentration (Blacks, Whites, Hispanics)

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Hispanics	.001	1502.030
	Blacks	.001	1704.048
	Whites	.007	136.782
2	(Constant)		
	Hispanics	.001	1721.873
	Blacks	.001	1961.514
	Whites	.007	142.519
	Economically Disadvantaged (SES)	.171	5.832

Table 80 displays the Mean and Standard Deviations for the test of measuring the

relationship between FCAT 2.0 Mathematics scores and the Economically Disadvantaged

(SES) student population when controlling racial and ethnic concentration (Whites and

Blacks). From the data in Table 80, the White student population has the smallest

Standard Deviation (8.50480), meaning it is closely grouped around the Mean. The

Black student population has the largest Standard Deviation (34.03266), meaning it is

less grouped around the Mean.

Table 80

Descriptive Statistics – Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic Status when controlling Racial and Ethnic Concentration (Whites & Blacks)

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Whites	6.6620	8.50480
Blacks	33.1314	34.03266
Economically Disadvantaged (SES)	80.1490	16.10261

Note. a = 59.

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As shown in Table 81, there are two models because Model 1 is controlling the racial and ethnic concentrations (Whites and Blacks) while Model 2 incorporates all the independent variables (Whites, Blacks, and Economically Disadvantaged). For Model 1, there is a strong correlation of 0.773, R, of socio-economic status when controlling the White student population and the Black student population with the dependent variable. For Model 2, there is a strong correlation of 0.890, R, between all the independent variables with the dependent variable. The R^2 for Model 1 is 0.597, which is the amount of the unique variance in the dependent variable that can be explained by socio-economic status when controlling the White student population and the Black student population. The White student population and the Black student population explain 59.7% of the variance. The R^2 for Model 2 is 0.791, which is the amount of variance in the dependent variable that can be explained by all the independent variables. The independent variables can explain 79.1% of the variance. The Adjusted R^2 was used for the study because it is more accurate for explaining variance. The Adjusted R^2 for Model 1 is 0.582, less because it adjusts for any bias by correcting the R^2's value. Using the Adjusted R^2, socio-economic status explains 58.2% of the variance when controlling the White student population and the Black student population. The Adjusted R^2 for Model 2 is 0.780, less because it adjusts for any bias by correcting the R^2's value. Using the Adjusted R^2, all the independent variables explain 78.0%. The Standard Error of the Estimate is 10.355 for Model 1 and 7.517 for Model 2 in this test. The R^2 Change allows the change to R^2 be identified when the independent variable is controlled for. For each model, the R^2 Change is the same as the R^2 but both models do not have the same value because there was a variable controlled for in this particular test. For Model 1, the R^2

Change is 0.597 and for Model 2, it is 0.195. The *F* Change for Model 1 is 41.445 and

for Model 2 is 51.275 which is the test statistic (*TS*$_{calc}$ or *F*$_{calc}$). For Model 1, the first

Degree of Freedom, *df1*, is two and the second Degree of Freedom, *df2*, is 56. For Model

2, the first Degree of Freedom, *df1*, is one and the second Degree of Freedom, *df2*, is 55.

These are the values in the test that are free to vary. The Significant *F* Change, *P*$_{calc}$, is *p*

< 0.001 for Model 1, meaning that socio-economic status when controlling the White

student population and Black student population were statistically significant because it is

less than 0.01. The Significant *F* Change, *P*$_{calc}$, is *p* < 0.001 for Model 2, meaning that

the White student population, Black student population, and the Economically

Disadvantaged (SES) student population were statistically significant because it is less

than 0.01. (Hinton et al., 2004)

Table 81

Model Summary - Relationship of FCAT 2.0 Mathematics Scores and Socio-Economic
Status when controlling Racial and Ethnic Concentration (Whites & Blacks)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.773[a]	.597	.582	10.355	.597	41.445	2	56	.000
2	.890[b]	.791	.780	7.517	.195	51.275	1	55	.000

Note. a. Predictors: (Constant), % of Black student population, % of White student
population
b. Predictors: (Constant), % of Black student population, % of White student population,
% of Economically Disadvantaged student population
c. Dependent Variable: % Passing FCAT Math

Additionally, Table 44 (Chapter 4) displays data that makes it known if

multicollinearity was present amongst the independent variables being tested. To test this

hypothesis, the Hispanic student population was not included because it created

multicollinearity, and thus would have made it difficult to analyze the individual

contribution that each independent variable would make to the dependent variable.

Relationship between School Climate and FCAT 2.0 Mathematics Scores when

controlling Racial and Ethnic Concentrations

Whites, Hispanics and School Climate

For this particular test, there was a high correlation between the White student

population, the Black student population, and the Hispanic student population thus, the

Black student population were left out in order to eliminate the multicollinearity (Table

82).

Table 82

Collinearity Statistics - Relationship of the FCAT 2.0 Mathematics Scores and School
Climate when controlling Racial and Ethnic Concentration (Blacks, Whites, Hispanics)

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Hispanics	.001	1502.030
	Blacks	.001	1704.048
	Whites	.007	136.782
2	(Constant)		
	Hispanics	.001	1721.630
	Blacks	.000	2046.945
	Whites	.006	142.519
	School Climate (Parent)	.523	1.912
	School Climate (Student)	.452	2.211
	School Climate (Staff)	.629	1.590

Table 83 displays the Mean and Standard Deviations for the test of measuring the

relationship between school climate and FCAT 2.0 Mathematics scores when controlling

racial and ethnic concentration (Whites and Hispanics). From the data in Table 83, the

White student population has the smallest Standard Deviation (8.50480), meaning it is

closely grouped around the Mean. The Hispanic student population has the largest

Standard Deviation (32.03428), meaning it is less grouped around the Mean.

Table 83

*Descriptive Statistics – Relationship of School Climate and FCAT 2.0 Mathematics
Scores when controlling Racial and Ethnic Concentration (Whites & Hispanics)*

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Whites	6.6620	8.50480
Hispanics	58.7660	32.03428
School Climate (Parent)	77.52	11.082
School Climate (Student)	50.72	13.865
School Climate (Staff)	74.36	19.068

Note. a = 59.

As shown in Table 84, there are two models because Model 1 is controlling the

racial and ethnic concentrations (Whites and Hispanics) while Model 2 incorporates all

the independent variables (Whites, Hispanics, and school climate). For Model 1, there is

a strong correlation of 0.769, R, of socio-economic status when controlling the White

student population and the Hispanic student population with the dependent variable. For

Model 2, there is a strong correlation of 0.876, R, between all the independent variables

and the dependent variable. The R^2 for Model 1 is 0.592, which is the amount of the

unique variance in the dependent variable that can be explained by socio-economic status

when controlling the White student population and the Hispanic student population. The

White student population and the Hispanic student population explain 59.2% of the

variance. The R^2 for Model 2 is 0.767, which is the amount of variance in the dependent

variable that can be explained by all the independent variables. The independent

variables can explain 76.7% of the variance. The Adjusted R^2 was used for the study

because it is more accurate for explaining the variance. The Adjusted R^2 for Model 1 is

0.576, less because it adjusts for any bias by correcting the R^2's value. Using the

Adjusted R^2, the socio-economic status explains 57.6% of the variance when controlling

the White student population and the Hispanic student population. The Adjusted R^2 for

Model 2 is 0.744, less because it adjusts for any bias by correcting the R^2's value. Using

the Adjusted R^2, all the independent variables explain 74.4%. The Standard Error of the

Estimate is 10.428 for Model 1 and 8.110 for Model 2 in this test. The R^2 Change allows

the change to R^2 be identified when the independent variable is controlled for. For each

model, the R^2 Change is the same as the R^2 but both models do not have the same value

because there were variables controlled for in this particular test. For Model 1, the R^2

Change is 0.592 and for Model 2, it is 0.175. The F Change for Model 1 is 39.114 and

for Model 2 is 12.764 which is the test statistic (TS_{calc} or F_{calc}). For Model 1, the first

Degree of Freedom, $df1$, is two and the second Degree of Freedom, $df2$, is 54. For Model

2, the first Degree of Freedom, $df1$, is three and the second Degree of Freedom, $df2$, is 51.

The Significant F Change, P_{calc}, is $p < 0.001$ for Model 1, meaning that socio-economic

status when controlling the White student population and the Hispanic student population

was statistically significant because it was less than 0.01. The Significant F Change,

P_{calc}, is $p < 0.001$ for Model 2, meaning that the White student population, Hispanic

student population, and the School Climate were statistically significant because it is less

than 0.01. (Hinton et al., 2004)

Table 84

Model Summary - Relationship of School Climate and FCAT 2.0 Mathematics Scores when controlling Racial and Ethnic Concentration (Whites & Hispanics)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.769[a]	.592	.576	10.428	.592	39.114	2	54	.000
2	.876[b]	.767	.744	8.110	.175	12.764	3	51	.000

Note. a. Predictors: (Constant), % of Hispanic student population, % of White student population
b. Predictors: (Constant), % of Hispanic student population, % of White student population, % of School Climate (Parent), % of School Climate (Student), % of School Climate (Staff)
c. Dependent Variable: % Passing FCAT Math

Additionally, Table 48 (Chapter 4) displays data that makes it known if multicollinearity was present amongst the independent variables being tested. To test this hypothesis, the Black student population was not included because it created multicollinearity, and thus would have made it difficult to analyze the individual contribution that each independent variable would make to the dependent variable.

Whites, Blacks and School Climate

For this particular test, there was a high correlation between the White student population, the Black student population, and the Hispanic student population thus, the Hispanic student population were left out in order to eliminate the multicollinearity (Table 85).

Table 85

Collinearity Statistics - Relationship of the FCAT 2.0 Mathematics Scores and School Climate when controlling Racial and Ethnic Concentration (Blacks, Whites, Hispanics)

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Hispanics	.001	1502.030
	Blacks	.001	1704.048
	Whites	.007	136.782
2	(Constant)		
	Hispanics	.001	1721.630
	Blacks	.000	2046.945
	Whites	.006	142.519
	School Climate (Parent)	.523	1.912
	School Climate (Student)	.452	2.211
	School Climate (Staff)	.629	1.590

Table 86 displays the Mean and Standard Deviations for the test of measuring the

relationship between school climate and FCAT 2.0 Mathematics scores when controlling

racial and ethnic concentration (Whites and Blacks). From the data in Table 86, the

White student population has the smallest Standard Deviation (8.50480), meaning it is

closely grouped around the Mean. The Black student population has the largest Standard

Deviation (34.03266), meaning it is less grouped around the Mean.

Table 86

Descriptive Statistics – Relationship of School Climate and FCAT 2.0 Mathematics Scores when controlling Racial and Ethnic Concentration (Whites & Blacks)

Total %[a]	Mean	Std. Deviation
Passing FCAT Math	57.61	16.024
Whites	6.6620	8.50480
Blacks	33.1314	34.03266
School Climate (Parent)	77.52	11.082
School Climate (Student)	50.72	13.865
School Climate (Staff)	74.36	19.068

Note. a = 59.

As shown in Table 87, there are two models because Model 1 is controlling the racial and ethnic concentrations (Whites and Blacks) while Model 2 incorporates all the independent variables (Whites, Blacks, and school climate). For Model 1, there is a strong correlation of 0.773, R, of socio-economic status when controlling the Whites student population and the Black student population with the dependent variable. For Model 2, there is a strong correlation of 0.876, R, between all the independent variables and the dependent variable. The R^2 for Model 1 is 0.597, which is the amount of the unique variance in the dependent variable that can be explained by socio-economic status when controlling the White student population and the Black student population. The White student population and the Black student population explain 59.7% of the variance. The R^2 for Model 2 is 0.767, which is the amount of variance in the dependent variable that can be explained by all the independent variables. The independent variables can explain 76.7% of the variance. The Adjusted R^2 was used for the study because it is more accurate for explaining variance. The Adjusted R^2 for Model 1 is 0.582, less because it adjusts for any bias by correcting the R^2's value. Using the Adjusted R^2, socio-economic status explains 58.2% of the variance when controlling the White student population and the Black student population. The Adjusted R^2 for Model 2 is 0.745, less because it adjusts for any bias by correcting the R^2's value. Using the Adjusted R^2, all the independent variables explain 74.5%. The Standard Error of the Estimate is 10.362 for Model 1 and 8.097 for Model 2 in this test. The R^2 Change allows the change to R^2 be identified when the independent variable is controlled for. For each model, the R^2 Change is the same as the R^2 but both models do not have the same value because there were variables controlled for in this particular test. For Model 1, the R^2 Change is 0.597

and for Model 2, it is 0.171. The *F* Change for Model 1 is 39.965 and for Model 2 is

12.480 which is the test statistic (TS_{calc} or F_{calc}). For Model 1, the first Degree of

Freedom, *df1*, is two and the second Degree of Freedom, *df2*, is 54. For Model 2, the first

Degree of Freedom, *df1*, is three and the second Degree of Freedom, *df2*, is 51. The

Significant *F* Change, P_{calc}, is $p < 0.001$ for Model 1, meaning that socio-economic status

when controlling the White student population and Black student population were

statistically significant because it is less than 0.01. The Significant *F* Change, P_{calc}, is $p <$

0.001 for Model 2, meaning that the White student population, Black student population,

and the School Climate were statistically significant because it is less than 0.01. (Hinton

et al., 2004)

Table 87

Model Summary - Relationship of School Climate and FCAT 2.0 Mathematics Scores
when controlling Racial and Ethnic Concentration (Whites & Blacks)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.773[a]	.597	.582	10.362	.597	39.965	2	54	.000
2	.876[b]	.767	.745	8.097	.171	12.480	3	51	.000

Note. a. Predictors: (Constant), % of Black student population, % of White student
population
b. Predictors: (Constant), % of Black student population, % of White student population,
Total % of School Climate (Parent), % of School Climate (Student), % of School Climate
(Staff)
c. Dependent Variable: % Passing FCAT Math

Additionally, Table 52 (Chapter 4) displays data that makes it known if

multicollinearity was present amongst the independent variables being tested. To test this

hypothesis, the Black student population was not included because it created

multicollinearity, and thus would have made it difficult to analyze the individual

contribution that each independent variable would make to the dependent variable.

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