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Direct And Indirect Effects Of Selected Factors On School Grades In Public High Schools In The State Of Florida

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DIRECT AND INDIRECT EFFECTS OF SELECTED FACTORS ON SCHOOL GRADES IN PUBLIC HIGH SCHOOLS IN THE STATE OF FLORIDA

by

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This dissertation is dedicated to my wife, Lora, and our two children, Derek and Savannah, who without their sacrificial love, this manuscript would not have been possible. To my father, Sarge and my mother June, who helped instill in me a hard work ethic at an early age in life, I am forever indebted to you both. To my high school basketball coaches, Dave Moore, Steve Edmonds, and H.D. Sexton, who assisted in extending this work ethic into accomplishing many goals throughout my life, I am grateful. To my nieces Pam and Paula, who always treated me like a brother, even though they didn't have to, I feel we've grown to love each other with mutual respect. To my sister, Brenda, and my two brothers, Bobby and Billy, I believe the thing I enjoy the most about our relationship is that we tell each other we love the other prior to hanging up on the phone. To my in-laws, Dave and Sandy, who encouraged me to always trust in God, no matter what happens. To my close friends, Matthew, Larry, and Dave, who proved their friendship time and time again, I am very thankful to have you as friends. Finally, this manuscript could not have been completed without God, who six years ago chose my family as an instrument to go on a journey that now stands fulfilled because of His grace. It was a journey that we'll continue to cherish until our days on earth are over.

ABSTRACT

The purpose of this study was to examine the direct and indirect effects of selected factors on school grades in public high schools in the state of Florida. A sample of 316 public high schools was created using data obtained from the Florida Department of Education and the Florida High School Athletic Association. The selected factors that were chosen to be measured in the study were: minority percentage as measured by the proportion of minority students in relation to the total student body at a given school, socio economic status percentage (SES) as measured by the proportion of students participating in the free and reduced lunch program in relation to the total student body at a given school, academic achievement of 10^{th} grade reading mean scale scores and 10^{th} grade mathematics mean scale scores as measured by the Florida Comprehensive Assessment Test (FCAT), and football winning percentage as measured by reported scores to the Florida High School Athletic Association.

The direct and indirect effects of minority percentage, socio economic status percentage, and football winning percentage were tested using a path model in calculating linear regressions to analyze the effects on school grades; while only the direct effects of academic achievement were tested for the effects on school grades. The path model assessed the desired path of the selected factors in the study (See Figure 1); however, all paths were tested in the fully recursive model as illustrated (See Figure 2) for both the 2004-2005 and the 2005-2006 school years in the sample. Selected factors that demonstrated strength of effects were examined for predictability on school grades. Selected factors that indicated indirect effects were analyzed for indication of any discriminating patterns.

For the 2004-2005 and 2005-2006 school years, there was not a statistically significant direct effect for minority percentage and socio economic status percentage on winning percentage; FCAT reading mean scale score and FCAT mathematics mean scale score on winning percentage; winning percentage and FCAT reading mean scale score on school grades; winning percentage and FCAT mathematics mean scale score on school grades; minority percentage, socio economic status percentage, and winning percentage on FCAT reading mean scale score; minority percentage, socio economic status percentage, and winning percentage on FCAT mathematics mean scale score; or minority percentage, socio economic status percentage, and winning percentage on school grades. Two important effects were determined in the linear regression analysis. First, socio economic status percentage was not directly significant on school grades; however, it had a significant direct effect on the FCAT scores schools received on the Florida Comprehensive Assessment Test. Second, the FCAT reading and mathematics mean scale scores had direct significant effects on school grades in both the 2004-2005 and 2005-2006 school years.

Recommendations were made for potential changes to the study to include school size, graduation rates, and student violence that could influence school grades. Future considerations should be given to inclusions based on the Florida Writes requirement, 10^{th} grade science mean scale scores, and other subject content not currently part of the state mandate for graduation. In addition, a study could be conducted that included changes to the path model to reflect minority percentage more accurately in the effects toward the designation of school grades. Finally, a study could be conducted that included participation in sports to account for any ancillary variables that may contribute to the effects of the designation of school grades.

ACKNOWLEDGMENTS

The pursuit of this degree has been a long journey. There are so many people who have assisted me in achieving this goal that it is impossible to extend appreciation for their continued support and encouragement. At times, I truly believe their faith in me was greater than I had in myself. God, many family members, close friends, colleagues and coaches in the Brevard School District, students and players I have taught and coached, and my cohort classmates, I am eternally grateful for your enthusiasm in this endeavor. Still, after this list of acknowledgments, I feel I fall short in remembering everyone who has sacrificed more than I ever have; however, I believe these acknowledgments both command respect and warrant deserving gratitude.

My pursuit of this journey began like most goals have been for me in life, as a classic overachiever. I wasn't employed in the field of education and I never had the required entranced exam scores for admission to the program. Faced with these adversarial circumstances, I continued to knock at the door hoping someone would listen. This process of hope transpired over a five year period with the professional guidance of my initial advisor, and now retired professor, Dr. Marcella L. Kysilka. To her, I owe a gratitude that cannot be possibly defined for her willingness to take a risk on me both as a student and as a future teacher within the education profession. For your faith and belief in my determination, I truly appreciate the valuable lesson you taught me in life. It is a lesson that now extends to the students in my classroom and with everyone I come into contact with.

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indebtedness came with both a challenge and hardship as you took on the extra duties as my advisor one year into my program of study.

I would like to thank the members of my committee for their interests, guidance and support. Dr. Eleanor Witta, my co-chair, Dr. Matthew Lloyd Collins, and Dr. Karen Biraimah, without your professional expertise and understanding my compass would have become misdirected throughout the journey. I believe you share in the contribution of this research to the field of education as the manuscript is now complete. The insight provided through the research is a result of your conveyed suggestions for ongoing improvement of the study.

They often say that in every great achievement there is something lost. I truly believe that this journey has made me more aware of this reality than perhaps anything else I've experienced in life. I say this because the greatest sacrifice that has been made in this journey was not made by me. Unquestionably, the greatest sacrifice was made by my wife Lora and our two children, Derek and Savannah. I often tell anyone interested in pursuing this journey that the biggest consideration is definitely the commitment on time. I would often ask my wife, "How am I doing with you and the kids? My wife would always reply, "We are doing just fine." The amount of time dedicated to this endeavor cannot be recaptured. Too many times I would be asked, "Do you have to study now Dad?" Can you go outside and shoot a few baskets?" I would always have to seek moderation in my answer hoping to send a positive message. I can only hope that they see something in me that I may not see in myself that perhaps, as a husband and father I somehow taught a worthy lesson as the precious commodity of time was traded for a portion of their childhood experiences.

Most importantly, I want to take the time to thank God. Equipped with the knowledge that I didn't have the entrance exam scores to get into the program, I released my acceptance in

this journey to God's will for my life. As in many situations in life, God's answer came at a time not conducive with my calendar, but His. This journey began during my first year as a teacher when questions and uncertainties in the teaching profession often arise for a new teacher. Many times throughout this journey He proved His unconditional love and destined purpose in guiding and directing me in situations I was unable to handle myself. Without His help I would not have been motivated to complete this journey. This entire journey has been about my personal testimony to my faith in God and my willingness to be used as an instrument so He would be glorified to the utmost highest.

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Introduction

Since 1998, the Florida Comprehensive Assessment Test (FCAT) has been administered in all Florida public schools. The test results form the basis for Florida's School Accountability Program, and the grade 10 FCAT has now become the high school graduation test (FCAT Myths, 2003). The purpose of the FCAT is to assess student achievement of the Sunshine State Standards (SSS) benchmarks in reading, mathematics, science, and writing (Understanding, 2004). The FCAT also includes norm-referenced tests (NRT) in reading comprehension and mathematics problem solving, which allow for comparing the performance of Florida students with students across the nation. Students are tested on the FCAT SSS Reading and Mathematics in grades 3 through 10, FCAT Writing+ in grades 4, 8, and 10, FCAT SSS Science in grades 5,8, and 11, and FCAT NRT Reading and Mathematics in grades 3 through 10 (Florida Department of Education, 2006; Understanding, 2004).

School grades have been issued since 1999 with the Florida Comprehensive Assessment Test having been the primary criterion in calculating school grades (2006 Guide, 2003). In 2002, significant improvements were made in how school grades were calculated to fully implement the intent of the A+ Plan, passed by the Florida Legislature in 1999. The most noteworthy improvement was the inclusion of student learning gains. Additionally, a measure was added to determine whether the lowest performing students were making annual improvements in reading. In 2006, just as in the four previous years, the school grades included three measures of student achievement and three measures of student learning gains. Florida is one of the few states that

can track student demographic information from year to year and the first to track annual student learning gains based on the state's academic standards. Florida's accountability system allows the improvement of individual students to be tracked from one year to the next on FCAT developmental scores in reading and mathematics in grades 3 through 10 (2006, Guide, 2003). A more detailed analysis of school grades in Florida is provided in Chapter 2.

Federal and state legislation has been influential in driving procedures for determining school grades in the state of Florida. A report by the U.S. Department of Education (n.d.) describes the federal legislation No Child Left Behind (NCLB) Act, formerly the Elementary and Secondary Education Act (Testing, n.d.). The legislation was originally enacted in 1965 and reauthorized in 2002. NCLB has been instrumental in requiring states to administer annual statewide assessments by the 2005-2006 school year in reading and mathematics to students in grades 3 through 8 if they wish to receive federal funds associated with the legislation. One key provision is that by 2007-2008, test results must include individual student scores and be reported by race, income, and other categories to measure not just overall trends, but gaps between, and progress of various subgroup populations (Testing, n.d.; Robelen, 2002; 2006 Guide to NCLB, 2005). The goal of NCLB is to have 100 percent of students proficient in state standards by 2013-2014 (2006 Guide to NCLB, 2005). Currently, demographic information reflecting minority percentage and socio economic status of students is reported for each school as measurable variables relating to school grades in the state of Florida (Florida Department of Education, 2006).

The increased use of standardized testing prompted Florida to adopt and implement the A+ Plan and Adequate Yearly Progress (AYP) to be designated under the federal NCLB as a more effective process in determining the progress of public schools in the state of Florida

(Jimeson, 2004). On June 5th, 2006, the A++ Plan for Education reform was proposed to make high school coursework more challenging and relevant in the state of Florida (A++ Implementation, 2005; Dean, 2006). Key provisions in the state proposal calls for a fourth credit in English and math by the 2008-2009 school year, and that students select major and minor subjects as their college counterparts do. The proposal's intent is that students will stay in school longer with relevance in subject matter to better prepare them for postsecondary education and the workforce (Schweiss, 2006). In addition, the A++ Plan is intended to assist with decreasing the dropout rate among state high students. State of Florida education officials estimate Florida has almost a 30 percent high school dropout rate and some national figures show it is even worse (Dean, 2006). Florida continues to demonstrate accountability toward individual student achievement and progress of every child in public education.

An examination of school grades among Florida's public high schools shows a reduction in inaccuracies in data reporting and developing a more efficient grading process. In 2004-2005, a total of 49 appeals were filed with the Florida Department of Education, 23 school grade appeals and 20 AYP designations, and six for both school grades and AYP (Etters & Fennell, 2005). This is a significant reduction compared to a total of 63 appeals in 2003 (Jimeson, 2004) and 452 the previous year (Etters & Fennell, 2005; Jimeson, 2004), reflecting the statewide total of "A" schools to 1,254 (Etters & Fennell, 2005; Florida School Grades, 2005). Further analysis in data management reveals that in 2005-2006 Florida school districts submitted 33 appeals, 14 school grade appeals and 11 AYP appeals, down from 49 appeals in 2005 (Schroeder, 2006). By comparison, in 2005-2006, 19 appeals were accepted, including six school grade appeals and eight AYP appeals, reflecting the statewide total of "A" schools to 1,467 (Schroeder, 2006). According to Jimeson (2004) fewer appeals and grade changes show Florida is prioritizing and

broadening accountability in public education. The direct and indirect effects of selected factors on school grades of public high schools in the state of Florida were the focus of this study. Have all of the efforts by Florida's Department of Education yielded results in a truly favorable manner or have school grades been viewed as improved data management within Florida's public school system?

Rationale

The rationale for the study was comprised of several criteria. First, it was important to justify why the selected factors were chosen for this particular study. Second, it was important to justify why the selected factors in the study were tested for any direct or indirect effects toward the designation of school grades. Third, it was important to justify why it was determined that the school years 2004-2005 and 2005-2006 were used in the study as a parameter instead of another framework to guide the study.

Minority percentage and socio economic status percentage were used in the study because both have been found to be very influential on student achievement. It has been well documented that these two factors work in close proximity in order to influence student achievement (Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, & York, 1966; Jencks, Ackland, Bane, Cohen, Gintis, Heyns, Michelson, & Smith, 1972). Socio economic status percentage was used as a covariate because of the influence it maintains and in order to examine the other selected factors contained within the study. Football winning percentage was used in the study to assess the effects of the impact of sports on the designation of school grades. It should be noted that assessing football winning percentage didn't fully account for the effects of the impact of sports on school grades; however, it did present a consideration for ancillary factors that could potentially effect school grades (e.g., encouraging students to stay in school

instead of dropping out and requiring athletes to maintain a minimum 2.0 gpa in order to participate in athletics) (Florida High School Athletic Association, Bylaw 11.2, Football Manual, 2006-07, p.31). Academic achievement of 10th grade reading mean scale score and 10th grade mathematics mean scale score were used in the study to demonstrate the degree of predictability of two measures that are part of the criteria used to calculate the designation of school grades.

In examining the direct and indirect effects of the selected factors on school grades used in the study, several characteristics emerge. The direct and indirect effects were tested in order to ascertain the likelihood of predictability for the designation of school grades. This determination would allow the Florida State Legislature, Florida High School Athletic Association, administrative personnel, athletic associations, school boards, teachers, students, community, and parents to distinguish among the selected factors that materialized a high degree of predictability from the selected factors that didn't materialize a high degree of predictability for the designation of school grades. By being able to know which of the selected factors to look for to predict the designation of school grades, school personnel could then target their efforts toward those predetermined selected factors. This knowledge would allow the governing bodies responsible for making educational and athletic decisions the ability to be more accurate with the factors that need to be analyzed toward student achievement for the designation of school grades. In addition, the examination of the direct and indirect effects of the selected factors on school grades provides a more comprehensive explanation of the variance toward school grades. This explanation of variance accounts for much of the activity that took place in the schools contained in the study. The direct and indirect effects of the selected factors on school grades were analyzed for the 2004-2005 and 2005-2006 school years.

The school years 2004-2005 and 2005-2006 were the parameters that served as a guiding framework for the examination of data. The study could have been conducted using a single school year; however, two school years were used to enable the results to be more reliable. As school grades continue to evolve in assessing the progress of Florida's public school system, the reliability by which the assessment takes place is very important in the designation of school grades. It is important to note that the designation of school grades is the current means by which the state of Florida assesses the progress of its public school system; however, and should not be viewed as a conclusive evaluation approach.

Purpose

The purpose of this study was to determine the direct and indirect effects of the selected factors on school grades of public high schools in the state of Florida. The study examined the following selected factors as variables: minority percentage (proportion of minority students in relation to the total student body at a given school) as measured by the state of Florida's Department of Education, socio economic status percentage (proportion of students participating in the free and reduced lunch program in relation to the total student body at a given school) as measured by the state of Florida's Department of Education, academic achievement based on 10^{th} grade reading mean scale scores and 10^{th} grade mathematics mean scale scores as measured by student performance on the Florida Comprehensive Assessment Test, and football winning percentage as measured by reported scores to the Florida High School Athletic Association. The central focus of this study was whether any of the selected factors could predict directly or indirectly on school grades. If it could be determined that any of the selected factors could predict directly or indirectly on the designation of school grades, this could mean that the

opportunity exists for changes in educational or athletic policies in Florida as they are currently being implementing.

Definition of Terms

The following Definitions of terms were used in this study:

A+ Plan for Education: The state of Florida's plan to improve struggling schools and students through establishing high standards and accountability to ensure all children are learning (Faraj, 2004).

A++ Plan for Education: Reform that brings more rigor and relevance to middle school and high school to better prepare students for postsecondary education and the workforce (Schweiss, 2006). The Florida Legislature passed the bill into law on June 5th, 2006 (A++ Implementation, 2005).

Academic resilience: The demonstration of academic achievement that is higher than what would be predicted for someone at risk for low achievement because of demographic status (Von Secker, 2004).

Achievement Levels: Achievement levels describe the success a student has achieved on the Florida Sunshine State Standards tested on the FCAT. Achievement levels range from 1-5, with level 1 being the lowest and level 5 being the highest (Understanding, 2004).

Adequate Yearly Progress (AYP): A part of the (NCLB) law that requires individual states to evaluate the performance of all students, schools, and state to determine if academic achievement standards have been met. AYP measurements target the performance and participation of various population subgroups based on race or ethnicity, socioeconomic status, disability, and English proficiency (2006 Guide, 2003).

Criterion-Referenced Test: (CRT): A test designed to evaluate student performance with a reference to specified criteria. A criterion-reference test takes into account a student's previous level of performance. The FCAT reading and mathematics tests are categorized as criterion-referenced tests (Understand, 2004).

Developmental Scale Score (DSS): A type of score used to determine a student's annual progress from grade to grade. The (FCAT) Developmental Scale for Reading and Mathematics ranges from 86 to 3008 across Grades 3-10. On the Student Report, the Developmental Scale Score is also called the FCAT Score (Understanding, 2004).

Direct Effects: The path of selected factors that went straight to school grades that were measured as the standardized regression coefficient.

English for Speakers of Other Languages (ESOL) Program: The state of Florida's program that affords limited English proficient students the opportunity to fully develop English language proficiency and academic potential. The program is a component of the state of Florida's Consent Decree framework for compliance with the federal and state laws regarding the education of the English language learner (Office of Academic Achievement, 2005).

Florida Comprehensive Assessment Test (FCAT): A series of standardized tests that measure a student's performance in the areas of reading, writing, and mathematics. The tests are administered each year in grades 3 through 10 (Florida Department of Education, 2006). For the purpose of this study, student mean scale scores for reading and mathematics tests in grade 10 were used.

Florida High School Athletic Association (FHSAA): The governing body of high school athletics in the state of Florida (Florida High School Athletic Association, Football Manual, 2006-07).

Football Winning Percentage: A varsity football team's regular season winning percentage.

High School Competency Test (HSCT): An eleventh grade test administered to Florida high school students beginning in October 1994 to assess minimum performance standards in communication and mathematics. Passing both the communication and mathematics sections of the HSCT was a requirement for graduation through the class of 2003 (High School Competency Test, 2005).

Indirect Effect: The path of selected factors that went through other factors that were measured as the standardized regression coefficient.

Limited English Proficient (LEP): Students who are properly identified and assessed as limited English proficient. The identification and assessment ensures the provision of appropriate services offered to students within this designated population. Services for these students include monitoring of the students while in the program, when they exit the program, and after they exit the program (Office of Academic Achievement, 2005).

Minority: Minority in this study was used as subgroup population data classified by the Florida Department of Education (Florida Department of Education, 2006).

Minority Percentage: Proportion of minority students in relation to the total student body at a given school as measured by the State of Florida's Department of Education (Florida Department of Education, 2006).

No Child Left Behind (NCLB) Act: Federal legislation that redefined the federal government's role in kindergarten through grade 12 education of every child. Reform of the Elementary and Secondary Education Act (ESEA) enacted in 1965 contained four basic principles: stronger accountability for results, increased flexibility and local control, expanded

options for parents, and an emphasis on teaching methods that have been proven to work (Testing, n.d.).

Norm-Referenced Test (NRT): A test designed to compare the performance of one group of students to a national sample of students, called the "norm" group. The NRT portion of the FCAT includes both the Reading Comprehension and Mathematics Problem Solving subtests from the Stanford 9 test published by Harcourt Educational Measurement. The FCAT NRT uses a scale that can range from a low of 424 in Grade 3 to a high of 863 in Grade 10 (Understanding, 2004).

One Year's Growth: The difference between a student's current year and prior year (FCAT) developmental score (2006 Guide, 2003).

Risk: The increased likelihood of an undesirable outcome for a population, and not for an individual (Bender & Losel, 1997; Garmezy & Masten, 1986).

School Grades: A letter grade, (A through F), assigned to each school based on student performance on the Florida Comprehensive Assessment Test in reading, math, and writing. School grading criteria also are affected by a school's demonstration of improvement from one year to the next (Florida Department of Education, 2006). School grade of (I) is administered to a school when less than 90% of the students are tested; while school grade of (P) is administered to alternative schools only as an option to assess their academic performance rather than being assessed by the traditional school grade (Grading Florida Schools, 2006).

Socio Economic Status Percentage (SES): Proportion of students participating in the free and reduced lunch program in relation to the total student body at a given school as measured by the Florida Department of Education (Florida Department of Education, 2006). The free and reduced lunch program is based on parent/guardian income level. SES covariate was used as a

control variable because of the influence it maintains and in order to examine the other variables contained within the study.

SSAT-II: A graduation test passed by the Florida Legislature in 1976 that required a passing score in order to receive a high school diploma. The SSAT-II, (State Student Assessment Test, Part II) was also known as the statutory Florida Functional Literacy Examination (Debra P. v. Turlington, 1979). The test was implemented in October 1977 in the state of Florida and was the first of its kind in the nation (History, 2005).

State Series Assignment: The state of Florida's Classification System for athletic teams participating in high school athletic contests. The classification system was based upon ranges in student population and was monitored by the Florida High School Athletic Association (Florida High School Athletic Association, Football Manual, 2006-07).

Sunshine State Standards (SSS): Florida's curriculum framework that includes curriculum content areas, strands, standards, and benchmarks. The Sunshine State Standards provide guidelines for the educational curriculum in Florida (Understanding, 2004). The Sunshine State Standards span across seven content areas (Language arts, mathematics, science, social studies, health, and physical education, foreign language, and the arts.) The Sunshine State Standards were adopted by the Florida Board of Education in May 1996 to define a clear set of standards upon which to build an equitable system of student assessment and school accountability (Lessons, 2002).

Unscored Contests: Contractual regular season football contests that were not played due to inclement weather conditions (Florida High School Athletic Association, Section 108.01; 108.02, Football Manual, 2006-07).

Unweighted GPA: A cumulative grade point average through the end of the previous semester as required by Florida Statutes. This GPA must include all courses taken since the student-athlete entered high school. A student-athlete must maintain a 2.0 grade point average on a 4.0 scale (Florida High School Athletic Association, Bylaw 11.2, Football Manual, 2006-07, p.31).

Winning Percentage: The total number of loses by a high school varsity football team divided by the total number of games played. The winning percentage is based on a maximum of 10 regular season games, excluding games played in post-season competition. The winning percentage is expressed in hundredths.

Delimitations

1. The study was delimited to public high schools in the state of Florida.

Limitations

1. The study was limited to the accuracy of the data obtained from the Department of Education of the state of Florida.
2. The study was limited to the examination of data obtained from the Florida High School Athletic Association that did not take into account organized sports other than football. The study was limited to the examination of data obtained from the Florida High School Athletic Association that isolated the sport of football which required scores to be reported by its member teams during the regular season and did not include winning percentage that extended into post-season competition by its member teams.

Significance of the Study

School grades continue to be the most effective method of evaluating public schools in the state of Florida. School grades have been issued since 1999 with the Florida Comprehensive Assessment Test being the primary criterion in calculating school grades (2006 Guide, 2003). In 2004-2005, a total of 49 appeals were filed with the Florida Department of Education, 23 school grade appeals and 20 AYP designations, and six for both school grades and AYP (Etters & Fennell, 2005). This is a significant reduction compared to a total of 63 appeals in 2003 (Jimeson, 2004) and 452 the previous year (Etters & Fennell, 2005; Jimeson, 2004), reflecting the statewide total of "A" schools to 1,254 (Etters & Fennell, 2005; Florida School Grades, 2005). This total was comprised of 946 elementary schools, 192 middle schools, 59 high schools, 57 combination schools (Etters & Fennell, 2005). Further analysis in data management revealed that in 2005-2006 Florida school districts submitted 33 appeals, 14 school grade appeals and 11 AYP appeals, down from 49 appeals in 2005 (Schroeder, 2006). By comparison, the 2005-2006 school year indicated 1,467 schools with the grade of 'A'. This total was comprised of 943 elementary schools, 353 middle schools, 64 high schools, and 107 combination schools. This number of 'A' schools reflected the largest amount in the state's history since the initiation of school grades in 1999 by the Florida Legislature. This could indicate that Florida is improving data management and is moving in the right direction in enhancing student achievement (Schroeder, 2006).

Florida clearly leads the way in measuring student achievement. For example, through the A+ Plan student achievement was based on academic growth of individual students and was capable of setting individual proficiency goals. Florida does this through the student learning gains measure—a calculation unique to the state of Florida's educational system. This vision

was designed to truly leave no child behind. In addition to the use of learning gains in the A+ system, Florida is currently leading the way in other areas as well. Florida has data resources that make it possible to aggregate and disaggregate all of the student performance and other data required by NCLB, and in many instances (i.e., learning gains) Florida has the capacity to exceed the requirements of NCLB. Florida has instituted school choice options when a school has failed to meet state standards for two out of four years, and two statewide voucher programs; one for students with disabilities and another for students from low-income families. These programs combine for the largest voucher programs in the nation (NCLB Archive, 2005). As Florida has continued to move in the right direction with student achievement on the state assessment, its commitment to rising student achievement has been demonstrated in many other areas that could potentially influence school grades.

Improvement in other measures of student performance in Florida indicated the state's commitment to every student. Some of the greatest student achievement gains have been made by minority students which has narrowed the achievement gap in Florida. From 2001 to 2004, Florida students have shown significant progress in both reading and mathematics. Both Hispanic and African American students have improved nearly twice as fast in reading and three times as fast in mathematics as their white counterparts. Florida has been the only state to show significant improvement in fourth grade reading and has posted improvement in both reading and math for nearly all student groups. In addition, the state of Florida's high school graduation rate rose to 71.6 percent in 2003-2004—up from 60.2 percent in 1998-1999 (Florida Department of Education, 2006; NCLB Archive, 2005). By comparison, the state graduation rate in 2004-2005 was 71.9 percent and in 2005-2006 was 71.0 percent, which reflected increases among the largest ethnic groups (Florida Department of Education, 2006).

These statistics implied that student progress in Florida's public high schools has demonstrated improvement in attempting to narrow the achievement gap among student groups. Although annual assessments differ from state to state, Florida's Accountability System has been implemented as envisioned by the A+ Plan in which school grades have been the primary indicator of determining the progress of its schools (2006 Guide, 2003). This study sought to determine the direct and indirect effects of selected factors on school grades of public high schools in the state of Florida.

Conceptual Framework

One of the most pressing concerns facing public education has been the tremendous task of accountability toward school grades. The result of the No Child Left Behind Act of 2001 has required state departments of education to react with a sense of urgency in meeting federal mandates of the legislation. Formerly the Elementary and Secondary Education Act of 1965, the law redefined the federal government's role in kindergarten through grade 12 education of every child (Testing, n.d.).

The NCLB legislation was designed to close the achievement gap between disadvantaged and minority students and their peers. The law has changed the culture of America's schools in terms of how success of student achievement is defined. The act contained four basic principles: stronger accountability for results, increased flexibility and local control, expanded options for parents, and an emphasis on teaching methods that have been proven to work. Programs involving the creation and measurement of academic standards in each state were designed to be given annually to assess student progress (Testing, n.d.).

These programs were a result of an attempt to create more learning opportunities for advanced learning. This accountability movement was initiated in the middle and latter parts of the 20th century with the landmark documents "The American High School" (1959), "A Nation at Risk" (1983), "Action for Excellence" (1983), and "Goals 2000" (1990), which questioned the effectiveness of the comprehensive American high school. Accordingly, the central focus of the national purposes for education was being sought as excellence in education was being directed toward competing in a global economy. As a result, NCLB educational reform was passed by the federal government that saw individual states being held accountable for what a child should learn and know in reading and mathematics in grades 3 through 8 (Testing, n.d.).

This reform prompted Florida's School Accountability System to be implemented as envisioned by the A+ Plan and Adequate Yearly Progress (AYP), passed by the Florida Legislature in 1999. School grades have been issued since 1999 with the Florida Comprehensive Assessment Test (FCAT) being the primary criterion in calculating student progress (2006 Guide, 2003). Multiple variables have influenced the calculation of school grades, including identifying the schools to be graded, identifying the students to be included, obtaining student FCAT scores, computing the percentage points for each performance measure, determining the percent of students tested, determining the total points and the designation of the final school grades, and the reviewing of school grades for appeals to grade changes (2006 Guide, 2003). As a measuring devise of student achievement, school grades afford the Florida Department of Education with the unique ability to chart student progress in core academic subjects. In fact, school grades have become such an impressive method at tracking student achievement; there has been a significant reduction in the number of struggling schools throughout the state of Florida (Faraj, 2004; Schroeder, 2006).

Research Questions

The study sought to answer five research questions:

1. What are the direct and indirect effects of minority percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?
2. What are the direct and indirect effects of socio economic status percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?
3. What are the direct and indirect effects of football winning percentage on school grades of public high schools in Florida as measured by recorded scores by the Florida High School Athletic Association?
4. What are the direct effects of 10^{th} grade FCAT reading mean scale scores on school grades as measured by the Florida Department of Education?
5. What are the direct effects of 10^{th} grade FCAT mathematics mean scale scores on school grades as measured by the Florida Department of Education?

Methodology

Sample

The sample in this study was comprised of public high schools in the state of Florida, serving grades 9 through 12. Elementary schools, middle schools, junior-senior high schools, middle-senior high schools, specialized magnet schools, vocational-technical centers, adult

education centers, preparatory schools, laboratory schools, virtual schools, charter schools, and private schools were not included in the study.

Data Collection and Instrumentation

All of the data for this study were obtained online from the Florida Department of Education School Accountability Reports (http://www.firn.edu/doe/schoolgrades/) and the Florida High School Athletic Association (http://i.fhsaa.org/members/) member school directory and varsity football schedules. A data set of all Florida high schools was created using the SPSS software program.

Data Analysis

The purpose of the study was to examine the direct and indirect effects of each of the selected factors on school grades as previously defined. The direct and indirect effects were tested using a path model procedure to generate a regression analysis that reflected the desired paths of the selected factors toward school grades. In addition, a fully recursive model was used to test all paths of the selected factors toward school grades. A more detailed illustration of the path and fully recursive model procedures used is presented in the Chapter 3 Methodology section of the study. Using the path and fully recursive models determined the direct and indirect effects of minority percentage, socio economic status percentage as a covariate, football winning percentage, in addition to, determining the direct effects of 10^{th} grade FCAT reading mean scale scores and 10^{th} grade FCAT mathematics mean scale scores on school grades of

public high schools in the state of Florida. A statistical analysis of the data obtained in this study was performed using the computer software SPSS Version 15.0, for Windows (Norusis, 2006).

Organization of the Study

Chapter 1 introduced the study's purpose and design components, and research methodology. Chapter 2 presented a review of the selected literature and research surrounding the research topic. Chapter 3 outlined the methodology and procedures used for data collection and analysis. Chapter 4 included an in-depth examination and explanation of the data. Chapter 5 included a summary of the findings of the study, conclusions, and recommendations for future research regarding potential areas that could impact school grades. These suggested research areas could potentially affect educational and athletic policies that are currently being implemented in the state of Florida.

CHAPTER 2: REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter was to review the literature related to the direct and indirect effects of the selected factors on school grades of public high schools in the state of Florida. The chapter was categorized into the following sections: the history toward accountability and school grades, history of statewide assessment program in the state of Florida, procedures used in calculating school grades, student background and student achievement, the impact of sports on student achievement and a summary.

School grades are a variable that has continued to receive highly publicized attention relative to student achievement in Florida. Schools are assigned grades based primarily upon students' achievement data from the Florida Comprehensive Assessment Test (FCAT). School grades communicate to public citizens how efficient and effective schools are performing relative to the Sunshine State Standards (SSS). School grades are calculated based on annual learning gains of each student toward achievement on the (SSS), the progress of the lowest quartile of the students, and the meeting of proficiency standards. In addition, school grades use a point system in which schools are awarded one point for each percent of students who score high on the FCAT or make annual learning gains (Grading, 2006). Student scores are classified into five achievement levels, with 1 being the lowest and 5 being the highest (Grading, 2006; 2006 Guide, 2003). In 2006, just as in the four previous years, the school grades included three measures of student achievement and three measures of student learning gains (2006 Guide,

2003). The general consensus has been that school grades continue to be the most effective process for determining the progress of public schools in the state of Florida (Jimeson, 2004).

The History Toward Accountability and School Grades

In an attempt to better understand how the state of Florida has arrived at utilizing school grade, one has to look no further than American history for a comprehensible rationale. The present placement of school grade in Florida can be delineated to the latter part of the 20th century. Cotton (1996) and Spring (1991) cited the 1957 launching of Sputnik as a variable that led to considerations for specific improvements in education. According to Spring, the widely circulated report of James B. Conant was instrumental in revising the consolidation movement of the comprehensive high school. In the 1959 report, *The American High School Today: A First Report to Interested Citizens,* Conant argued for a greater variety of course offerings within one comprehensive school. Conant postulated that as schools moved from small high schools to consolidated schools, the educational institution could more readily identify marketable skills to compete in the space industry. In learning these employment skills, courses of study were to be more closely geared to the future career choice of the student. Beginning in the 1960s and 1970s, school districts in the United States began the transformation to consolidate and develop comprehensive high schools (Cotton, 1996); as schools were being characterized as inefficient and ineffective and therefore needing radical policy changes (Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, & York, 1966).

The result was a large consolidation movement in U.S. public education. The costs tied to education were closely examined to determine whether money and educational results are closely correlated. Contrary to the "production-function" studies cited to prove that money and

educational results are not correlated, there is substantial reason to equate that money well spent can help students do better (Baker, 1991). For example, urban schools need more money per pupil than suburban schools just to have an equally good chance at effective education. The money spent in poor neighborhoods can be a good social investment since formal education has a greater impact on poor students than it does on their better-off peers (Coleman et al., 1966). Since 1966, student expenditure has continued to be scrutinized in terms of an industrialized nation's gross domestic product. In comparison with fourteen other industrialized nations, the U.S. ranked sixth in school expenditures in 1991 (Nelson, 1991), and more recently ranked eighth among the eight most industrialized countries in the world in 2000 (Sen, Partelow, & Miller, 2005). As education and international trade became a major concern in the 1980s, a series of reports reiterated the schools responsibility to solve economic trade dilemmas.

The National Commission on Education issued a report, "A Nation at Risk" (1983) that declared America's focus on international trade in which an investment in education would keep America competitive. The report declared: "if only to keep and improve on the slim competitive edge we still retain in world markets, we must rededicate ourselves to the reform of the educational system for the benefit of all." The commission recommended more money be spent on the education of our youth. The commission warned, "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might as well have viewed it as an act of war." In addition, the Task Force on Education for Economic Growth issued its report, "Action for Excellence" (1983) which lined improved schooling to economic development. As America's declining position in world markets appeared evident, the federal government looked to improved schooling to make the American labor force more efficient (Spring, 1991).

The implementation of Goals 2000 reflects a continuing concern with international economic competition and the general quality of the American work force. The goals included the preparation of every child to start school ready to learn and the increasing of graduation rates to 90 percent targeted toward "disadvantaged" students. The education of the "disadvantaged" student was viewed as being essential for the general development of the American work force. The emphasis on the education of the disadvantaged student was expanded on in the final statement of the goal, "All disadvantaged and disabled students will have access to high quality and developmentally appropriate preschool programs that help prepare children for school." Concerning the goal of increasing graduation rates, the document declares, "The gap in high school graduation rates between American students from minority backgrounds and their non-minority counterparts will be eliminated" (Spring, 1991, p.24).

The education of the "disadvantaged" students is a direct result of changes in the labor market that occurred in the 1980s. Prior to the 1980s, there was an abundance of young workers entering the labor market during the baby boom that lasted from approximately 1945 to 1964. One estimate puts the average number of workers entering the labor force in the 1970s at 2.5 million and that, by the late 1980s, this number had declined to approximately 1.5 million workers. The last high school graduating class of baby boomers occurred around 1982 (Spring, 1991). Faced with a need to close the achievement gap between disadvantaged and minority students and their peers, the federal government implemented the "No Child Left Behind Act", (2001) which redefined its role in kindergarten through grade 12 education of every child (Testing, n.d.).

History of Statewide Assessment Program

The Florida Comprehensive Assessment Test (FCAT) is the most recent means of evaluating student achievement in the state of Florida (History, 2005). Florida law stipulates that no student can receive a standard high school diploma from a public school unless the student has met all general academic requirements for high school graduation (General requirements, 2006). This means that students must take required courses, earn the correct number of credits (28 if a school is on block schedule and 24 if a school is on a traditional schedule), maintain a passing grade point average (2.0), and pass the Reading and Mathematics Sunshine State Standards (SSS) portion of the grade 10 FCAT (1003.43 (1), F.S.; Graduation, 2005; Student Progression Plan, 2006). These requirements suggest that the statewide assessment program has relevant implications on contemporary educational policies (i.e., school grade). A more detailed description of the statewide assessment program in Florida can be located in Appendix A of the study.

The assessment program was initiated in 1972 and has undergone many modifications over the years (History, 2005). For example, the assessment program was initially based on measuring only a sample of students, but was changed to include all students in selected grade levels. In fact, the first series of tests measured students' acquisition of certain minimum competency skills. As a result, the program was referred to as a "Minimum competency testing program" (History, 2005). This prompted the Florida Legislature to consider new accountability measures.

In 1976, the Florida Legislature passed a new accountability act that transformed the statewide assessment tests to grades 3, 5, 8 and 11. In addition, the Florida Legislature also authorized the nation's first required high school graduation test (the Florida Functional Literacy

Examination, also known as the State Student Assessment Test, Part II or the SSAT-II), which was subsequently implemented in October 1977 (Debra P. v. Turlington, 1979; History, 2005). This new educational requirement came with many controversial concerns from the public.

The concept of a required graduation test was questionably misrepresented as an accountability measure for student achievement. These controversial issues culminated in a series of legal challenges (History, 2005). In the landmark federal cases known as *Debra P. v. Turlington* (Debra P. v. Turlington, 1979; Debra P. v. Turlington, 1981a; Debra P. v. Turlington, 1981b; Debra P. v. Turlington, 1983; & Debra P. v. Turlington, 1984) a broad based attack was initiated on all aspects of the graduation test. The decision was found in favor of the state. After several years of legal challenges, students in the graduating class of 1983 were required to pass the competency test to receive a high school diploma (Debra P. v. Turlington, 1984; History, 2005). As a result of instituting the graduation test requirement, the conceptualization of the (FCAT) was being developed prior to its first administration in 1998 (History, 2005).

The Florida Commission on education and accountability began the conceptualization process. In 1995, the commission recommended procedures for assessing student learning in Florida that would raise educational expectations for students and help them compete for jobs in the global marketplace. This recommendation, called the Comprehensive Assessment Design, was adopted in June 1995, and specified new assessments reflecting Blueprint 2000. The recommendation included educational content and standards referred to as reading, writing, mathematics, and creative and critical thinking. The Florida curriculum frameworks, also known as the Sunshine State Standards, were subsequently developed and adopted by the State Board of Education. The frameworks and standards created guidelines for a statewide system that

incorporated assessment, accountability and in-service training components (History, 2005). This incorporation led to the design purpose of the Florida Comprehensive Assessment Test (FCAT).

The (FCAT) was designed to meet both the requirements of the Comprehensive Assessment Design and the rigorous content defined by the Sunshine State Standards (History, 2005). The (FCAT) was designed to measure the content specified within the strands, standards, and benchmarks of the Sunshine State Standards. The context of this specification lies in the application of real-world applications while assessing reading, writing, and mathematics at all levels of schooling (i.e., elementary, middle, and high). In addition, with legislative approval of Governor Jeb Bush's A+ Plan in 1999, the (FCAT) was expanded to include grades 3-10 (Florida Department of Education, 2006; History, 2005). In 2001, achievements for all grade levels were reported for the first time. As a result of this implementation, the (FCAT) became the test required for high school graduation with the class of 2003 (History, 2005); thus, eliminating the requirement to take and pass the High School Competency Test (HSCT). Since 1995, many adoptions and implementations have assisted in formulating the contemporary test standards that exist today.

In 1995, these adoptions and implementations were written for the design, development, field testing, and implementation of new statewide assessments at all grade levels. With this design evolved Florida's new academic standards with the State Board of Education approving the Sunshine State Standards (SSS). In 1996, the Florida Legislature passed laws recognizing the Sunshine State Standards as the academic standards for Florida students, and reauthorized the February 1997 field testing of all students on the (FCAT) in grades 4,5,8, and 10 (History, 2005). During the field test administration, question of test item assurance was scrutinized for validity.

Four field test forms were utilized for all students at each grade level, 4, 5, 8, and 10 in (FCAT) reading and mathematics. The intent of the forms was to obtain baseline statistical data on a large pool of items. The purpose of the field test was to evaluate the quality of the items before they were converted to student scores. Consequently, the results from this evaluation generated the first form of (FCAT) (History, 2005).

In January 1998, students in grades 4, 5, 8, and 10 took the (FCAT) reading and mathematics for the first time. The tests, administered for baseline data, included some performance assessment items and measured students' skills in grades 4 (reading), 5 (math), 8 (reading and math), and 10 (reading and math). In May 1998, the districts, schools, and parents received the baseline (FCAT) results. Even though the (FCAT) results were not used for accountability purposes in 1998, the baseline data were released to schools for preliminary examination (History, 2005). This examination prompted the Florida Legislature to identify needed changes pertaining to why students would not need to take and pass the (HSCT). As administration of the (FCAT) continued, accountability changes for student performance evolved.

The second administration of the (FCAT) for grades 4, 5, 8, and 10 brought a significant accountability measure with it. As results for student performance were released, the students' scores were calculated and converted into the assignment of school grades (History, 2005). School grades have been issued since 1999 with the Florida Comprehensive Assessment Test being the primary criterion in calculating school grades (2006 Guide, 2003). In addition, the 1999 Florida Legislature authorized an expansion of the statewide assessment program with additional grade level norm-referenced test inclusion (History, 2005). As the statewide

assessment program broadened in application, concerns for test development and administration became a primary concern.

In 2000, the third administration of the (FCAT) was comprised of grades 3-10. Approximately 1,440,000 students in grades 4, 5, 8, and 10 responded to performance tasks that required 23 million individual scores which included all multiple choice items for recording purposes. The assessment of the new grade (grade 3); however, included the field test of the Sunshine State Standards component without scores being reported. Scores on the norm-referenced test were included for all students at all grades. The 2000 results for all student performance in grades 4, 5, 8, and 10 were utilized in the assignment of school grades (History, 2005).

Since the 2000 school year, changes in components for determining school grade have continued to evolve as part of assessing the quality of schools in the state of Florida. School grades have been issued since 1999 with the Florida Comprehensive Assessment Test (FCAT) being the primary criterion in determining a school's final designation (2006 Guide, 2003). These changes are a result of public school system dynamics and the reality of the struggle with school districts meeting (NCLB) requirements (i.e., AYP), and continual changes in the statewide assessment program in Florida.

Changes are in place for the current 2006-2007 school year (i.e., the addition of the science component and the lowest 25% in math as a category) as well as the 2007-2008 school year (i.e., the writing component becomes a graduation requirement for the class of 2009-2010) (Florida School Grades, 2005). The writing component has always been used as part of the calculation for designating school grades; however, has not been previously defined as a graduation requirement for students in Florida. Required graduation components like these have

and will continue to cause the school grade scale to be adjusted (i.e., 2004-2005 and 2005-2006 represent a school grade scale of 600 possible points a school can earn and in 2006-2007 represent a school grade scale of 800 possible points a school can earn) to reflect the progress of students and schools in Florida's public school systems (Florida School Grades, 2005).

Procedures Used in Calculating School Grades

School grades are used to determine the progress of public schools in the state of Florida (Jimeson, 2004). The Florida Comprehensive Assessment Test (FCAT) is the primary measure of students' achievement of the Sunshine Sate Standards for Florida students. The Sunshine State Standards were passed by the Florida Legislature in 1996 as the academic standards assessment tool (History, 2005; 2006 Guide, 2003). Florida is one of few states that can track student demographic information from year to year and the first to track annual learning gains based on the state's academic standards (2006 Guide, 2003). How school grades are calculated are of vital importance in measuring accountability of today's public schools in the state of Florida.

School grades are determined by the accumulation of percentage points for six measures of achievement in addition to two other conditions. Section *6A-1.09981(6) (a)-(f)* of the State Board Rule describes the six performance measures included in the overall grade for a school. A more detailed description of how school grade calculation is arrived at is located in Appendix B of this study. Points are calculated as follows:

1. One point for each percent of students who meet high standards by scoring at or above FCAT Achievement Level 3 in reading.

2. One point for each percent of students who meet high standards by scoring at or above FCAT Achievement Level 3 in mathematics.
3. One point for each percent of students who meet high standards by scoring 3.5 or higher on the FCAT writing assessment. In the event that there are not at least 30 eligible students tested in writing, the district average in writing is substituted.
4. One point for each percent of students making learning gains in reading.
5. One point for each percent of students making learning gains in mathematics.
6. One point for each percent of the lowest performing students making learning gains in reading. In the event that there are not at least 30 eligible students, the school's reading learning gains are substituted (2006 Guide, 2003).

These points are added together and converted into a school grading scale. Grade accumulation consisted of the following point ranges for the 2004-2005 school year and are based on a 600 point scale: 410 total points and above = A, 380-409 = B, 320-379 = C, 280-319 = D, less than 280 points = F, and I reflecting less than 90% of the students being tested at a particular school; while grade accumulation for the 2005-2006 school year reflected the same point ranges and point scale in determining progress of public schools within the state of Florida (Florida School Grades, 2005; 2006 Guide, 2003). Some alternative schools received the grade of P as an option out of receiving a traditional school grade and having their academic progress assessed by the accumulation of a point's only grade (Grading Florida Schools, 2006). As the progress of public schools continue to be assessed in the state of Florida, components (i.e., science and writing) within the scale used in calculating school grade are being examined.

Although not included in this study, it is important to note that a new grade scale exists for calculating school grade for the current school year 2006-2007 in the state of Florida. Grade

accumulation consists of the following point ranges for the 2006-2007 school year and are based on a 800 point scale: 525 total points and above = A, 495-524 = B, 435-494 – C, 395-434 = D, and less than 395 points = F (Florida School Grades, 2005). The grade scale has been primarily changed to account for the addition of science and the lowest 25% in math components, adding 200 points to the scale and requiring 115 more points to earn an A-F grade designation (Florida School Grades, 2005). These changes in the grading scale were adopted by the State Board of Education on March 21, 2006 and take effect in the current school year of 2006-2007 (Florida House Bill 7087, 2006). In addition to point accumulation of the six measures, two other conditions, percent of tested students and adequate progress of the lowest students, exist for evaluating schools in determining school grade within the state of Florida (2006 Guide, 2003).

Schools that earn enough total points to receive a grade of 'A' must also test at least 95% of their eligible students. All other letter grade designations are based on a minimum of 90% tested. If any school tests fewer than 90% of their students, the school will initially receive an "I" (incomplete). An investigation is administered for the schools categorized with an "I". After the investigation, if the percent tested remains less than 90%, the final grade will be lower than indicated by the total points accumulated (2006 Guide, 2003). Adequate progress of the lowest students is evaluated in assessing learning gains of those students. Schools that qualify to receive the grade of "C" or above must demonstrate that at least half of their lowest students make learning gains. Schools designated the grade of "A" must demonstrate adequate progress of the lowest students being met in the current school year. Schools designated the grade of "B" or "C", must demonstrate adequate progress of the lowest students being met in the previous year. It is important to note that the final school grade of an individual school will be reduced one letter grade for schools failing to meet this criterion (2006 Guide, 2003). In addition to the

six performance measures, the percent of tested students and adequate progress of the lowest students, additional criteria is sequentially used in the process of determining a school grade for a particular school.

Identifying the types of schools to be graded is the initial step. The power to identify the types of schools to receive a grade rests with the Commissioner of Education and is pursuant to State Board Rule (*6A-1.09981(e*). All schools containing at least 30 eligible students with valid (FCAT) scores in reading and math in both the current and previous year will receive a school grade. Some schools are included in this identification process while other types of schools are not identified. For example, new schools are included in the identification process to receive school grades and schools categorized with the Department of Juvenile Justice do not receive school grades. Determining which types of students to be included in the school grade calculation presents schools with special considerations regarding student eligibility (2006 Guide, 2003).

All students enrolled in the same school for a full academic year are included in the school grade calculation. The performance of students who are standard curriculum, speech impaired, gifted, hospital homebound, and limited English proficient who have been in an English for Speakers of Other Languages (ESOL) Program for more than two years are included in all components of the school grade calculation. Students who are in exceptional student education and are limited English proficient (LEP) for less than two years are included only in the participation and learning gains components of the school grade; however, they are not included in the components for meeting high standards in reading, math, and writing (2006 Guide, 2003). Obtaining and evaluating accurate (FCAT) data on all students is important for all accountability performance calculations.

School districts are responsible for updating and correcting information on each student within its school system. Identification of (FCAT) records with blank or duplicate student IDs ensures a maximum number of students are being tested. Assessing (FCAT) records for missing prior year (FCAT) data allows each school district to correct missing data for updating student results on individual (FCAT) files. This process is completed for all students and is important for determining learning gains the following school year and in determining Adequate Yearly Progress under the federal No Child Left Behind Act (2006 Guide, 2003). As data is collected and evaluated for student accuracy, computing the percentage points for each performance measure is assessed as part of determining school grades (2006 Guide, 2003).

The six performance measures can be grouped into three categories and include computations that are similar within each category: The percentage of students achieving at high academic standards, the percentage of students making learning gains, and the percentage of the lowest performing students who make learning gains. The calculation of Reading Performance reflects eligible students who score sufficiently high on (FCAT) Achievement Levels 3, 4, and 5 in reading in which schools accumulate one point for each percent of eligible students. The calculation of Mathematics Performance reflects eligible students who score sufficiently high on (FCAT) Achievement Levels 3, 4, and 5 in mathematics in which schools accumulate one point for each percent of eligible students. The calculation of Writing Performance reflects eligible students who score a 3.5 and above in writing and is then divided by the number of eligible students who took the writing test (2006 Guide, 2003). It is important to note that the writing component will remain at 3.5 and not increase to 4.0 (out of a possible 6.0) as proposed by amendment for the current 2006-2007 school year (Florida School Grades, 2005; Florida House Bill 7087, 2006). The writing component of school grades will be revisited in the 2007-2008

school year when the complete test (including the multiple choice portion of the component), becomes a graduation requirement for the class of 2009-2010 (Florida House Bill 7087, 2006).

The calculation of Reading Gains was initiated in 2002. It emphasizes the importance of learning a year's worth of knowledge in a year's worth of time. Student learning gains are determined by comparing each student's prior year test score to the current year test score by utilizing three methods.

Students make learning gains by any one of the three methods relating to achievement levels:

1. improve one or more achievement levels, e.g., from 1-2, 2-3, 3-4, or 4-5;
2. maintain their achievement levels within levels 3, 4, or 5; or
3. demonstrate more than one year's growth when remaining in achievement level 1 or 2 for both years (2006 Guide, 2003).

It is important to note that retained students are included in methods 1 and 2 above, but not in method 3 because the definition of one year's growth is based on taking the (FCAT) at the next higher level (2006 Guide, 2003). This method is parallel to the mathematics component in calculating school grades.

Individual student learning gains are determined by comparing each student's prior year test score to the current year test score utilizing the same methodology (See 1-3 above in calculating Reading gains). Summarily, schools earn one point for each percent of students who make learning gains in the mathematics component. Retention of students in the mathematics is the same as for students in the Reading component. This similarity is inclusive in the defined one year's growth for students in which the (FCAT) is based on the next higher grade. In addition, selective attention is placed on the lowest 25% of students or lowest 30 scoring in

(FCAT) achievement levels 1, 2, or 3 in each school. Students who are included in the calculations for this component are students who:

1. meet all criteria for inclusion in school grade calculations for the current year;
2. have both a prior year score and a current year score on (FCAT) reading;
3. are ranked in the lowest 25% based on their prior year(FCAT) reading developmental scale scores; and
4. have a prior year score less than or equal to an achievement level 3 score.

This procedure used to identify the lowest 25% of the students in a school is applied separately by grade, and the identified students are combined across all grades to determine learning gains (2006 Guide, 2003). Consequently, determining the percentage of students to be tested for calculating school grades and its allocation of total points is of overall significance.

The procedure for estimating a school's percent tested was developed before school grades were first calculated. Beginning in 1995, the estimating procedure originated as a basic approximation. The estimate of the percent tested is calculated by dividing the total number of eligible students in each subject by the number of eligible students who are expected to take each subject test. Note that this a different calculation and population than those students used to calculate percent tested for the No Child Left Behind (NCLB) Adequate Yearly Progress (AYP) (2006 Guide, 2003). Adjustments are accounted for by students who have already taken the (FCAT) and for grade 10 students who have already taken and passed the (FCAT). These adjustments account for changing the number tested (the numerator) or the number in student membership (the denominator) as appropriate (2006 Guide, 2003). This appropriation is used to determine the total points a school has accumulated and the final school grade a school has been designated.

To arrive at the final school grade, all percentage points a school has accumulated are added together for each performance measure to obtain the total number of points. Schools earning enough total points to receive a grade of 'A' must also test at least 95% of their eligible students. All other letter grade designations are based on a minimum of 90% testing of a particular school's eligible students. Schools earning enough points to receive a 'C' or above must demonstrate that at least half of the lowest make annual learning gains. For schools to be designated a grade of 'B' or 'C', adequate progress of the lowest performing students must be met in the current or previous year of testing. Schools failing to demonstrate this criterion being met will have their final grade reduced by a letter grade (2006 Guide, 2003). Schools are then sent the individual student (FCAT) scores and have the opportunity to appeal the designated school grade.

Pursuant to State Board Rule 6A-1.09981(9), schools have a 30-day period of time in which to appeal and review the grade designated to them. This process has been instituted by the Florida Department of Education and stipulates grade changes related to the specific requirements of the statute in order to be appealed. Instances of data miscalculation or circumstances that might result in the assignment of a different grade, permits the school district to participate in the school grade review process. All elements and data to be reviewed by the Department of Education should be submitted within (30) days from the date of the school grades being released. Final recommendations for school grade appeals are made to the Commissioner of Education for a final determination (2006 Guide, 2003).

Student Background and Student Achievement

Students at risk are a major concern for today's educators and policymakers (Von Secker, 2004). Reports (Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, & York, 1966; Jencks, Ackland, Bane, Cohen, Gintis, Heyns, Michelson, & Smith, 1972) indicate that children of the poor or of some ethnic minorities on average perform worse in school. Researchers have examined conditions related to the statistical risk of undesirable outcomes among individuals who are members of groups labeled with unfavorable conditions (i.e., poverty and social disadvantage). This led to research that included groups from comparable backgrounds (Von Secker, 2004).

Findings indicated that students from families with high socioeconomic status (SES) outperform students from low-SES families. Examining subgroup populations revealed that Asian and White students have higher achievement than do Black or Hispanic students and boys perform better than do girls (Coleman et al., 1966; Gibbons, 1992; Hilton & Lee, 1988; Hoffer, Rasinski, & Moore, 1995, Madigan, 1997; Mason & Kahle, 1989). In addition, no reasonable justification has been found to designate observed average differences in science. Perhaps the most noteworthy discrepancy is correlated to why and how students "beat the odds" and exhibit high achievement when statistical predictions indicate otherwise (Von Secker, 2004). Students at risk encounter many factors related to obtaining an education.

The risk factor of low (SES) is directly related to a number of attributed factors that influence an individual's opportunity to receive a quality education. Low achievement is attributed to the limited resources present to individuals with low income, which results from low levels of parental education, low-status parental occupation, large family size, and absence of one parent (Luthar, 1991). There are some empirical findings that indicate risk factors suggest

a reciprocal relationship with the social class in which they reside (Garmezy, Masten, & Tellegen, 1984; Masten, Garmezy, Tellegen, Pellegrini, Larkin, & Laresen, 1988). For example, high (SES) is correlated with greater social competence. Reviews of resilience and vulnerability to difficult conditions (i.e., childhood poverty) have encouraged further research by which these processes transpire (Garmezy, 1991; Rutter, 1994). Studies of adolescent achievement reveal startling findings regarding race and ethnicity (Von Secker, 2004).

Agreement exists among researchers that racial-ethnic differences in school performance are genuine; however, less agreement is present as to the causes of such differences (Lynn, 1977; Mickelson, 1990; Mordkowitz & Ginsburg, 1987, Ogbu, 1978, 1991, 1992; Sue & Okazaki, 1990). Parallel studies on children in highly stressed urban environments suggest that expectations and beliefs function as protective factors that moderate the resilience or vulnerability of affected individuals (Clausen, 1991; Cowen, Work & Wyman 1992; Israelashvili, 1997; Wyman, Cowen, Work & Kerley, 1993). Other studies indicate that in science, academic resilience of minority students can be improved with effective teaching practices (i.e., when teachers focus their teaching on greater access to laboratory experiences) (Von Secker, 2002; Von Secker & Lissitz, 1999). Still, students at risk face additional aspects of inequality.

In examining a U.S. Department of Education study (2000) of students entering kindergarten, data showed large variations across ethnic groups (i.e., favoring Whites and Asians) and socioeconomic status (i.e., the higher the SES, the better). Lee and Burkam (2002) and Coley (2002) generated reports that focused on some of these inequalities for minority students. According to Coley (2002) some of the skill differences are relatively small. For example, all high-SES children can recognize numbers and shapes, in contrast to low SES

children in which the smallest percentage was 82% for any ethnic group. By comparison, some of the skill differences were relatively large among SES and across ethnicities. For example, 77% of high-SES kindergartners understand relative size while only 31% of low-SES children do. In addition, 82% of whites understand relative size, compared to 60% of Hispanics (Coley, 2002). Lee and Burkam (2002) support this claim in that achievement and SES resembles a staircase moving upward.

Lee and Burkam (2002) presented their report in terms of the scaled scores. Their examination of SES revealed that low-SES black children are .56 SDs below the national average in reading and .68 SDs below average in math, and low-SES Hispanics are .69 SDs (reading) and .71 SDs (math) respectively. It is important to note that some of these differences can be explained in part by acknowledging that only 27% of low-SES children and 14.6% of low/middle-SES children attended Head Start. These percentages are coupled with the quality of available resources to children. For example, low-SES children owned an average of 38 books, while high-SES children owned 108 and 85% of high-SES families had a computer at home compared to only 29% of low-SES families (Lee and Burkam, 2002). The challenges facing students at risk are multiplied by school related factors which magnify the problem.

The problems and deficits that minority students face originate within the school environment (Bracey, 2003). Black, Hispanic, and children of other races are more likely than their dominant (white) counterparts to attend schools were problematic conditions (i.e., heavy traffic, drug use, gangs, crime, unoccupied buildings, trash, and graffiti) exist (Lee and Burkam, 2002). In addition, low-SES children enter kindergarten that contain less qualified teachers and do less to prepare them for the transition to first grade (Bracey, 2003). This is supported in reports that children of the poor or of some ethnic minorities on average perform worse in school

(Heyneman, 2005). In looking for solutions to narrowing the achievement gap, researchers have sought to examine variability in an attempt to improve educational equity.

Most of the variability in student achievement has long been correlated and described by what children bring to school in terms of their demographic status, home environment, and readiness to learn (Coleman et al., 1966). In examining this issue globally where the United States comprises 2 percent of the world's school children, social status was documented as a consistent determinant of school performance. An extension of this consistency is that children of the poor don't always perform systematically worse in school than wealthier children do. In fact, results tend to fluctuate by subject content, student age, gender, and other factors (Heyneman, 2005). In addition, an international study was conducted examining 29 low-, medium-, and high income nations (i.e., Australia, England, France, Thailand, Columbia, and India). Results concluded that school quality demonstrated more of the variance than did home background. In addition, the variable of school quality was designated a more important predictor of achievement in the poorer countries (Heyneman and Loxley, 1983).

Finally, factors relating to students at risk (i.e., SES, racial-ethnic status, and gender) are highly predictive in nature; however, they should not be viewed as conclusive (Von Secker, 2004). It should be remembered that risk is the increased likelihood of an undesirable outcome for a population, and not for an individual (Bender & Losel, 1997; Garmezy & Masten, 1986). Students who are categorized along with these and other factors are not destined for poor performance; rather, are simply a part of highly variable risk populations. Why on average specific subgroup populations consistently perform worse and why some students within these populations succeed warrant future research in order to reduce the academic achievement gap in which these populations are stratified (Von Secker, 2004).

Impact of Sports on Student Achievement

The compatibility between sport and academics is controversial. One view holds sport and education as mutually involved in which nearly every secondary school is engaged in some interschool sport competition (Eitzen and Sage, 1989). For example, the state of Florida fields' 511 high school varsity football teams consisting of a classification system based upon ranges in student population (Florida High School Athletic Association, Football Manual, 2006-07). Within this more widely held view is the degree to which the context of sport impacts the educational process of individuals. The conventional view is that involvement in sport positively impacts the educational process (Eitzen and Sage, 1989). This belief is supported by the platform statement of the Division of Athletics of the American Alliance for Health, Physical Education, and Recreation (Athletics in Education, 1963).

A less widely held view is that involvement in sport is believed to negatively impact the educational process. Within this view is the assertion that while sport participation may lead to positive outcomes, it may lead some participants to trade integrity for hypocrisy. Critics of this view suggest that sport and education are incompatible (Eitzen & Sage, 1989). Thorstein Veblen (1899) described the situation, "The relation of football to physical culture is much the same as that of the bullfight to agriculture." (pp.173-174). Although both viewpoints of the impact of interschool sport on student achievement can be fully supported, the intent within this study will explore the relationship of sport on the process of educational attainment.

Interschool sport originated in the nineteenth century in an attempt to reduce boredom in the classroom. Historically, the first intercollegiate sporting event in the United States was a rowing race between Harvard and Yale in 1852. In the beginning sporting events were organized by students; however, students currently have limited voice in athletic policies. The

administration of athletic events is primarily reserved for coaches, school administrations, athletic corporations, leagues, and nation organizations (Eitzen & Sage, 1989).

Intercollegiate sports rapidly expanded in the early twentieth century stimulating related activities and events in the American high school. High school sports were supported by school administration for two primary reasons. First, sports and athletics are a way to increase physical fitness (a high number of inadequate conditioned personnel were located during physicals in World War I). Second, educational personnel emphasized the potential of sports for producing citizenship and character traits (Cozens & Stumpf, 1953).

Interschool sports have become so popular that present day schools could be categorized as being more concerned with athletics than academic interests. Of particular relevance is contemporary sport is placed above academic scholarship in evaluating the social system of the high school. This contradicts the presumed goal of the educational institution in which academic importance should determine the social rank within each high school. Abraham J. Tannenbaum (1960) examined student attitudes in a large New York City high school toward male student characteristics: brilliant verses average, studious verses nonstudious and athletic verses nonathletic. A total of 615 high school juniors were provided written descriptions of stereotyped, fictitious students. The fictitious characters were then ranked ranging from the most to the least acceptable in the following order:

1. Brilliant nonstudious athlete
2. Average nonstudious athlete
3. Average studious athlete
4. Brilliant studious athlete
5. Brilliant nonstudious nonathlete

6. Average nonstudious nonathlete
7. Average studious nonathlete
8. Brilliant studious nonathlete

A reflection of the study reveals several stimulating patterns emerging among adolescent status. Regardless of other attributes, the athlete is considered to have higher status than the nonathlete. In addition, the concept of brilliance is of worth and value only if the person is not considered studious. These findings present the irony when considering the value of status, in that, a person who is driven to achieve in academics is ridiculed, while individuals labeled as athletes are admired (Tannenbaum,1960). A key question is why this contradiction exists?

James S. Coleman (1965) suggested that the contradiction rests with the rationale on which the hard worker in school achieves at the expense of fellow classmates and the athlete's success stimulates positive recognition to the entire school. Coleman's study examined ten high schools in the state of Illinois which revealed a strong correlation of athletics in American secondary education. The strongest finding surrounded the dominant influence of participating in athletics. For example, regardless of school size, location, or socioeconomic composition, athletics appears to strongly dominate school life (Coleman, 1961). Additional findings within Coleman's work suggest that attributes of success vary by gender. Although girls were included in a school's elite group ("the leading crowd") because of specified characteristics (parents' achievement, good looks, possessions), boys' membership was established on achievements, particularly in athletics. In assessing peer group rewards, Coleman found they reflect academic achievement as less important than athletic achievement (Coleman, 1961). This contradicts the explicit purpose for which schools were designed to fulfill, the education of America's school children.

Since Coleman's work, empirical evidence that high school athletes are uninterested in scholastic achievement has been unsupported (Snyder & Spreitzer, 1978; Snyder & Spreitzer, 1981; Athletes, 1975). For example, Walter E. Schafer and Michael J. Armer compared a sample population of 585 high school male athletes with a (GPA) of 2.35 to a group of nonathletes with a (GPA) of 1.83 (Schafer & Armer, 1968). Other study comparisons have examined the relationship of (GPA) in athletes and nonathletes (Rehberg & Cohen, 1975). Past studies have attempted to demonstrate the degree of significance between participation in athletics and higher education attainment (Rehberg & Schafer, 1968; Spady, 1970; Spreitzer & Pugh, 1973; and Otto & Alvin, 1977). In evaluating athletes and nonathletes, several important differences emerge in the comparison of the two groups for validity (Stevenson, 1975; Phillips, 1979).

Among the differences in the two groups are the physical characteristics and other highly related dimensions. For example, grade comparison among the two groups reveals that athletes may have a higher (GPA) because of the minimum they are required to maintain for athletic eligibility. Arguably, this minimum (GPA) requirement may prohibit some students from participating in athletics. In addition, the association between the two groups should not be labeled as casual (Lueptow & Kayser, 1974). Lueptow and Kayser's findings suggest that participating in athletics did not necessarily demonstrate grade improvement throughout their high school years (Lueptow & Kayser, 1974). Further analysis of the relationship between athletics and academic achievement indicates that expectations for each should be extended for clarification and validity.

Coleman's work suggested that participating in athletics was more important to high school status than was scholastic achievement (Coleman, 1961). Recent studies contradict

Coleman's contention that schools don't work toward the educational objectives they were purposefully intended to strive for. Within this contradiction lies the remaining question of athletics or academics being foremost in the status system of American high schools (Eitzen & Sage, 1989).

Eitzen (1976) duplicated Coleman's study fifteen years later. Eitzen examined fourteen schools with varying size and varying locations reaffirming Coleman's findings that being an athlete were a consistent criterion for status among high school males. The rationale for female popularity differs considerably, a question not previously examined by Coleman or Eitzen's research. D.L. Feltz (1979) examined gender status among both genders and concluded that both genders ranked "being with the leading crowd" as the primary status criterion for females. The criterion of "being an athlete" was further down the list ranking for both genders (Feltz, 1979). Thirer and Wright (1985) replicated the studies by Coleman, Eitzen, and Feltz. This replication examined eight schools that supported the earlier research that being an athlete was the foremost criterion for male status indicated by both genders. Female status was found to relate to Feltz's findings in "being with the leading crowd" as having significant importance. This correlates to Title IX which impacted a high number of female athletes during the mid-1980s (Eitzen & Sage, 1989). Finally, the status system in other countries doesn't equate to the status system found in the United States when comparing cross culturally.

David Friesen (1976) examined a comparison of Canadian high schools to that of the American high school. Friesen replicated the famous Coleman study in nineteen Canadian schools with fifteen thousand students. This replication found several similarities and differences. Among the findings by Friesen were, like American high school students, Canadian high school students are very concerned about "being with the leading crowd" with their peers.

The significant difference between the two countries high school status system is that Canadian students rank academics higher than their American high school student counterparts. American high school students tend to rank athletics, popularity, and academics in order of importance, while Canadian high school students tend to rank academics, popularity, and athletics in their hierarchy of values (Friesen, 1976).

Summary

School grades are a variable that has continued to receive highly publicized attention relative to student achievement in Florida. The current emphasis on school grades in Florida can be traced to the latter part of the 20th century. Improvements in education began with the consolidation movement of the comprehensive high school (Conant, 1959). As a result, school improvement proliferated in the 1980's and encouraged the use of standardized tests to assess the quality of schools and teachers. The focus on school improvement prompted the federal government to evaluate America's position in the global economy for efficiency (Spring, 1991). The most notable implementation has been the (NCLB) Act of 2001 that redefined the federal government's role in kindergarten through grade 12 education of every child. According to the federal law, student progress and achievement are to be measured by annual state tests (NCLB Archive, 2005).

The Florida Comprehensive Assessment Test has been the most recent means of evaluating student achievement through the statewide assessment program (History, 2005). This assessment has been directly related to Florida law regarding graduation requirements for public high school students seeking a standard high school diploma (Graduation, 2005). This requirement was not new to public high school students in the state of Florida. Although controversial, the graduation test requirement encountered a series of legal challenges. In the

landmark federal cases *Debra P. v. Turlington* (Debra P. v. Turlington, 1979; Debra P. v. Turlington, 1981a; Debra P. v. Turlington, 1981b; Debra P. v. Turlington, 1983; & Debra P. v. Turlington, 1984), the state of Florida eventually prevailed and Florida became the nation's first state to require a high school graduation test (History, 2005). As annual testing has continued to be linked to graduation requirements, determining the progress of state's schools has broadened accountability in public education (Jimeson, 2004). Many people believe that the designation of school grades in the state of Florida continues to be the most effective process of evaluating public school performance (Jimeson, 2004).

School grades have been issued since 1999 with the Florida Comprehensive Assessment Test (FCAT) being the primary criterion in determining a school's final grade designation (2006 Guide, 2003). As public school system dynamics change (i.e., population diversity) and states continue to struggle with meeting (NCLB) requirements (i.e., AYP), changes in the statewide assessment program in Florida and other states are likely. As previously noted, changes are in place for the 2006-2007 school year (i.e., the addition of the science component and the lowest 25% in math as a category) as well as the 2007-2008 school year (i.e., the writing component becomes a graduation requirement for the class of 2009-2010) (Florida School Grades, 2005). Required graduation components like these have continued to cause the school grade scale to be adjusted (i.e., 2004-2005 and 2005-2006 represent a school grade scale of 600 possible points a school can earn and in 2006-2007 represent a school grade of 800 possible points a school can earn) to reflect the progress of students and schools in Florida's public school systems (Florida School Grades, 2005).

CHAPTER 3: METHODOLOGY

Introduction

The purpose of this study was to determine the direct and indirect effects of selected factors on school grades in public high schools in the state of Florida. The review of literature regarding the selected factors postulated that they may have varying degrees of influence on school grades. This chapter presents the methods and procedures used to gather and evaluate the data in this study. This chapter is categorized into the following variable descriptors: sample, data collection, data analysis, and summary.

This quantitative study examined the direct and indirect effects of selected factors on school grades implementing a regression analysis for each of the factors on school grades. Effects on school grades were measured by the following variables: minority percentage as measured by the proportion of minority students in relation to the total student body at a given school, socio economic status percentage as measured by the proportion of students participating in the free and reduced lunch program in relation to the total student body at a given school, football winning percentage as measured by the winning percentage of games played during the regular season and reported to the FHSAA, and academic achievement based on 10^{th} grade reading and mathematics mean scale scores on the Florida Comprehensive Assessment Test as measured by the Florida Accountability System.

Sample

The sample of the study was Florida's public high schools that received a school grade and fielded a varsity football team for 2004-2005 and 2005-2006. It was determined that the study should be for a two year period in order to make the results more reliable. For the school

year 2004-2005, there were 316 public high schools in Florida that received a school grade and fielded a varsity football team. For the school year 2005-2006, there were 316 public high schools that received a school grade and fielded a varsity football team. The intent of the study was to examine the direct and indirect effects of selected factors on school grades in public high schools in the state of Florida serving grades 9 through 12. Junior-senior high schools, middle-senior high schools, specialized magnet schools, vocational-technical schools, adult education centers, virtual schools, laboratory schools, and charter schools, were not included in the study. By eliminating these schools, the remaining data of the 316 schools was found to contain all five of the variables for examining both direct and indirect effects of selected factors on school grades.

Data Collection

The data for the 316 schools were obtained from the Florida Department of Education and the Florida High School Athletic Association websites. The information was found on the Florida Department of Education web page on the World Wide Web: http://www.firn.edu/doe/schoolgrades/ and the Florida High School Athletic Association web page on the World Wide Web: http://i.fhsaa.org/members/. The data characterized information for each of the schools in the sample for the 2004-2005 school year and the 2005-2006 school year. Data were collected for the following variables: minority percentage, socio economic status percentage, football winning percentage, and academic achievement of 10^{th} grade reading and mathematics mean scale scores on the Florida Comprehensive Assessment Test.

Minority Percentage and Socio Economic Status Percentage

Minority percentage was determined by the proportion of minority students in relation to the total student body at a given school. Socio economic status percentage was determined by the proportion of students participating in the free and reduced lunch program in relation to the total student body at a given school. The percentage of free and reduced student number reflected the total number of students taking part in the federally funded program that was determined by parents' income level. The minority percentage and socio economic status percentage at each public high school was examined to determine the direct and indirect effects of the selected factors on school grades.

Football Winning Percentage

Football winning percentage was determined by calculating the winning percentage for each public high school that fielded a varsity football team. Winning percentage was determined by dividing the total number of regular season loses by the total number of regular season games played. Football winning percentage was based on a maximum of 10 regular season games and excluded any games played in post-season competition. No junior varsity or ninth grade team winning percentages were examined in the study. Football winning percentage at each public high school was examined to determine the direct and indirect effects of the selected factor on school grades.

Academic Achievement

Academic achievement was determined by student scores on the Florida Comprehensive Assessment Test. The FCAT was a criterion-referenced test (CRT) that measured student

comprehension of state curriculum standards in reading, writing, mathematics, and science. It was administered annually to all students in Florida's public high schools in grades 3 through 10. Analysis of test results for students, schools, and school districts included the use of mean scores. Mean scores were reported on a scale of 100-500. A scale score of 300 reflected mastery of the state curriculum standards. For the purpose of this study, 10^{th} grade reading and mathematics mean scale scores for each public high school were used to determine student achievement. Reading and mathematics mean scale scores were examined to determine the direct and indirect effects of the selected factors on school grades.

Data Analysis

The study sought to examine the direct and indirect effects of selected factors on school grades on each of the defined variables. A direct effect was the path of selected factors that went straight to school grades that was measured as the standardized regression coefficient. Examples of direct effects were FCAT reading and FCAT mathematics with arrows to school grades (See Figure 1). An indirect effect was the path of selected factors that went through other factors that was measured as the standardized regression coefficient. An example of an indirect effect was socio economic status percentage with an arrow to FCAT reading and FCAT reading to school grades (See Figure 2). A path model was used to determine the direct and indirect effects of each of the selected factors on school grades. Figure 1 illustrated the desired paths of the direct and indirect effects of each selected factor on school grades; however, all paths were tested as shown in Figure 2 with the fully recursive model. Statistical analysis of the data gathered in this study was conducted using the computer software SPSS Version 15.0, for Windows (Norusis, 2006). Descriptive statistics were used to evaluate each of the selected factors on school grades.

School grades were defined as a letter grade, A through F, assigned to each school based on student performance on the Florida Comprehensive Assessment Test in reading, mathematics, and writing. School grading criteria also was affected by a school's demonstration of improvement from one year to the next (Florida Department of Education, 2006). The selected factors were minority percentage, socio economic status percentage, football winning percentage, and academic achievement based on 10^{th} grade reading mean scale scores and 10^{th} grade mathematics mean scale scores.

Research was conducted to explore both the direct and indirect effects of each of the selected factors on school grades. Selected factors that demonstrated strength of effects were examined for predictability on school grades. An analysis between the selected factors that indicated the direct effects were evaluated to ascertain trends that were present. Selected factors that indicated indirect effects were analyzed for indication of any discriminating patterns. These patterns suggested that the quality of school grades as an indicator of school progress could be questioned for validity.

This measurement of the quality of schools has been a result of educational policy that contained accountability reflecting school grades. Within this policy reflected the idea that schools should be held accountable for their foremost task of educating its pupils. This was perhaps best identified in the evaluating of school grades as they presently constitute a school's ideal effectiveness. First, can the value of schools be determined? If the value of schools can be ascertained, have student test scores been a valid indication of the scores worth? In the age of accountability, policymakers are insisting that educators be held accountable and get results on how well students learn knowledge. Second, in utilizing student test scores and school grades, do other criteria exist on which the quality of a school could be evaluated on? Currently, a single

criterion of test scores has been the isolated measurement of the true quality and progress of a school in the state of Florida. An extension of test scores as a single criterion for measuring the quality of a school's progress has been the reality that all schools have been evaluated on the same FCAT test even though schools vary in available resources and population diversity. Finally, school grades have only been able to measure certain learning outcomes, such as reading and mathematics mean scale scores. What about the other learning outcomes a school has been held accountable for, such as respect, morals, and values? This could suggest that school grades may be more of a measure of the conditions in which a particular school resides than it represents a measure of the quality of the school itself.

Summary

This chapter has described the methods and procedures used to gather and analyze data in the study. The sample in this study consisted of 316 public high schools in the state of Florida that received a school grade and fielded a varsity football team for the school years 2004-2005 and 2005-2006. The data were obtained from the Florida Department of Education and the Florida High School Athletic Association for the school years 2004-2005 and 2005-2006. The selected factors for the direct and indirect effects of the study were identified and defined. The selected factors were minority percentage, socio economic status percentage, football winning percentage, and academic achievement based on 10^{th} grade reading and mathematics mean scale scores on the FCAT. An examination and synthesis of the data was developed that included tables and corroborating narratives that are presented in Chapter 4. A summary of the findings, conclusions, and recommendations for future research are presented in Chapter 5.

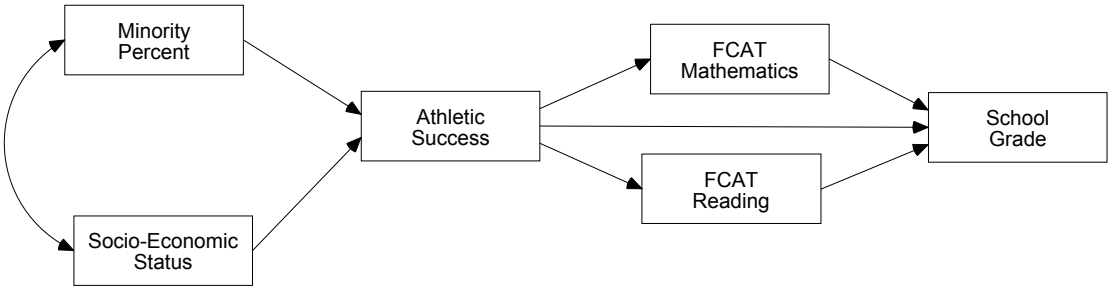

Figure 1: Path Model desired but all paths were tested as shown in Figure 2.

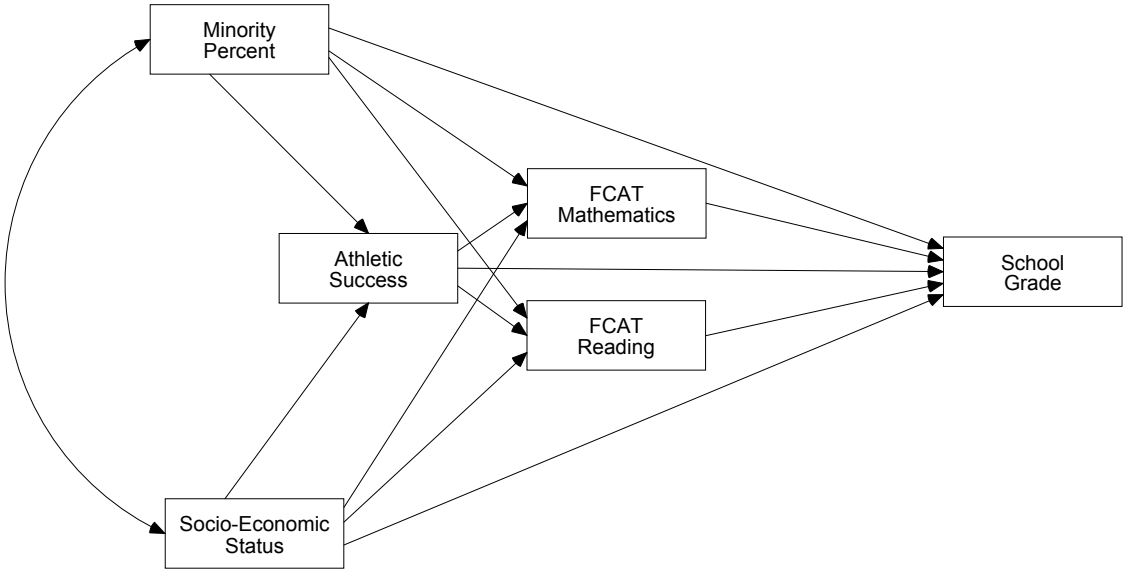

Figure 2: Fully Recursive Path Model.

CHAPTER 4: PRESENTATION AND ANALYSIS OF THE DATA

Introduction

The focus of this study was to determine the direct and indirect effects of selected factors on school grades. The sample contained 316 public high schools in the state of Florida for grades 9 through 12 that received a school grade and fielded a varsity football team. A data set for the public high schools was created using information from the Florida Department of Education and the Florida High School Athletic Association. The sample contained data for the 2004-2005 school year, and the 2005-2006 school year. In addition, the sample data contained varsity football winning percentages for 2004-2005 regular season, and the 2005-2006 regular season. The following were used as selected factors on school grades: minority percentage, socio economic status percentage, football winning percentage, and academic achievement based on 10^{th} grade reading and mathematics mean scale scores on the Florida Comprehensive Assessment Test. This chapter presents an evaluation of the data used in the study.

The chapter was categorized into the following sections. First, an examination of the descriptive data for each of the selected variables is analyzed: minority percentage based on the proportion of minority students in relation to the total student body at a given school, socio economic status percentage based on the proportion of students participating in the free and reduced lunch program at a given school, football winning percentage based on the number of wins by a varsity football team during the regular season, and academic achievement based on 10^{th} grade reading and mathematics mean scale scores based on the Florida Comprehensive Assessment Test. Second, an analysis of the path model used in the study to determine the direct

and indirect effects of each of the selected factors on school grades for the 2004-2005 school year and the 2005-2006 school year. Finally, a summary of the data analysis has been provided for comparing the direct and indirect effects of the selected factors on school grades.

School Grades

Exact numeric school grades were used in the sample for each school in order to make the results more reliable. This measure of analysis was included so that point ranges for each school letter grade would not have to be used, and therefore, misrepresent all schools having a particular letter grade with the same numeric score. The sample had an average school grade of 364 (C) for the 2004-2005 school year, and an average school grade of 366 (C) for the 2005-2006 school year. There were 45 public high schools (14.24%) that received an "A" for the 2004-2005 school year, and 43 public high schools (13.61%) that received an "A" for the 2005-2006 school year. There were 66 public high schools (20.89%) that received a "B" for the 2004-2005 school year, and 79 public high schools (25.00%) that received a "B" for the 2005-2006 school year. There were 115 public high schools (36.39%) that received a "C" for the 2004-2005 school year, and 123 public high schools (38.92%) that received a "C" for the 2005-2006 school year. There were 84 public high schools (26.58%) that received a "D" for the 2004-2005 school year, and 61 public high schools (19.30%) that received a "D" for the 2005-2006 school year. There were 6 public high schools (1.90%) that received an "F" for the 2004-2005 school year, and 7 public high schools (2.22%) that received an "F" for the 2005-2006 school year. Finally, there were 0 public high schools that received an 'I" for the 2004-2005 school year, and 4 public high schools (1.27%) that received an "I" for the 2005-2006 school year. In addition, there were

0 public high schools that received a "P" for the 2004-2005 school year, and 3 public high schools (9.49%) that received a "P" for the 2005-2006 school year.

In addition to the average school grade comparison to number and percentage, school grades were further analyzed to derive any direct or indirect data patterns that could be present. These results were examined in comparing schools that received the highest school grade of an 'A' to those that received all other grades through the school grade of an 'F'. Schools with the letter grade of a 'I' and 'P' were not included as they represent schools that are either under investigation toward grade assessment or are alternative schools that elected to option out of receiving a school grade, but needed some method of measuring their schools progress. A summary of the findings on the comparison of the selected factors on school grades by school year are depicted in Table 1.

In the 2004-2005 school year, the selected factors on school grades revealed schools that received higher school grades had a lower variable comparison on each of the selected factors. In examining the selected factor of minority percentage, schools that received the school grade of an 'A' had an average minority percentage of 27.50%, compared to schools that received the school grade of a 'B' (33.50%), those schools that received the school grade of a 'C' (46.90%), those schools that received the school grade of a 'D' (52.50%), and those schools that received the school grade of an 'F' (83.70%). Schools that received the school grade of an 'A' had an average socio economic status percentage of 20.62%, compared to schools that received the school grade of 'B' (25.98%), those schools that received the school grade of a 'C' (38.27%), those schools that received the school grade of a 'D' (45.48%), and those schools that received the school grade of an 'F' (63.00%). Schools that received school grade of an 'A' had an average FCAT reading mean scale score of 320, compared to schools that received the school

grade of ‘B’ (308), those schools that received the school grade of a ‘C’ (291), those schools that received the school grade of a ‘D’ (284), and those schools that received the school grade of an ‘F’ (241). Schools that received the school grade of an ‘A’ had an average FCAT mathematics mean scale score of 340, compared to those schools that received the school grade of ‘B’ (331), those schools that received the school grade of ‘C’ (318), those schools that received the school grade of ‘D’ (313), and those schools that received the school grade of an ‘F’ (279). Finally, schools that received the school grade of an ‘A’ had an average winning percentage of 53.73%, compared to those schools that received the school grade of ‘B’ (51.18%), those schools that received the school grade of a ‘C’ (48.04%), those schools that received the school grade of ‘D’ (54.58%), and those schools that received the school grade of an ‘F’ (44.40%).

In the 2005-2006 school year, the selected factors on school grades revealed schools that received higher school grades had a lower variable comparison on each of the selected factors. In examining the selected factor for minority percentage, schools that received the school grade of an ‘A’ had an average minority percentage of 33.02%, compared to schools that received the school grade of a ‘B’ (38.30%), those schools that received the school grade of a ‘C’ (46.52%), those schools that received the school grade of a ‘D’ (57.44%), and those schools that received the school grade of an ‘F’ (97.29%). Schools that received the school grade of an ‘A’ had an average socio economic status percentage of 21.72%, compared to schools that received the school grade of ‘B’ (27.58%), those schools that received the school grade of a ‘C’ (39.40%), those schools that received the school grade of a ‘D’ (45.64%), and those schools that received the school grade of an ‘F’ (68.00%). Schools that received the school grade of an ‘A’ had an average FCAT reading mean scale score of 322, compared to schools that received the school grade of ‘B’ (309), those schools that received the school grade of a ‘C’ (292), those schools that

received the school grade of a 'D' (281), and those schools that received the school grade of an 'F' (253). Schools that received the school grade of an 'A' had an average FCAT mathematics mean scale score of 341, compared to those schools that received the school grade of 'B' (332), those schools that received the school grade of 'C' (319), those schools that received the school grade of 'D' (311), and those schools that received the school grade of an 'F' (292). Finally, schools that received the school grade of an 'A' had an average winning percentage of 45.27%, compared to those schools that received the school grade of 'B' (47.29%), those schools that received the school grade of a 'C' (52.55%), those schools that received the school grade of 'D' (55.12%), and those schools that received the school grade of an 'F' (55.23%).

Table 1:
Florida Public High School Grades and Percentages of Selected Factors by School Year

School Grade	2004-2005	2005-2006
School Grade "A"		
Minority %	27.50%	30.02%
SES %	20.62%	21.72%
FCAT Reading	320	322
FCAT Mathematics	340	341
Winning %	53.75%	45.26%
School Grade "B"		
Minority %	33.50%	38.30%
SES %	25.98%	27.58%
FCAT Reading	308	309
FCAT Mathematics	331	332
Winning %	51.17%	47.29%
School Grade "C"		
Minority %	46.90%	46.52%
SES %	38.27%	39.40%
FCAT Reading	291	291
FCAT Mathematics	318	319
Winning %	48.04%	52.55%
School Grade "D"		
Minority %	52.50%	57.44%
SES %	45.48%	45.64%
FCAT Reading	284	282
FCAT Mathematics	313	311
Winning %	54.58%	55.12%
School Grade "F"		
Minority %	83.70%	97.28%
SES %	63.00%	68.00%
FCAT Reading	241	253
FCAT Mathematics	279	292
Winning %	44.40%	55.22%
School Grade "I"		
Minority %	00.00%	34.75%
SES %	00.00%	38.50%
FCAT Reading	0	286
FCAT Mathematics	0	314
Winning %	00.00%	72.50%
School Grade "P"		
Minority %	00.00%	00.00%
SES %	00.00%	00.00%
FCAT Reading	0	0
FCAT Mathematics	0	0
Winning %	00.00%	00.00%

Minority Percentage

The sample of public high schools had an average minority percentage rate of 43.00% for the 2004-2005 school year, and 45.35% for the 2005-2006 school year. The highest minority percentage reported in the sample was 99.00% for the 2004-2005 school year, and 100% for the 2005-2006 school year. The lowest minority percentage reported in the sample was 3.00% for the 2004-2005 school year, and 4% for the 2005-2006 school year. The data are depicted in Table 2.

Football Winning Percentage

The sample of public high schools had an average winning percentage of 51.25% for the 2004-2005 regular season, and 51.01% for the 2005-2006 regular season. The highest winning percentage calculated in the sample was 100% for the 2004-2005 regular season, and 100% for the 2005-2006 regular season. The lowest winning percentage calculated in the sample was 0.00% for the 2004-2005 regular season, and 0.00% for the 2005-2006 regular. The data are depicted in Table 2.

Socio Economic Status Percentage

The sample of public high schools had a relative socio economic status percentage of 36.00% for the 2004-2005 school year, and 35.92% for the 2005-2006 school year. The highest socio economic status percentage reported in the sample was 99.00 % for the 2004-2005 school year, and 93.00% for the 2005-2006 school year. The lowest socio economic status percentage reported in the sample was 5.00% for the 2004-2005 school year, and 2.00% for the 2005-2006 school year. The data are depicted in Table 2.

Academic Achievement

Reading

The sample of public high schools had an FCAT reading mean scale score of 296 for the 2004-2005 school year, and 297 for the 2005-2006 school year. The highest mean scale score reported in the sample was 354 for the 2004-2005 school year, and 366 for the 2005-2006 school year. The lowest mean scale score reported in the sample was 232 for the 2004-2005 school year, and 242 for the 2005-2006 school year. The data are depicted in Table 2.

Mathematics

The sample of public high schools had an FCAT mathematics mean scale score of 322 for the 2004-2005 school year, and 324 for the 2005-2006 school year. The highest mean scale score reported in the sample was 366 for the 2004-2005 school year, and 374 for the 2005-2006 school year. The lowest mean scale score reported in the sample was 271 for the 2004-2005 school year, and 280 for the 2005-2006 school year. The data are depicted in Table 2.

Table 2:
Selected Factors on School Grades by School Year

Factor	2004-2005	2005-2006
Minority Percentage		
Mean	43.00%	45.35%
Highest	99.00%	100%
Lowest	3.00%	4.00%
Football Winning Percentage		
Mean	51.25%	51.01%
Highest	100%	100%
Lowest	0.00%	0.00%
Socio Economic Status Percentage		
Mean	36.00%	35.92%
Highest	99.00%	93.00%
Lowest	5.00%	2.00%
FCAT Reading Mean Scale Scores		
Mean	296	297
Highest	354	366
Lowest	232	242
FCAT Mathematics Mean Scale Scores		
Mean	322	324
Highest	366	374
Lowest	271	280

The data for the 2004-2005 school year indicated that the selected factors of percentages and mean scale scores were, on average, less than the same factor comparisons for the 2005-2006 school year. The average minority percentage changed from 43.00% in 2004-2005 to 45.35% in 2005-2006, an increase of (2.35%). The average winning percentage changed from 51.25% in 2004-2005 to 51.01% in 2005-2006, a decrease of (0.24%). The socio economic status covariate changed from 36.00% in 2004-2005 to 35.92%, a decrease of (0.08%). As these selected factors indicated slight changes, increases in FCAT reading mean scale score and FCAT mathematics mean scale score were derived. The average FCAT reading mean scale score changed from 296 in 2004-2005 to 297 in 2005-2006, a slight increase of (1) point. Finally, the average FCAT mathematics mean scale score changed from 322 in 2004-2005 to 324 in 2005-2006, a slight increase of (2) points. Even though the average increases in mean scale scores are statistically slight, it perhaps could be an indicator that the state of Florida has been assessing the progress of its public school systems in a favorable manner by demonstrating improvement.

Tests for Direct and Indirect Effects

The purpose of the study was to determine the direct and indirect effects of selected factors on school grades. The selected factors consisted of the following variables: minority percentage based on the proportion of minority students in relation to the total student body at a given school, socio economic status percentage based on the proportion of students participating in the free and reduced lunch program in relation to the total student body at a given school, football winning percentage based on varsity football teams winning percentage in a regular season, and academic achievement based on 10^{th} grade reading and mathematics mean scale

scores on the Florida Comprehensive Assessment Test from public high schools in the state of Florida. An analysis of the structure of the path model presented in the study and the effects of the selected factors were examined for any underlying consistencies or constraints. In addition, a linear regression procedure was used to calculate the direct and indirect effects of each of the selected factors on school grades. The analysis was conducted for the entire sample of schools for the 2004-2005 and 2005-2006 school years (N=316). The path model analysis and test results are reported as follows.

Path Model Analysis

An analysis of the structure and effects of the path model revealed some important considerations. First, the design of the path model provided limited factor effect and variance explanation (See Figure 1). Second, much more selected factor effect could be ascertained and explained when all the path variations were considered (See Figure 2). Third, standardized regression coefficients were used to explain the direct, indirect, and total effect significance of the selected factors on school grades (See Figure 3 through Figure 6). Finally, an overall determination of the path model and its accountability toward probable error in the study will be explained.

The path model format was supported because the R square was high (Rsq = .87 in 2004-2005, and Rsq = .86 in 2005-2006) in accounting for school grades in both models. The design of the initial model did have some constraints that limited the overall effects of the study. This was supported in the analysis for minority percentage and socio economic status percentage on school grades. The design of the path model used in the study permitted socio economic status percentage to overshadow any effect that minority percentage could have had on school grades.

In addition, minority percentage and socio economic status percentage affected school grades only through the selected factor of winning percentage; thus, permitting minority percentage and socio economic status percentage to have limited or no effect on school grades.

The original model (See Figure 1) constrained SES and minority percentage to affect school grades only through the factor of winning percentage. The fully recursive model permitted SES and minority percentage to effect school grades directly and indirectly through winning percentage, FCAT mathematics, and FCAT reading (See Figure 2). As is noted in figures 3-6, more than 80% of the variance in school grades was accounted for by the factors included regardless of year. The effects of each factor on school grades changed, however, based on the model analyzed.

When all of the direct and indirect paths were taken into consideration, a more comprehensive explanation of the variance as it related to school activity could be ascertained (See Figure 4 and 6). Even though R square changed very little in some of the regressions that were analyzed, a better explanation of what was going on in the schools was provided. As socio economic status percentage increased, school grades decreased. In addition, socio economic status percentage had a small direct effect on school grades; however, socio economic status percentage had the largest effect going through reading and mathematics FCAT mean scale scores.

A comparison of the overall results of the standardized effects of the direct, indirect, and total effect significance of the selected factors on school grades revealed several unpredictable patterns. In 2004-2005 the direct and indirect effect of minority percentage on school grades had balanced influence at .13 with a total effect of less than .01, and in the 2005-2006 school year, the direct effect of minority percentage on school grades was - .03; while the indirect effect was

- .04 with a total effect of - .01. Overall, the total effect of minority percentage on school grades was zero.

Inference on the path model design indicated that the model used in the study was favorable for limited factor effect and variance explanation (See Figure 1). Second, much more selected factor effect could be ascertained and explained when all the path variations were considered (See Figure 2). Finally, in the comparison of overall results of the direct, indirect, and total effect of the selected factors on school grades, underlying patterns of effect size were determined. However, the path model used in the study did have some design constraints that limited the overall effects. This was most effectively demonstrated in the standardized effects for the direct effect of minority percentage on school grades of .13 and the indirect effect of - .13 in the 2004-2005 school year, and a direct effect of - .03 and the indirect effect of - .04 in the 2005-2006 school year. The total effect of minority percentage on school grades were < .01 in the 2004-2005 school year, and - .01 for the 2005-2006 school year, and prohibited minority percentage from demonstrating any effect it possibly could have if the design of the model was structurally manipulated. As a result, the path model suggested that the model design wasn't sufficient to account for all of the probable error contained within the study. The path models and recursive models shown in the following demonstrate how the selected factors interacted with the potential paths and the directional influences that effected school grades.

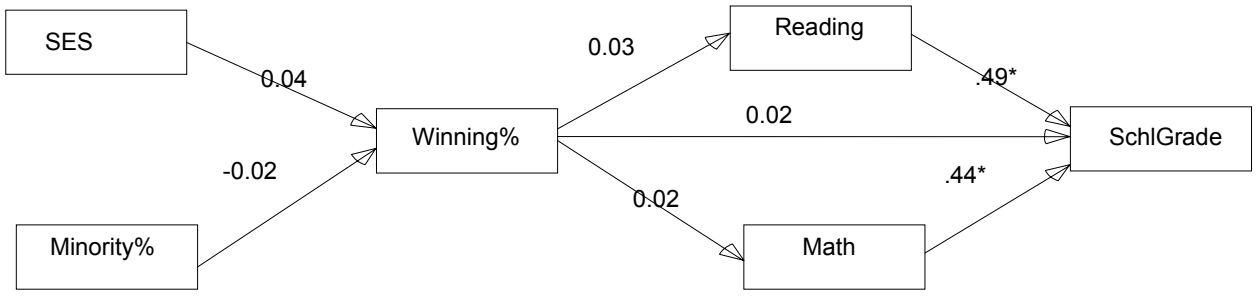

Figure 3: Restricted Model for School Grades 2004-2005

Figure 3 is a depiction of the desired paths used in the study for the 2004-2005 school year. The figure illustrates the selected factors and the ideal directional paths that the factors took toward an effect on school grades. The research questions and the results for the 2004-2005 school year are provided in the following summary.

1. *What are the direct and indirect effects of minority percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?*

Minority percentage had a direct effect that was not significant - .02 of the effect on school grades through winning percentage.

2. *What are the direct and indirect effects of socio economic status percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?*

Socio economic status percentage had a direct effect that was not significant .04 of the effect on school grades through winning percentage. SES covariate was used as a control

variable because of the influence it maintained and in order to examine the other variables contained within the study.

3. What are the direct and indirect effects of football winning percentage on school grades of public high schools in Florida as measured by recorded scores by the Florida High School Athletic Association?

Winning percentage had a direct effect that was not significant .02 of the effect on school grades. When analyzed through FCAT reading mean scale scores and FCAT mathematics mean scale scores, winning percentage still maintained direct effects that were not significant of .03 and .02 respectively.

4. What are the direct effects of 10th grade FCAT reading mean scale scores on school grades as measured by the Florida Department of Education?

FCAT reading mean scale scores had a direct significant effect on school grades among the selected factors within the study. This was represented with a direct significant effect of .49 for the reading mean scale score total effect.

5. What are the direct effects of 10th grade FCAT mathematics mean scale scores on school grades as measured by the Florida Department of Education?

FCAT mathematics mean scale scores had a direct effect on school grades among the selected factors within the study. This was represented with a direct effect of .44 for the mathematics mean scale score total effect.

The standardized effects of the selected factors on school grades for the 2004-2005 school year are represented in Table 3. All directional paths for the selected factors on school grades were analyzed for the effect variance and explanation for the 2004-2005 school year. The results are depicted in Figure 4 Recursive Model on School Grades.

Table 3: Standardized Effects of Selected Factors on School Grades 2004-2005

Variable	Direct Effect	Indirect Effect	Total Effect
SES	.00	<.01	<.01
Minority %	.00	<.01	<.01
Winning	.02	.02	.04
Reading	.49	0	.49
Math	.44	0	.44

In analyzing the standardized effects of the selected factors on school grade for the 2004-2005 school year, a number of considerations warrant further exploration. Socio economic status percentage had a direct effect of .00 with an indirect effect of < .01. This was an important consideration in that the total effect of <.01 was determined. Perhaps the most noteworthy determination was found in the lack of effect minority percentage on school grades. The direct effect of .00 and the indirect effect of <.01 provided a total effect of < .01 of minority percentage on school grades. Winning percentage had a direct effect of .02 and an indirect effect of .02 for a total effect of .04 on school grades. FCAT reading mean scale score and FCAT mathematics mean scale score had direct significant effects only on school grades. Neither selected factor had the opportunity to effect school grades indirectly. This was largely the result of the path model design that structurally prohibited an indirect effect of any significance. This was supported in the direct significant effect and direct significant total effect for FCAT reading mean scale score

of .49 and FCAT mathematics mean scale score of .44 for their effect on school grades. All directional paths for the selected factors on school grades were analyzed for effect variance and explanation for the 2004-2005 school year. The results are depicted in Figure 4 Recursive Model of School Grades 2004-2005.

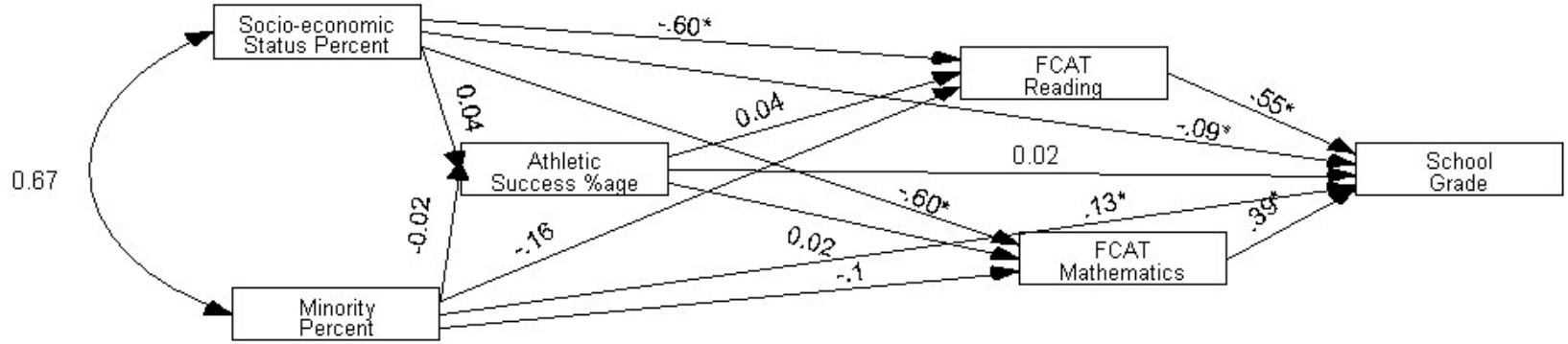

Figure 4: Recursive Model of School Grades 2004-2005
Rsq = .87

Figure 4 is a depiction of the fully recursive model of direct and indirect paths used in the study for the 2004-2005 school year. The figure illustrates the selected factors and the multi-directional paths that the factors took toward an effect on school grades. When all of the direct and indirect paths were taken into consideration, much more explanation of the variance could be ascertained toward an effect on school grades. Even though R square changed very little, a better explanation of what was going on in the schools was provided. As socio economic status percentage increased, school grades decreased. In addition, socio economic status percentage had a small direct effect on school grades; however, socio economic status percentage had the largest effect going through FCAT reading and mathematics mean scale scores. Overall, the total effect of minority percentage on school grades was zero. It is important to mention that there could be something present in the selected factor of minority percentage to have an effect on school grades; however, the effect here was very small. It appeared that minority percentage was somewhat redundant, in that socio economic status percentage was so overwhelming that anything minority percentage could have been was being overshadowed by socio economic status percentage.

Finally, FCAT reading and mathematics mean scale scores had significant direct effects on school grades in the 2004-2005 school year. FCAT reading mean scale score had a significant direct and total effect of .55, while FCAT mathematics mean scale score had a significant direct and total effect of .39; thus, eliminating any indirect effect through the path model design of either of the FCAT score selected factors. This was supported in the indirect effect of zero in which the FCAT scores could only have a direct effect that generalized the composition of school grades. The standardized effects of the selected factors on school grades for the 2004-2005 school year are represented in Table 4.

Table 4: Standardized Effects of Selected Factors on School Grades 2004-2005

Variable	Direct Effect	Indirect Effect	Total Effect
SES	-.09	-.56	-.65
Minority %	.13	-.13	<.01
Winning	.02	<.01	.02
Reading	.55	0	.55
Math	.39	0	.39

In analyzing the standardized effects of the selected factors on school grades for the 2004-2005 school year, a number of considerations warrant further exploration. Socio economic status percentage had a significant direct effect of - .09 with an indirect effect of - .56. This was an important consideration in that the total effect of - .65 was determined. Perhaps the most noteworthy determination was found in the limited effect of minority percentage on school grades. The significant direct effect of .13 and the indirect effect of - .13 provided a total effect of < .01 minority percentage on school grades. Winning percentage had a direct effect of .02 and an indirect effect of < .01 for a total effect of .02 on school grades. FCAT reading mean scale score and FCAT mathematics mean scale score had direct effects only on school grades. Neither selected factor had the opportunity to effect school grades indirectly. This was largely the result of the path model design that structurally prohibited an indirect effect of any significance. This was supported in the direct significant effect and direct significant total effect for FCAT reading mean scale score of .55 and FCAT mathematics mean scale score of .39 for their effect on school grades. A comparison of the selected factors on school grades for the 2005-2006 school year warrants further examination. In this examination the path model and recursive models

demonstrated both the ideal and directional paths that the selected factors took toward an effect on school grades.

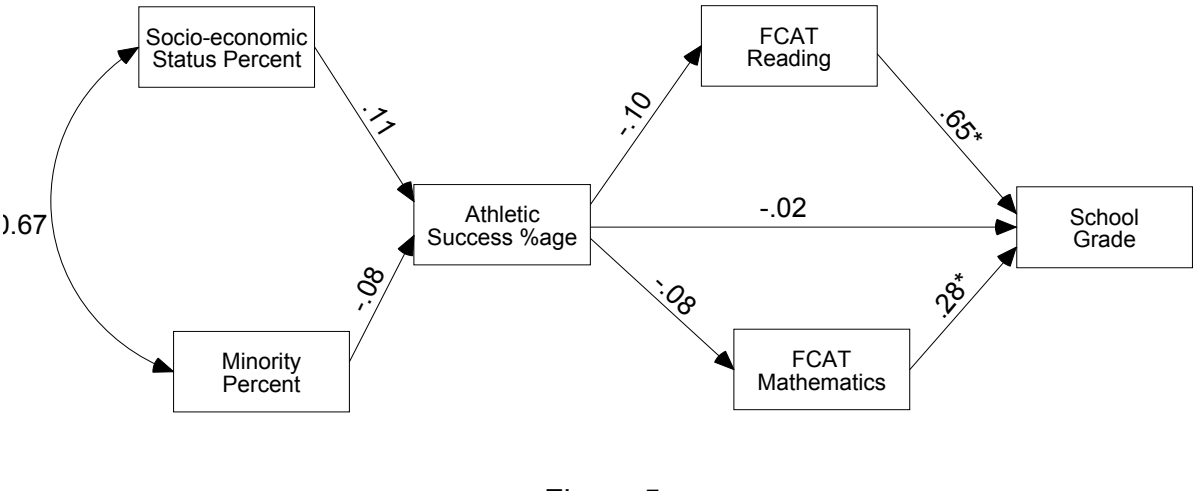

Figure 5: Restricted Model for School Grades 2005-2006

Figure 5 is a depiction of the desired paths used in the study for the 2005-2006 school year. The figure illustrates the selected factors and the ideal directional paths that the factors took toward an effect on school grades. The research questions and the results for the 2005-2006 school year are provided in the following summary.

1. *What are the direct and indirect effects of minority percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?* Minority percentage had a direct effect that was not significant - .08 of the effect on school grades through winning percentage.

2. *What are the direct and indirect effects of socio economic status percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?*

Socio economic status percentage had a direct effect that was not significant .11 of the effect on school grades through winning percentage. SES covariate was used as a control variable because of the influence it maintained and in order to examine the other variables contained within the study.

3. What are the direct and indirect effects of football winning percentage on school grades of public high schools in Florida as measured by recorded scores by the Florida High School Athletic Association?

Winning percentage had a direct effect that was not significant -.02 of the effect on school grades. When analyzed through FCAT reading mean scale scores and FCAT mathematics mean scale scores, winning percentage still maintained direct effects that were not significant of - .10 and - .08 respectively.

4. What are the direct effects of 10th grade FCAT reading mean scale scores on school grades as measured by the Florida Department of Education?

FCAT reading mean scale scores had direct significant effects on school grades among the selected factors within the study. This was represented with a direct significant effect of .65 for the reading mean scale score total effect.

5. What are the direct effects of 10th grade FCAT mathematics mean scale scores on school grades as measured by the Florida Department of Education?

FCAT mathematics mean scale score had direct significant effects on school grades among the selected factors within the study. This was represented with a direct significant effect of .28 for the mathematics mean scale score total effect.

The standardized effects of the selected factors on school grades for the 2005-2006 school year are represented in Table 5. All directional paths for the selected factors on school grades were analyzed for effect variance and explanation for the 2005-2006 school year. The results are depicted in Figure 6 Recursive Model of School Grades.

Table 5: Standardized Effects of Selected Factors on School Grades 2005-2006

Variable	Direct Effect	Indirect Effect	Total Effect
SES	.00	-.01	-.01
Minority %	.00	<.01	<.01
Winning	-.02	-.09	-.11
Reading	.65	00	.65
Math	.28	00	.28

In analyzing the standardized effects of the selected factors on school grades for the 2005-2006 school year, a number of considerations warrant further exploration. Socio economic status percentage had a direct effect of .00 with an indirect effect of - .01. This was an important consideration in that the total effect of - .01 was determined. Perhaps the most noteworthy determination was found in the limited effect of minority percentage on school grades. The direct effect of .00 and the indirect effect of < .01 provided a total effect of < .01 of minority percentage on school grades. Winning percentage had a direct effect of -.02 and an indirect

effect of - .09 for a total effect of - .11 on school grades. FCAT reading mean scale score and FCAT mathematics mean scale score had direct effects only on school grades. Neither selected factor had the opportunity to effect school grades indirectly. This was largely the result of the path model design that structurally prohibited an indirect effect of any significance. This was supported in the direct significant effect and direct significant total effect of FCAT reading mean scale score of .65 and FCAT mathematics mean scale score of .28 for their effect on school grades. All directional paths for the selected factors on school grades were analyzed for effect variance and explanation for the 2005-2006 school year. The results are depicted in Figure 6 Recursive Model of School Grades 2005-2006.

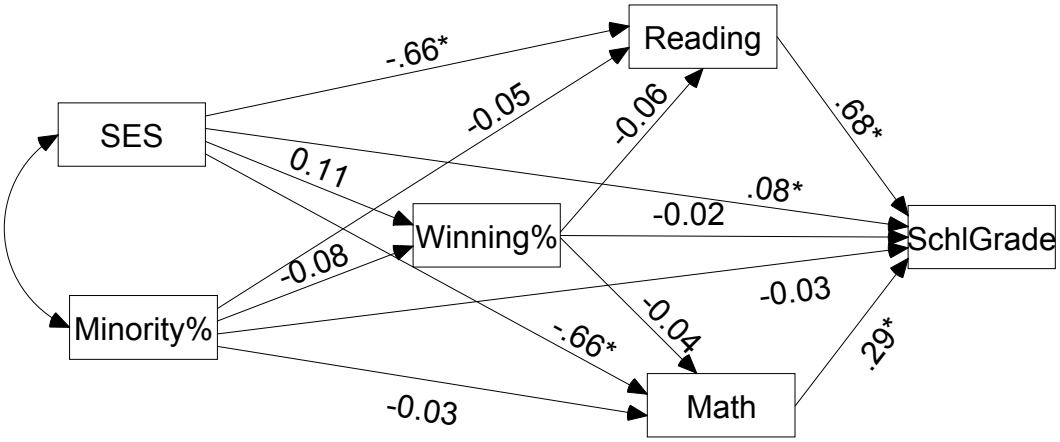

Figure 6: Recursive Model of School Grades 2005-2006
Rsq = .86

Figure 6 is a depiction of the fully recursive model of direct and indirect paths used in the study for the 2005-2006 school year. The figure illustrates the selected factors and the multi-directional paths that the factors took toward an effect on school grades. The effect of the selected factors was similar to those of the 2004-2005 school year. The explanation of variance could be determined toward an effect on school grades when all of the direct and indirect paths were taken into consideration. Similarly, the lack of change in R square provided by some of the regressions that were analyzed indicated a more in-depth explanation of what was going on in the schools. Findings for the effect of socio economic status percentage on school grades paralleled that of the previous year. As socio economic status percentage increased, school grades decreased. In addition, socio economic status percentage had a small direct effect on

school grades; however, socio economic status percentage had the largest effect going through FCAT scores of reading and mathematics mean scale scores. Overall, the total effect of minority percentage on school grades was zero. This suggested there could be something present in minority percentage to have an effect on school grades; however, the effect here was very small. It appeared that minority percentage was somewhat redundant, in that socio economic status percentage was so overwhelming that anything minority percentage could have been was being overshadowed by socio economic status percentage.

Finally, FCAT reading and mathematics mean scale scores had significant direct effects in the 2005-2006 school year. FCAT reading mean scale score had a significant direct and total effect of .68, while FCAT mathematics mean scale score had a significant direct and total effect of .29; thus, eliminating any indirect effect through the path model design of either of the FCAT score selected factors. This was supported in the indirect effect of zero in which the FCAT scores could only have a direct effect that generalized the composition of school grades. The standardized effects of the selected factors on school grades for the 2005-2006 school year are represented in Table 6.

Table 6: Standardized Effects of Selected Factors on School Grades 2005-2006

Variable	Direct Effect	Indirect Effect	Total Effect
SES	.08	-.64	-.56
Minority %	-.03	-.04	-.01
Winning	-.02	-.05	-.03
Reading	.68	0	.68
Math	.29	0	.29

In analyzing the standardized effects of the selected factors on school grade for the 2005-2006 school year, a number of considerations warrant further exploration. Socio economic status percentage had a direct effect of .08 with an indirect effect of - .64. This was an important consideration in that the total effect of - .56 was determined. The most noteworthy determination was found in the limited effect of minority percentage on school grades. The direct effect of - .03 and the indirect effect of - .04 provided a total effect of - .01 of minority percentage on school grades. Winning percentage had a direct effect of -.02 and an indirect effect of - .05 for a total effect of - .03 on school grades. FCAT reading mean scale score and FCAT mathematics mean scale score had direct effects only on school grades. Neither selected factor had the opportunity to effect school grades indirectly. This was largely the result of the path model design that structurally prohibited an indirect effect of any significance. This was supported in the direct significant effect and direct significant total effect for FCAT reading mean scale score of .68 and FCAT mathematics mean scale score of .29 for their effect on school grades.

These findings suggested a number of characteristics contained within the study. First, socio economic status percentage had a significant indirect effect on school grades. As socio economic status percentage increased, school grades decreased. As socio economic status percentage decreased, school grades increased. The effect of minority percentage on school grades had the most profound indication of surprising results in the study. The overall total effect of minority percentage on school grades was zero. The overall total effect of zero didn't mean that minority percentage didn't have an effect on school grades; however, it appeared to be somewhat redundant in its effect toward school grades. This was supported in socio economic status percentage manifesting itself so intensely that any effect minority percentage could have

had on school grades was being overshadowed. Finally, FCAT reading mean scale score and FCAT mathematics mean scale score only had direct significant effects on school grades. The lack of presence of the indirect effects was a result of the path model design that permitted the FCAT scores to go directly toward school grades and not through the other selected factors contained within the study.

The following test results consisted of individualized linear regressions from the path model that were calculated to determine the effect significance of each of the selected factors on school grades. Each result was reported along with the standardized regression coefficient and significance effect. For readability purposes, the standardized regression coefficient was reported as (src), while the significance effect was reported as ($p < .05$, or $p > .05$).

2004-2005 School Year

Minority Percentage and Socio Economic Status Percentage

A linear regression was calculated for the effect of winning percentage on minority percentage and socio economic status percentage. A weak negative effect that was not significant was found (src = -.018, $p > .05$) for the effect of minority percentage on winning percentage. A weak positive effect that was not significant was found (src = .038, $p > .05$) for the effect of socio economic status percentage on winning percentage. Only .001% of the variance in winning percentage could be explained by minority percentage and socio economic status percentage.

FCAT Reading Mean Scale Score

A linear regression was calculated for the effect of winning percentage on FCAT reading mean scale score. A weak positive effect that was not significant was found (src = .026, $p > .05$) for the effect of FCAT reading mean scale score on winning percentage. Only .001% of the variance in winning percentage could be explained by FCAT reading mean scale score.

FCAT Mathematics Mean Scale Score

A linear regression was calculated for the effect of winning percentage on FCAT mathematics mean scale score. A weak positive effect that was not significant was found (src = .024, $p > .05$) for the effect of FCAT mathematics mean scale score on winning percentage. Only .001% of the variance in winning percentage could be explained by FCAT mathematics mean scale score.

Winning Percentage, FCAT Reading Mean Scale Score, and FCAT Mathematics Mean Scale Score on School Grades

A linear regression was calculated for the effect of school grades on winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score. A weak positive effect that was not significant was found (src = .020, $p > .05$) for the effect of winning percentage on school grades. A direct positive effect that was significant was found (src = .494, $p < .05$) for the effect of FCAT reading mean scale score on school grades. A positive effect that was significant was found (src = .437, $p < .05$) for the effect of FCAT mathematics mean scale

score on school grades. A large variance of .852% in school grades could be explained by winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score.

Minority Percentage, Socio Economic Status Percentage, and Winning Percentage on FCAT Reading Mean Scale Score

A linear regression was calculated for the effect of FCAT reading mean scale score on minority percentage, socio economic status percentage, and winning percentage. A weak negative effect that was not significant was found ($src = -.158$, $p > .05$) for the effect of minority percentage on FCAT reading mean scale score. A strong negative effect that was significant was found ($src = -.600$, $p < .05$) for the effect of socio economic status percentage on FCAT reading mean scale score. A weak positive effect that was not significant was found ($src = .043$, $p > .05$) for the effect of winning percentage on FCAT reading mean scale score. A moderate variance of .512% in FCAT reading mean scale score could be explained by minority percentage, socio economic status percentage, and winning percentage.

Minority Percentage, Socio Economic Status Percentage, and Winning Percentage on FCAT Mathematics Mean Scale Score

A linear regression was calculated for the effect of FCAT mathematics mean scale score on minority percentage, socio economic status percentage, and winning percentage. A weak negative effect that was not significant was found ($src = -.101$, $p > .05$) for the effect of minority percentage on FCAT mathematics mean scale score. A strong negative effect that was significant was found ($src = -.599$, $p < .05$) for the effect of socio economic status percentage on FCAT mathematics mean scale score. A weak positive effect that was not significant was found ($src = .041$, $p > .05$) for the effect of winning percentage on FCAT mathematics mean scale

score. A moderate variance of .451% in FCAT mathematics mean scale score could be explained by minority percentage, socio economic status percentage, and winning percentage.

Minority Percentage, Socio Economic Status Percentage, Winning Percentage, FCAT Reading Mean Scale Score, and FCAT Mathematics Mean Scale Score on School Grades

A linear regression was calculated for the effect of school grades on minority percentage, socio economic status percentage, winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score. A weak positive effect that was not significant was found ($src = .134$, $p > .05$) for the effect of minority percentage on school grades. A weak negative effect that was not significant was found ($src = -.089$, $p > .05$) for the effect of socio economic status percentage on school grades. Although not a significant effect on school grades, socio economic status percentage had a direct significant effect on a school's FCAT scores they received. A weak positive effect that was not significant was found ($src = .021$, $p > .05$) for the effect of winning percentage on school grades. A strong positive effect that was significant was found ($src = .555$, $p < .05$) for the effect of FCAT reading mean scale score on school grades. A weak positive effect that was significant was found ($src = .386$, $p < .05$) for the effect of FCAT mathematics mean scale score on school grades. A large variance of .860% in school grades could be explained by minority percentage, socio economic status percentage, winning percentage, FCAT reading mean scale scores, and FCAT mathematics mean scale scores.

2005-2006 School Year

Minority Percentage and Socio Economic Status Percentage

A linear regression was calculated for the effect of winning percentage on minority percentage and socio economic status percentage. A weak negative effect that was not

significant was found (src = -.076, p > .05) for the effect of minority percentage on winning percentage. A weak positive effect that was not significant was found (src = .109, p > .05) for the effect of socio economic status percentage on winning percentage. Only .007% of the variance in winning percentage could be explained by minority percentage and socio economic status percentage.

FCAT Reading Mean Scale Score

A linear regression was calculated for the effect of winning percentage on FCAT reading mean scale score. A weak negative effect that was not significant was found (src = -.102, p > .05) for the effect of FCAT reading mean scale score on winning percentage. Only .010% of the variance in winning percentage could be explained by FCAT reading mean scale score.

FCAT Mathematics Mean Scale Score

A linear regression was calculated for the effect of winning percentage on FCAT mathematics mean scale score. A weak negative effect that was not significant was found (src = -.078, p > .05) for the effect of FCAT mathematics mean scale score on winning percentage. Only .006% of the variance in winning percentage could be explained by FCAT mathematics mean scale score.

Winning Percentage, FCAT Reading Mean Scale Score, and FCAT Mathematics Mean Scale Score on School Grades

A linear regression was calculated for the effect of school grades on winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score. A weak negative effect that was not significant was found (src = -.018, p > .05) for the effect of winning percentage on school grades. A direct positive effect that was significant was found (src = .652,

p < .05) for the effect of FCAT reading mean scale score on school grades. A weak positive effect that was significant was found (src = .284, p < .05) for the effect of FCAT mathematics mean scale score on school grades. A large variance of .864% in school grades could be explained by winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score.

Minority Percentage, Socio Economic Status Percentage, and Winning Percentage on FCAT Reading Mean Scale Score

A linear regression was calculated for the effect of FCAT reading mean scale score on minority percentage, socio economic status percentage, and winning percentage. A weak negative effect that was not significant was found (src = -.045, p. > .05) for the effect of minority percentage on FCAT reading mean scale score. A strong negative effect that was significant was found (src = -.662, p < .05) for the effect of socio economic status percentage on FCAT reading mean scale score. A weak negative effect that was not significant was found (src = -.063, p > .05) for the effect of winning percentage on FCAT reading mean scale score. A moderate variance of .489% in FCAT reading mean scale score could be explained by minority percentage, socio economic status percentage, and winning percentage.

Minority Percentage, Socio Economic Status Percentage, and Winning Percentage on FCAT Mathematics Mean Scale Score

A linear regression was calculated for the effect of FCAT mathematics mean scale score on minority percentage, socio economic status percentage, and winning percentage. A weak negative effect that was not significant was found (src = -.026, p > .05) for the effect of minority percentage on FCAT mathematics mean scale score. A strong negative effect that was significant was found (src = -.659, p < .05) for the effect of socio economic status percentage on FCAT

mathematics mean scale score. A weak negative effect that was not significant was found (src = -.039, $p > .05$) for the effect of winning percentage on FCAT mathematics mean scale score. A moderate variance of .463% in FCAT mathematics mean scale score could be explained by minority percentage, socio economic status percentage, and winning percentage.

Minority Percentage, Socio Economic Status Percentage, Winning Percentage, FCAT Reading Mean Scale Score, and FCAT Mathematics Mean Scale Score on School Grades

A linear regression was calculated for the effect of school grades on minority percentage, socio economic status percentage, winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score. A weak negative effect that was not significant was found (src = -.033, $p > .05$) for the effect of minority percentage on school grades. A weak positive effect that was not significant was found (src = .078, $p > .05$) for the effect of socio economic status percentage on school grades. Although not a significant effect on school grades, socio economic status percentage had a direct significant effect on a school's FCAT scores they received. A weak negative effect that was not significant was found (src = -.019, $p > .05$) for the effect of winning percentage on school grades. A strong positive effect that was significant was found (src = .677, $p < .05$) for the effect of FCAT reading mean scale score on school grades. A weak positive effect that was significant was found (src = .297, $p < .05$) for the effect of FCAT mathematics mean scale score on school grades. A large variance of .867% in school grades could be explained by minority percentage, socio economic status percentage, winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score.

These findings suggested that the desired path model revealed minority percentage, socio economic status percentage and winning percentage didn't directly affect school grades for the public high schools in the 2004-2005 school year and the 2005-2006 school year. Socio

economic status percentage didn't significantly affect school grades directly; however, it did affect school grades indirectly by influencing a school's FCAT scores they received. This was supported in the direct effect that as socio economic status percentage increased, school grades decreased, and as socio economic status percentage decreased, school grades increased. In addition, the findings indicated that the FCAT reading mean scale scores and FCAT mathematics mean scale scores had a direct significant effect on school grades for the 2004-2005 school year and 2005-2006 school year. All directional paths for the selected factors on school grades were analyzed for effect variance and explanation for the 2004-2005 school year and 2005-2006 school year.

When all the directional paths were taken into consideration, a more comprehensive explanation of the variance as it related to school activity could be ascertained. The most profound finding for the direct and indirect effects on school grades involved the effect of minority percentage on school grades. Overall, the total effect of minority percentage on school grades was zero. This finding of minority percentage on school grades was consistent for both the 2004-2005 school year and the 2005-2006 school year. It is important to mention that there could be something present in the selected factor of minority percentage to have an effect on school grades; however, the effect here was very small. The result of these findings was largely the end product of the design constraints of the path model used in the study.

The desired paths revealed some favorable and unfavorable characteristics. Many of the linear regressions that were analyzed indicated a consistent high R square in determining effect variance and explanation. This consistent indication of the high R square suggested the path model was conducive for an ideal study framework, when paradoxically; the path model had some constraints that influenced the overall effects in the study. This was supported in socio

economic status percentage overshadowing minority percentage to limit any effect it could have had toward school grades. This design constraint was found to be present for both the 2004-2005 school year and the 2005-2006 school year.

Summary

The test for direct and indirect effects of selected factors on school grades did not provide consistent significant results in the study. For both the 2004-2005 school year and the 2005-2006 school year, the negative and positive effects that were found on minority percentage were not significant. For the 2004-2005 school year and the 2005-2006 school year, the negative and positive effects that were found on socio economic status percentage were not significant. However, socio economic status percentage had a significant direct effect on the FCAT scores a school received; thus, affecting school grades indirectly. For both the 2004-2005 school year and the 2005-2006 school year, the positive effects that were found on FCAT reading mean scale score were significant. For both the 2004-2005 school year and the 2005-2006 school year, the weak positive effects that were found on FCAT mathematics mean scale score were not significant. For both the 2004-2005 school year and the 2005-2006 school year, the negative and positive effects that were found on winning percentage were not significant.

For both the 2004-2005 and the 2005-2006 school years, a weak effect of minority percentage and socio economic status percentage on winning percentage was found. This effect was examined to determine if minority percentage and socio economic status percentage could predict winning percentage. The effect indicated that the higher the minority percentage and socio economic status percentage the lower the winning percentage.

The examination of winning percentage, and FCAT mathematics mean scale score on school grades indicated weak effects; however, FCAT reading mean scale score had strong positive effects on school grades. This finding was consistent for both the 2004-2005 and the 2005-2006 school years. In both the 2004-2005 and 2005-2006 school years, weak effects were assessed for minority percentage, socio economic status percentage, and winning percentage on FCAT reading mean scale scores. It is important to note that the negative effect for socio economic status was significant. In an exact select factor comparison on FCAT mathematics mean scale score, similar results were determined on the selected factors demonstrating weak effects, with a strong negative effect of socio economic status percentage on FCAT mathematics mean scale score. Finally, in examining all of the selected factors on school grades for the 2004-2005 and 2005-2006 school years, minority percentage, socio economic status percentage, and winning percentage, were determined to have weak effects on school grades. In contrast, FCAT reading mean scale scores and FCAT mathematics mean scale scores were determined to have strong positive effects toward school grades. In the comparison of selected factors on school grades, socio economic status percentage was not statistically significant on school grades directly; however, it had a direct effect on the FCAT scores a school received.

The analysis by public high school grades and percentages revealed some discernible patterns. Schools that received the highest grades had lower minority percentages and socio economic status percentage on average than schools that received the lowest grades. In addition, schools that received the highest school grades had higher FCAT reading and mathematics mean scale scores in both the 2004-2005 and 2005-2006 school years. The select factor of winning percentage appeared to have a visible distinction when compared to isolated school grades. In the 2004-2005 school year, schools that received school grades ‘A through C’ had winning

percentages decreased, until leveling off at school grade 'D'. In the 2005-2006 school year, winning percentage increased as school grades decreased from 'A through F'. Finally, in accordance with the test for effects, the path model assessed the desired paths of the selected factors in the study (See Figure 1); however, all paths were tested as illustrated (See Figure 2) for both the 2004-2005 and the 2005-2006 school years in the sample.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this study was to determine the direct and indirect effects of selected factors on school grades in public high schools in the state of Florida. The review of literature postulated that the Florida Comprehensive Assessment Test has been the primary criterion in calculating school grades in the state of Florida. School grades have been implemented since 1999 with the most noteworthy improvement having been the inclusion of student learning gains. In addition, Florida has been recognized as one of the few states that can track student demographic information from year to year and the first to track annual student learning gains based on the state's academic standards (Florida Department of Education, 2006). An examination of public high schools in the state of Florida reflected the direct and indirect effects of selected factors on school grades and their significance. To ascertain the direct and indirect effects of the selected factors on school grades, the following research questions were analyzed:

1. What are the direct and indirect effects of minority percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?
2. What are the direct and indirect effects of socio economic status percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?

3. What are the direct and indirect effects of football winning percentage on school grades of public high schools in Florida as measured by the Florida Department of Education?
4. What are the direct effects of 10th grade FCAT reading mean scale scores on school grades of public high schools in Florida as measured by the Florida Department of Education?
5. What are the direct effects of 10th grade FCAT mathematics mean scale scores on school grades of public high schools in Florida as measured by the Florida Department of Education?

This chapter was categorized into the following sections: First, there is a summary of the results to each of the research questions. Second, conclusions based on the analysis of the research are presented. In addition, recommendations were made for future research involving specific educational areas that could potentially influence school grades. These areas could influence educational and athletic policies as they are currently being implemented in the state of Florida.

Summary

The sample contained exact numeric school grades for each school in order to make the results more reliable. This measure of analysis was conducted so that point ranges for each letter grade would not have to be used, and therefore, misrepresent all schools with inaccurate grades. First, the selected factors were tested for a desired path (See Figure 1). The desired paths of the selected factors on school grades were tested using a path model. This path model reflected the

effects of each of the selected factors as they affected each other directly. Second, the selected factors were tested for effect significance as each selected factor could affect each other or school grades either directly or indirectly and serve as a predictor on school grades (See Figure 2). All paths of the selected factors on school grades were tested using a fully recursive model. It is important to note that each of the selected factors could affect each other and school grades either directly or indirectly; however, FCAT reading mean scale score and FCAT mathematics mean scale score could only have a direct effect on school grades. Third, linear regressions were calculated to determine effect significance of each of the selected factors on other factors and on school grades. School grades were further analyzed to derive any direct or indirect data that might be present. These results were examined in comparing schools that received the highest school grade of an 'A' to those that received all other grades through the school grade of an 'F' (See Table 1). Percentages were calculated for each of the selected factors on school grades by school year. The data for the 2004-2005 school year indicated that the selected factors of percentages and mean scale scores were, on average, less than the selected factor comparisons for the 2005-2006 school year. Even though the average increases in mean scale scores were statistically slight, it perhaps could be an indicator that the state of Florida has been assessing the progress of its public school systems in a favorable manner by demonstrating improvement (See Table 2).

Minority Percentage

Using the data from the entire sample, a linear regression was calculated to determine the effect of minority percentage on winning percentage. The results indicated a weak negative effect of minority percentage on winning percentage (src = -.018, $p > .05$ in 2004-2005, and

src = -.076, p > .05 in 2005-2006). The effect was not statistically significant, however. As minority percentage increased, the effects on winning percentage decreased.

Socio Economic Status Percentage

Using the data from the entire sample, a linear regression was calculated to determine the effect of socio economic status percentage on winning percentage. The results indicated a weak positive effect of socio economic status percentage on winning percentage (src = .038, p > .05 in 2004-2005, and src = .109, p > .05 in 2005-2006). The effect was not statistically significant, however. As socio economic status percentage increased, the effects on winning percentage decreased.

FCAT Reading Mean Scale Score

Using the data from the entire sample, a linear regression was calculated to determine the effect of winning percentage on FCAT reading mean scale score. The results indicated a weak positive effect of winning percentage on FCAT reading mean scale score (src = .026, p > .05) in 2004-2005 and a weak negative effect (src = -.102, p > .05) in 2005-2006. The effects were not statistically significant, however. As winning percentage increased, the effects on FCAT reading mean scale score decreased.

FCAT Mathematics Mean Scale Score

Using the data from the entire sample, a linear regression was calculated to determine the effect of winning percentage on FCAT mathematics mean scale score. The results indicated a weak positive effect of winning percentage on FCAT mathematics mean scale score (src = .024, p > .05) in 2004-2005 and a weak negative effect (src = -.078, p > .05) in 2005-2006. The

effects were not statistically significant, however. As winning percentage increased, the effects on FCAT mathematics mean scale score decreased.

Winning Percentage, FCAT Reading Mean Scale Score, and FCAT Mathematics Mean Scale Score on School Grades

Using the data from the entire sample, a linear regression was calculated to determine the effect of winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score on school grades. The results indicated a weak positive effect (src = .020, $p > .05$) in 2004-2005, and a weak negative effect (src = -.018, $p > .05$) in 2005-2006 of winning percentage on school grades. These results were not statistically significant, however. As winning percentage increased, the effect on school grades decreased. In determining the effect of FCAT reading mean scale score on school grades, the results indicated a direct positive effect for FCAT reading mean scale score on school grades (src = .494, $p < .05$ in 2004-2005, and src = .652, $p < .05$ in 2005-2006). These results were statistically significant, however. As FCAT reading mean scale score increased, the effect on school grades increased. In determining the effect of FCAT mathematics mean scale score on school grades, the results indicated a positive effect (src = .437, $p < .05$) in 2004-2005 and (src = .284, $p < .05$) in 2005-2006. These results were statistically significant, however. As FCAT mathematics mean scale score increased, the effect on school grades increased.

Minority Percentage, Socio Economic Status Percentage, and Winning Percentage on FCAT Reading Mean Scale Score

Using the data from the entire sample, a linear regression was calculated to determine the effect of minority percentage, socio economic status percentage, and winning percentage on FCAT reading mean scale score. The results indicated a weak negative effect (src = -.158, $p > .05$ in 2004-2005, and src = -.045, $p > .05$ in 2005-2006) of minority percentage on FCAT

reading mean scale score. These results were not statistically significant, however. As minority percentage increased, the effect on FCAT reading mean scale score decreased. In determining the effect of socio economic status percentage on FCAT reading mean scale score, the results indicated a strong negative effect (src = -.600, $p < .05$ in 2004-2005, and src = -.662, $p < .05$ in 2005-2006). The results were statistically significant, however. As socio economic status percentage increased, the effect on FCAT reading mean scale score increased. In determining the effect of winning percentage on FCAT reading mean scale score, the results indicated a weak positive effect (src = .043, $p > .05$) in 2004-2005, and a weak negative effect (src = -.063, $p > .05$) in 2005-2006. The results were not statistically significant, however. As winning percentage increased, the effect on FCAT reading mean scale score decreased.

Minority Percentage, Socio Economic Status Percentage, and Winning Percentage on FCAT Mathematics Mean Scale Score

Using the data from the entire sample, a linear regression was calculated to determine the effect of minority percentage, socio economic status percentage, and winning percentage on FCAT mathematics mean scale score. The results indicated a weak negative effect (src = -.101, $p > .05$ in 2004-2005, and src = -.026, $p > .05$ in 2005-2006) of minority percentage on FCAT mathematics mean scale score. The results were not statistically significant, however. As minority percentage increased, the effect on FCAT mathematics mean scale score decreased. In determining the effect of socio economic status percentage on FCAT mathematics mean scale score, the results indicated a weak negative effect (src = -.599, $p < .05$ in 2004-2005, and src = -.65, $p < .05$ in 2005-2006) of socio economic status percentage on FCAT mathematics mean scale score. The results were statistically significant, however. As socio economic status percentage increased, the effect on FCAT mathematics mean scale score increased. In

determining the effect of winning percentage on FCAT mathematics mean scale score, the results indicated a weak positive effect (src = .041, p > .05) in 2004-2005, and a weak negative effect (src = -.039, p > .05) in 2005-2006 of winning percentage on FCAT mathematics mean scale score. The results were not statistically significant, however. As winning percentage increased, the effect on FCAT mathematics mean scale score decreased.

Minority Percentage, Socio Economic Status Percentage, Winning Percentage, FCAT Reading Mean Scale Score, and FCAT Mathematics Mean Scale Score on School Grades

Using the data from the entire sample, a linear regression was calculated to determine the effect of minority percentage, socio economic status percentage, winning percentage, FCAT reading mean scale score, and FCAT mathematics mean scale score on school grades. The results indicated a weak positive effect (src = .134, p > .05) in 2004-2005, and a weak negative effect (src = -.033, p > .05) in 2005-2006 of minority percentage on school grades. The results were not statistically significant, however. As minority percentage increased, the effect on school grades decreased. In determining the effect of socio economic status percentage on school grades, the effect indicated a weak negative effect (src = -.089, p > .05) in 2004-2005, and a weak positive effect (src =.078, p > .05) in 2005-2006 of socio economic status percentage on school grades. The results were not statistically significant, however. As socio economic status percentage increased, the effect on school grades decreased. Although not a direct significant effect on school grades, it is important to mention that socio economic status percentage had a direct significant effect on a school's FCAT scores they received. In determining the effect of winning percentage on school grades, the results indicated a weak positive effect (src = .021, p > .05) in 2004-2005, and a weak negative effect (src = -.019, p. 05) of winning percentage on

school grades. The results were not statistically significant, however. As winning percentage increased, the effect on school grades decreased. In determining the effect of FCAT reading mean scale score on school grades, the results indicated a strong positive effect (src = .555, $p < .05$ in 2004-2005, and src = .677, $p < .05$ in 2005-2006) of FCAT reading mean scale score on school grades. The results were statistically significant, however. As FCAT reading mean scale score increased, the effect on school grades increased. In determining the effect of FCAT mathematics mean scale score on school grades, the results indicated a weak positive effect (src = .386, $p < .05$ in 2004-2005, and src = .297, $p < .05$ in 2005-2006) of FCAT mathematics mean scale score on school grades. The results were statistically significant, however. As FCAT mathematics mean scale score increased, the effect on school grades decreased.

It is important to mention that there could be something present in the selected factor for minority percentage to have an effect on school grades; however, the effect here was very small when examined with the constraints of the path model. It would appear that minority percentage was somewhat redundant, in that socio economic status percentage was so overwhelming that anything minority percentage could have been was being overshadowed by socio economic status percentage. This was supported in the total significant effect for socio economic status percentage of - .65 in the 2004-2005 school year, and - .56 in the 2005-2006 school year.

Conclusions

School grades have become the primary means by which the state of Florida assesses the progress of its public school system. Since 1999, this method of assessment has undergone many changes and it is anticipated that it will likely continue to do so in the future. The sample of Florida's public high schools certainly had varying percentages of schools that reflected different grades and scores. Exact numeric scores instead of point ranges for both the 2004-2005

school year and the 2005-2006 school year were used in the study in order for the results to be more reliable. It was expected that FCAT reading mean scale score and FCAT mathematics mean scale score would both materialize as effecting school grades directly. Indeed, both FCAT reading mean scale score and FCAT mathematics mean scale score materialized as having direct significant effects on school grades. It was expected that the remaining selected factors in the study, minority percentage, socio economic status percentage, and football winning percentage would have some direct significance on school grades; however, neither of these remaining factors materialized to have such value. In addition, socio economic status percentage had strong negative effects that were not directly significant toward school grades. Although not a significant direct effect on school grades, socio economic status percentage did have a significant direct effect on the FCAT scores a school received. There were many possible reasons for the unexpected results. First, we need to scrutinize the characteristics of the sample.

The sample contained only public high schools in the traditional model, grades 9 through 12. It did not contain any private schools, magnet schools, or charter schools. These schools were typically higher performing and consequently, providing they received a school grade, would have received a grade not representative of the majority of the schools within the sample. Therefore, excluding these types of schools from the sample eradicated the problem of having specialty schools with expected high academic performance.

The number of schools that reflected school grades in the sample was also a concern. The public high schools in the sample was (N=316) for both the 2004-2005 school year and 2005-2006 school year. This sample size may not have provided enough of a wide range of school grades which suggested that many schools in the sample may not be representative of the direct and indirect effects on school grades. If the number of schools that reflected school grades in the

sample were indeed a strong factor, then the difference in the selected factors may not be as indifferent with a close homogenous sample. The comparison of 2004-2005 and 2005-2006 school grades warrant further examination.

Exact numeric school grades were used in the sample for each school in order to make the results more reliable. This measure of analysis was included so that point ranges for each school letter grade would not have to be used, and therefore, misrepresent all schools having a particular letter grade with the same numeric score. The sample had an average school grade of 364 (C) for the 2004-2005 school year, and an average school grade of 366 (C) for the 2005-2006 school year. There were 45 'A' public high schools (14.24%) in 2004-2005 compared to 43 'A' public high schools (13.61%) in 2005-2006. There were 66 'B' public high schools (20.89%) in 2004-2005 compared to 79 'B' public high schools (25.00%) in 2005-2006. There were 115 'C' public high schools (36.39%) in 2004-2005 compared to 123'C' public high schools (38.92%) in 2005-2006. There were 84 'D' public high schools (26.58%) in 2004-2005 compared to 61 public high schools (19.30%) in 2005-2006. There were 6 public high schools (1.90%) in 2004-2005 compared to 7 public high schools (2.22%) in 2005-2006. It should be noted that the 2004-2005 school year sample contained 0 public high schools with the school grade of 'I', while the 2005-2006 school year sample contained 4 public high schools (1.27%) with the school grade of 'I'. In addition, the 2004-2005 school year sample contained 0 public high schools with the school grade of 'P', while the 2005-2006 school year sample contained 3 public high schools (9.49%) with the school grade of 'P'. Further analysis revealed that in both the 2004-2005 and 2005-2006 school years, schools that received higher school grades had lower selected factor comparisons with the exception of FCAT reading mean scale score and FCAT mathematics mean scale score.

This examination indicated that in the 2004-2005 school year and the 2005-2006 school year, specific predictions could be made pertaining to the selected factors toward school grades. For example, as minority percentage and socio economic status percentage increased, school grades decreased. However, socio economic status percentage did affect the FCAT scores a school received, and therefore, affected school grades indirectly. As FCAT reading mean scale score and FCAT mathematics mean scale score increased, school grades increased. The significant direct effect of FCAT reading and mathematics mean scale scores on school grades were expected since these scores constitute what school grades are comprised of. Football winning percentage didn't generate effects on school grades with the same influence the other selected factors did. It is unfortunate that these similar results didn't materialize for football winning percentage; however, maybe it was because they existed outside the academic realm of school grades. In addition, the indirect effect of socio economic status percentage on school grades could indicate that schools attempting to achieve a high school grade could best be attained in demographic areas that maintained favorable economic conditions conducive toward student achievement. Schools in which the selected factors of minority percentage and socio economic status percentage are high are faced with the reality of struggling to meet desirable outcomes in terms of student achievement.

The sample contained public high schools in the state of Florida in which the direct and indirect effects of the selected factors were measured. As part of the state of Florida's Accountability Plan, the Department of Education determined a letter grade for each public school based predominantly on student performance on the Florida Comprehensive Assessment Test. It should be noted that the academic goal for each public high school was to acquire an 'A'

grade. The results of the selected factors on school grades indicated that schools who received higher school grades have less of a chance of being in demographic areas with a high minority percentage and low socio economic status percentage. In addition, the significance of FCAT reading mean scale score compared to the FCAT mathematics mean scale score should not be misrepresented in the study when examining the extent to which the FCAT has evolved.

The significance of FCAT reading mean scale score can be seen in the transformation from the origination of the HSCT in 1994 to the present-day FCAT currently being implemented. The eleventh grade HSCT measured minimum performance standards in communication and mathematics largely composed of multiple choice questions, whereas the FCAT is a tenth grade test that has become more comprehensive with the interpretative and analytical skills needed by students to meet state graduation requirements in both reading and mathematics. Students need to be able to read the information provided to them, assess the information, and apply the information to a specified context. It is possible that this degree of comprehensiveness has been why large percentages of student's reading scores have been below grade level at many secondary schools. Furthermore, the FCAT mathematics mean scale score has reflected higher level mathematic subtests in geometry and algebraic reasoning than the HSCT state graduation test. Students reading levels must now be greater in order to know how to answer mathematical test items relating to test structure, such as those skills needed to assess and answer extended response test items that are often left unanswered. It should be noted that extended response test items are worth more points than multiple choice test items; thus, leading educators to deduce that low reading and writing levels could be primary factors in low mathematical test scores.

Finally, the limitations of the study may not have taken into account variables that would have modified the results. First, the study was limited to the accuracy and type of data

generated by the State of Florida's Department of Education. Four of the selected factors, minority percentage, socio economic status percentage, and academic achievement based on 10th grade reading and mathematics mean scale scores, were derived from the State of Florida's Department of Education. The remaining selected factor, football winning percentage, was derived from the Florida High School Athletic Association. Although not categorized as a limitation, the percentage of socio economic status covariate was used to account for students who are traditionally categorized as at-risk, or economically disadvantaged.

Second, the study was limited to the examination of data obtained from the Florida High School Athletic Association that did not take into account organized sports other than football. The study was limited to the examination of data obtained from the Florida High School Athletic Association that isolated the sport of football which required scores to be reported by its member teams during the regular seasons and did not include winning percentages that extended into post-season competition. It is important to note that not all high schools that fielded a varsity football team are FHSAA members, but are instead members of independent conferences. These schools still must abide by the established rules set forth by the FHSAA; however, and are prohibited from participating in annual post-season competition.

Third, the design of the path model appeared favorable for an ideal study framework. This was supported in the R square being consistently high in some of the linear regressions that were analyzed. However, the design of the model had some constraints that limited the overall effects of the study. This was supported in the analysis of minority percentage and socio economic status percentage on school grades. The design of the path model used in the study permitted socio economic status percentage to overshadow any effect that minority percentage could have had on school grades. In addition, minority percentage and socio economic status percentage

affected school grades only through the selected factor of winning percentage; thus, permitting minority percentage and socio economic status percentage to have little or no direct effect on school grades.

Fourth, the study was limited to the examination of data that did not take into account the effect of continuous educational reforms of No Child Left Behind that impedes measuring the progress of Florida's schools with school grades. According to many researchers (Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, & York, 1966; Conant, 1959; Cotton, 1996; and Spring, 1991) the implementation of educational reform was aimed at assessing the condition and progress of the nation's schools. This was supported in research (Cotton, 1996) where schools were being characterized as inefficient and ineffective and therefore needing radical policy change. Faced with a need to close the achievement gap between disadvantaged and minority students and their peers, the federal government implemented the No Child Left Behind Act in 2001 which redefined its role in kindergarten through grade 12 education of every child (Testing, n.d.). The data analyzed in this study did not account for the continuous modifications that the Florida Legislature is seeking in evaluating the progress of its public school system. The reported effects of these modifications on educational reform may be a strong indicator on how wide the progress of school grades become in the state of Florida.

Recommendations for Future Research

The results postulated that further research of the direct and indirect effects of selected factors on school grades be conducted.

1. This study could be replicated and conducted in other states to determine whether similar results would be obtained.

2. This study could be replicated in the state of Florida to include all schools that receive school grades and field a varsity football team, such as junior-senior high schools, middle-senior high schools, charter schools, specialized magnet schools, vocational, laboratory schools, preparatory schools, and specialized magnet schools.
3. A study could be conducted that included factors to measure the direct and indirect effects of school size and graduation rates on school grades.
4. A study could be conducted that included factors to measure the direct and indirect effects of student violence on school grades.
5. A study could be conducted that included factors to measure future inclusions of student achievement and student learning gains, such as the Florida Writes requirement , 10^{th} grade science mean scale scores, and other subject content not currently part of the state mandate for graduation.
6. A study could be conducted that included changes to the path model to reflect minority percentage more accurately in the effect toward the designation of school grades.
7. A study could be conducted that included participation in sports to account for any ancillary variables that may contribute to the effects of the designation of school grades.

APPENDIX A
HISTORY OF STATEWIDE ASSESSMENT PROGRAM (HSAP)

Miller, Joseph@SCHS

From: Dukes, Lavan [Lavan.Dukes@fldoe.org]
Sent: Monday, October 16, 2006 8:43 AM
To: Miller, Joseph@SCHS
Subject: RE: Written Permission

Sorry for being so slow in getting back. (I have heard from the DOE attorney and it is OK for you to use information from the EIAS website. The copyright applies to the look of the page, not the data included.

I will send a separate email granting permission.

Lavan Dukes 850/245-0400, SC 205-0400

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DOE Customer Survey

From: Miller, Joseph@SCHS [mailto:MillerJ1@brevard.k12.fl.us]
Sent: Tuesday, September 26, 2006 3:39 PM
To: Dukes, Lavan
Cc: Miller, Joseph@SCHS
Subject: Written Permission

Lavan, I wanted to contact you in regard to my request for written permission to use the two documents to submit in my dissertation. The two documents are entitled: *2006 Guide to Calculating School Grades: Technical Assistance Paper and History of Statewide Assessment Program (HSAP)*. Do you have an update at this time on this request?

Thanks,
Joe Miller
Girls Head Varsity Basketball Coach
Space Coast Jr./Sr. High School
6150 Banyan Street
Cocoa, Florida 32927
(321)638-0750 Phone
(321-638-0766 Fax

10/29/2006

Miller, Joseph@SCHS

From: Dukes, Lavan [Lavan.Dukes@fldoe.org]
Sent: Monday, October 16, 2006 8:48 AM
To: Miller, Joseph@SCHS
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History of Statewide Assessment Program (HSAP)

SASS Home | HSAP Home

A Chronology of Events: 1990-2000

| 1990-94 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |

The Florida Comprehensive Assessment Test (FCAT) is the latest version of Florida's statewide assessment program. The assessment program was initiated about 1972 and has gone through any changes over the years.

Originally, the assessment program was based on measuring only a sample of students, but this was quickly changed to include all students in selected grade levels. The first series of tests measured students' acquisition of certain minimum competency skills and the program, generally, was called a "minimum competency testing program."

In 1976, the Florida Legislature enacted a new accountability act that moved the statewide assessment tests to grades 3, 5, 8, and 11. The Legislature also authorized the nation's first required high school graduation test, which subsequently was implemented in October 1977.

The concept of a required graduation test was controversial, and the State went through a series of legal challenges culminating in the landmark federal case known as Debra P. v. Turlington. This was a broad-based attack on all aspects of the graduation test, and ultimately, the State prevailed. Students in the graduating class of 1983 were required to pass the competency test to receive a high school diploma.

The Florida Commission on Education Reform and Accountability began conceptualizing the FCAT well before the first test was administered in 1998. In 1995, the Commission recommended procedures for assessing student learning in Florida that would raise educational expectations for students and help them compete for jobs in the global marketplace. The State Board of Education adopted the recommendations, called the Comprehensive Assessment Design, in June 1995. The Design specified the development of new statewide assessments to address four broad areas described in the first four standards of Goal 3 of Blueprint 2000. These four areas have been generally referred to as reading, writing, mathematics, and creative and critical thinking. In addition, the Design required that educational content standards be developed and adopted. Subsequently, the Florida curriculum

frameworks, also called the Sunshine State Standards, were developed and adopted by the State Board of Education. The frameworks and standards established guidelines for a statewide system that incorporated assessment, accountability, and in-service training components.

The FCAT was designed to meet both the requirements of the Comprehensive Assessment Design and the rigorous content defined by the Sunshine State Standards. The FCAT measures the content specified within the strands, standards, and benchmarks of the Sunshine State Standards and does so in the context of real-world applications. Initially, the FCAT was designed to assess reading, writing, and mathematics at four grade levels so that each subject was assessed at all levels of schooling: elementary, middle, and high. With legislative approval of Governor Bush's A+ Plan in 1999, the FCAT was expanded to include grades 3-10. In 2001, achievement for all grade levels will be reported for the first time. The FCAT will become the test required for high school graduation for the class of 2003.

1990 - 1994 will be available soon.

The remainder of this document includes a description of the activities that have been completed since 1995.

1995

In 1995, a Request for Proposal (RFP) was written for the design, development, field testing, and implementation of new statewide assessments at the elementary, middle, and high school levels for a four-year period. CTB/McGraw-Hill was recommended as the successful bidder based on a competitive review of all proposals received. Tests in reading at grades 4, 8, and 10, and in mathematics at grades 5, 8, and 10 were added to the ongoing assessment of writing at grades 4, 8, and 10.
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1996

In 1996, the State Board of Education approved the Sunshine State Standards as Florida's new academic standards, which were then distributed to school districts. The State Board of Education approved a contract with CTB/McGraw-Hill for the development of the FCAT as an assessment tool. In addition, the 1996 Florida Legislature passed laws recognizing the Sunshine State Standards as the academics standards for Florida students, and authorized the February 1997 field testing of FCAT in grades 4, 5, 8, and 10.

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1997

In February, all students in grades 4, 5, 8, and 10 participated in the field test of FCAT reading and mathematics. Four field-test forms were utilized at each grade level to obtain statistical information on a large pool of items. The purpose of the field test was to evaluate the quality of the items before they were included on a test on which students received scores. Using these results, the first form of FCAT was developed.

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1998

In January, students in grades 4, 5, 8, and 10 took the FCAT reading and mathematics tests for the first time. The tests, administered for baseline data, included some performance assessment items and measured students' skills in grades 4 (reading), 5 (math), 8 (reading and math), and 10 (reading and math). In May 1998, the districts, schools, and parents received the baseline FCAT results. Although the FCAT results were not used for accountability purposes in 1998, the preliminary results were released to schools.

Also in 1998, the Florida Legislature changed the language of Section 229.57, F.S., to permit the identification of students who would not be required to take and pass the High School Competency Test (HSCT). The law permits the Commissioner of Education to designate scores on the tenth-grade Florida Comprehensive Assessment Test (FCAT) and to identify those students whose proficiency is sufficiently strong so as not to be required to take the HSCT.

In the early fall of 1998, educators, citizens, and business leaders from across the state were involved in a process that led to the development of achievement levels on FCAT. The State Board of Education subsequently adopted the achievement level standards that enabled FCAT scores to be reported in a manner consistent with the legislative requirement. In addition, the Commissioner designated the score level for the exemption from HSCT. Students earning an FCAT total mathematics score of 315 or higher were not required to take the HSCT mathematics test; students earning an FCAT total reading score of 327 or higher were not required to take the HSCT communications test. Attaining a high score on the FCAT thus provided an exemption from the HSCT.

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1999

In February 1999, the second administration of the FCAT occurred for grades 4, 5, 8, and 10. School accountability for student performance on the FCAT began with the release of these results.

The results from this administration were used in assigning school grades.

The 1999 Florida Legislature authorized an expansion of the state student assessment program. This included additional grade levels and a norm-referenced test component. The requirements of the new law necessitated additional testing services. A Request for Proposal (RFP) was issued in January that addressed development and administration of the expanded FCAT program. Harcourt Educational Measurement received the test development contract, and a bid dispute occurred over the test administration and reporting contract. The bid dispute went to a hearing officer and the Commissioner of Education ultimately facilitated the resolution of the dispute. National Computer Services (NCS), now NCS Pearson, received the contract for the scoring and reporting of the FCAT results. The first tests administered under the terms of the new NCS test support contract were those given statewide in February and March of 2000.
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2000

The third administration of the FCAT took place in February and March 2000 in grades 3-10. Approximately 1,440,000 students in grades 3-10 took the FCAT. Students in grades 4, 5, 8, and 10 responded to performance tasks that required approximately 23 million individual scores. Additionally, all multiple choice items were scanned and recorded. The FCAT scores were reported for the previously assessed grades. However, the assessment at the new grade levels included the field test of the Sunshine State Standards component, and no scores were reported. Scores on the norm-referenced test component were reported for all students at all grades. For the third time, students in grades 4, 5, 8, and 10 received FCAT score reports; however, districts did not receive their school reports until late June because of processing problems encountered by the contractor (NCS). The 2000 results for grades 4, 5, 8 and 10 were used for assigning school grades.
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APPENDIX B
2006 GUIDE TO CALCULATING SCHOOL GRADES: TECHNICAL ASSISTANCE PAPER 2005-2006

Technical Assistance Paper
2005-06

John L. Winn, Commissioner

This technical assistance paper was prepared by staff in the Evaluation and Reporting Office, Division of Accountability, Research, and Measurement. Questions? Please call (850) 245-0411 or email evalnrpt@fldoe.org.

2006 Guide to Calculating School Grades Technical Assistance Paper

I. Overview

Introduction

The purpose of this technical assistance paper is to provide a description of the procedures used to determine School Grades for the 2006 school year. In 2006, just as in the four previous years, the school grades include three measures of student achievement and three measures of student learning gains. Florida's School Accountability System is being implemented as envisioned by the A+ Plan, passed by the 1999 Florida Legislature. Florida is one of the few states that can track student demographic information from year to year and the first to track annual student learning gains based on the state's academic standards.

School grades have been issued since 1999 with the Florida Comprehensive Assessment Test (FCAT) being the primary criterion in calculating school grades. In 2002, significant improvements were made in how school grades were calculated to fully implement the intent of the A+ Plan. The most noteworthy improvement was the inclusion of student learning gains. Additionally, a measure was added to determine whether the lowest performing students are making annual improvements in reading. Florida's accountability system allows the improvement of individual students to be tracked from one year to the next based on FCAT developmental scores in reading and mathematics in grades 3 through 10.

This paper contains two sections: the Overview (Section I) and the Process for Calculating School Grades (Section II). These sections describe a series of procedures for determining a school's final grade and are intended for knowledgeable audiences who are interested in the details of determining the school grades. A more general and concise description of the school grading system is found on the school grading "guide sheet," *Grading Florida Public Schools 2005-2006*, included as Attachment A and also available on the Department of Education website at http://firn.edu/doe/evaluation/.

Specific Authority
The authority for Florida's system of school accountability is detailed in Florida Statute and State Board of Education Rule. It is not the intent of this section to provide a detailed description of the specific contents of the state law and rule. Readers interested in the additional legal information should consult the source documents.
Florida Statutes - Section 1008.34 F.S.
This section of Florida law requires the Commissioner of Education to prepare annual reports of student performance for each school and district in the state. The law specifies the grade categories, the timeframes, and the types of information to be included in the calculations. Further, the law directs the State Board of Education to adopt appropriate criteria for each school grade category and requires that added weight be given to student achievement in reading.

State Board Rule 6A-1.09981
This Rule describes the implementation requirements for Florida's System of School Improvement and Accountability. The State Board of Education revised this rule in November 2003 and March 2006 for clarification and to bring it into closer compliance with the statute. The rule provides policy information as well as procedural guidance for implementing the program. It also specifies which schools are included in the system and the criteria for designating the school grades. In addition, the rule describes the rewards and recognition for schools and the assistance and intervention provisions for low performing schools (D and F).

Summary of the School Grading Criteria
The FCAT is the primary measure of students' achievement of the Sunshine State Standards. School grades are determined by the accumulation of percentage points for six measures of achievement in addition to two other conditions.
Section *6A-1.09981(6)(a)-(f)* of the State Board Rule describes the six performance measures included in the overall grade for a school. Points are calculated as follows:

1. One point for each percent of students who meet high standards by scoring at or above FCAT Achievement Level 3 in reading.

2. One point for each percent of students who meet high standards by scoring at or above FCAT Achievement Level 3 in mathematics.

3. One point for each percent of students who meet high standards by scoring 3.5 or higher on the FCAT writing assessment. In the event that there are not at least 30 eligible students tested in writing, the district average in writing is substituted.

4. One point for each percent of students making learning gains in reading.

5. One point for each percent of students making learning gains in mathematics.

6. One point for each percent of the lowest performing students making learning gains in reading. In the event that there are not at least 30 eligible students, the school's reading learning gains are substituted.

These points are added together and converted into a school grading scale, shown below in Table 1.

Table 1 2006 School Grading Scale

Grade	Total points
A	410 and above
B	380-409
C	320-379
D	280-319
F	Less than 280

In addition to the accumulation of percentage points for each of the six performance measures, schools are also evaluated on the basis of two other conditions:

1. Percent Tested: Schools earning enough total points to receive a grade of A must also test at least 95% of their eligible students. All other letter grade designations are based on a minimum of 90% tested. If any school tests fewer than 90% of their students, the school will initially receive an "I" (incomplete). After investigation, if the percent tested remains less than 90%, the final grade will be lower than indicated by the total points accumulated.

2. Adequate Progress of the Lowest Students: Schools earning enough points to receive a C or above must demonstrate that at least half of the lowest students make annual learning gains. For a school to be designated a grade of A, adequate progress of the lowest students must be met in the current year. For a school to be designated a grade of B or C, adequate progress of the lowest students must be met in the current or previous year. The final grade will be reduced one letter grade for schools failing to meet this criterion.

For purposes of this calculation, the lowest students are the lowest quartile (or 25%) of students scoring in levels 1-3 of the FCAT reading in each grade. The lowest 30 students are substituted when there are not 30 in the lowest quartile. In the event that there are not 30 eligible students scoring in FCAT Achievement Level 3 or below, the percent of students making annual learning gains in reading for all students is substituted for this performance measure.
See Attachment A for a schematic description of the school grading system. Further clarification of the details involved in the calculation of school grades is in the next section of this paper.

II. Process for Calculating School Grades

This section of the paper describes in sequential order the processes involved in evaluating the performance of each school and determining a school grade.

1. Identify the Schools to be Graded

Pursuant to State Board Rule, the Commissioner will determine the school types to receive school grades. All schools serving at least 30 eligible students with valid FCAT scores in reading and math in both the current year and the previous year will receive school grades. This includes new schools. Department of Juvenile Justice Schools do not receive school grades.

2. Identify the Students to be Included

All students enrolled the same school for a full academic year are included in the school grades calculation. The performance of students who are standard curriculum, speech impaired, gifted, hospital homebound, and limited English proficient who have been in an English for Speakers of Other Languages (ESOL) program for more than two years are also included in all components of the school grade calculation. Students who are in exceptional student education and are limited English proficient for less than two years are included only in the participation and learning gains components of the school grade; they are not included in the components for meeting high standards in reading, math, and writing.

To identify which of the six components of the school grade calculation in which a student should be included, the electronic record of each student in a school must be reviewed to determine his/her eligibility. The following steps briefly describe the process:

Step 2.1 – Determine student ESE and LEP classifications on Survey 3: The exceptional student education (ESE) classification and limited English proficient (LEP) status of each student is determined, and the student is identified as “included” for all components of the school grade if eligibility criteria is met.

a) ESE Status: The electronic record for each student contains up to 20 possible ESE classifications, as well as the student’s entry date into the ESE program. ESE students are included in the school grade calculations when their only exceptionality is gifted (L), hospital/homebound (M), speech impaired (F), or a combination of those three. Students with any other disability are not included in school grades. Students must be enrolled in an ESE program prior to testing to be excluded from the school grading calculation.

b) LEP Status: LEP students are included in the school grading system when they have been in an English for Speakers of Other Languages (ESOL) program for more than two years prior to testing.

If a student is in exceptional student education or is limited English proficient and does not meet the criteria set forth in a) or b), the student is included only in the calculation of participation and learning gains components.

Step 2.2 – Determine full academic year status: Students are included in the school grading system if they have been enrolled in the same school for a full academic year. Students are considered continuously enrolled for a full academic year if they were enrolled in the same school during the October and February FTE (full-time equivalent) counts. This determination is made by matching the "Student Number Identifier, Florida" in the Survey 3 file to the "Student Number Identifier, Florida" in the Survey 2 file by district and school.

Step 2.3 – Identify the grade 10 students who have previously passed the FCAT: Grade 10 students who have previously passed the grade 10 FCAT reading and/or mathematics will not be included in the school grading calculations. The identification process is completed separately for reading and for mathematics. Because there is no passing score for FCAT Writing, all enrolled tenth grade students must take the writing test, even if they have already passed the reading and/or mathematics tests.

Step 2.4 – Obtain corrections from the school districts: Lists of students to be included in school grades are identified by the Department and shared with the school districts in electronic form. Corrections and updates are submitted directly to the Evaluation and Reporting Office, and corrected files are posted for district review. Districts are given the opportunity to correct data twice. Any errors that remain after the second round of corrections cannot be corrected during the appeals process. A general description of the correction/update process is provided below.

a. Unmatched Identification Numbers: If there are students who were present for a full academic year but the student ID on Survey 2 does not match the student ID on Survey 3, this results in unmatched records. Districts are required to match these students by providing one student ID to the Office of Evaluation and Reporting.

b. Non-public school students taking courses at public schools: Home schooled and private school students who receive services from a public school are excluded from calculations if N998/9998 (Home Education) or N999/9999 (Private School) is reported as the primary school number in the "Current Enrollment" field of Survey 3. For students whose primary instructional school has been misidentified, districts must report the correct primary school number to the Office of Evaluation and Reporting.

c. LEP status during FCAT is different from Survey 3: Only LEP students who were enrolled in an ESOL program for more than 2 years at the time of testing are included school grade calculations. Updated information must be provided for students who enroll in an ESOL program after Survey 3 but before testing (March 5 in 2006 for all districts, except Broward and Dade because they tested late, it is March 12, 2006).

d. ESE status during FCAT is different from Survey 3: All students who are enrolled in designated ESE programs prior to testing are not included in school grade calculations (exemptions noted above). Updated information must be provided for students who are

enrolled in a program after Survey 3 but before testing (March 5 in 2006 for all districts, except Broward and Dade because they tested late, it is March 12, 2006).

e. Withdrawal, promotion, and demotion status prior to testing: All students who were withdrawn from school or who were promoted or demoted out of the FCAT testing range after Survey 3 and prior to FCAT testing must be identified for exclusion from the school grade calculation.

f. 10th grade FCAT graduation requirements met prior to testing: All 10th grade retained students who have passed the reading and/or math FCAT prior to testing are not included in the school grade calculation. Districts must ensure that these students are appropriately identified.

g. Inaccuracies in the data reported in Survey 3: Districts were given an opportunity to correct inaccuracies in data used for the school accountability calculations and reported in Survey 3.

Step 2.5 – Creation of the Membership File: Upon completion of both rounds of error corrections, a final file is created and referred to as the Membership File. The Membership File is used for all accountability calculations.

3. Obtain Student FCAT Scores

The Evaluation and Reporting Office works closely with the K-12 Assessment staff to obtain accurate FCAT data on all students. The matching process is similar to that used for the matching of Survey 2 and 3. After the initial matching process is complete, districts are provided a list of unmatched and mismatched students. School districts must return updated and corrected information for each student. The extent to which this step is completed correctly by the school districts affects the Department's ability to include the maximum number of eligible students in the school grading process. The matching and corrections processes are briefly summarized below.

Step 3.1 – Identify FCAT records with blank or duplicate Student IDs: For records with a blank or duplicate FCAT Student ID, districts must provide the matching student ID from the Membership File for inclusion of student results.

Step 3.2 – Match Membership files to FCAT files by district, school, and student ID: The Membership File is matched to FCAT files using district, school, and student ID. Unmatched records are flagged and districts must provide the matching fields from the Membership File for inclusion of student results.

Step 3.3 – Identify FCAT records that have missing prior year FCAT data: Any record that does not contain prior year test results will be flagged. Districts must report correct prior year print after scan numbers that are associated with the missing data for Reading, Math, and Writing.

Step 3.4 – Update FCAT records with district corrections: Upon completion of error corrections, student results in the FCAT file should be closely matched to the students enrolled in the Membership File.

Note: This process is completed for all students tested not just those to be included in the school grading process. This is important for two reasons. First, scores for these students might be needed for determining learning gains the following year if the students become eligible for inclusion, e.g., students in limited English programs for more than two years. Secondly, because all students are included in determining Adequate Yearly Progress under the federal No Child Left Behind Act, it is necessary to correct all Student IDs.

4. Compute the Percentage Points for Each Performance Measure
The six performance measures evaluated as part of determining school grades can be grouped into three categories:

• The percent of students achieving high standards (steps 4.1-4.3),

• The percent of students making learning gains (steps 4.4-4.5), and

• The percent of the lowest performing students who make learning gains (step 4.6). Although the computations are similar within each category, the computations for each performance measure are described separately in the following sections.

Step 4.1 – Calculate Reading Performance: This component focuses on the extent to which eligible students scored sufficiently high on the reading portion of the FCAT to be considered “on grade level.” Schools accumulate one point for each percent of eligible students scoring in FCAT Achievement Levels 3, 4, and 5 in reading. The number of eligible students scoring in levels 3-5 is divided by the total number of eligible students who took the FCAT reading test.

Step 4.2 – Calculate Mathematics Performance: This component focuses on the extent to which eligible students score sufficiently high on the mathematics portion of the FCAT to be considered “on grade level.” Schools accumulate one point for each percent of eligible students scoring in FCAT Achievement Levels 3, 4, and 5 in mathematics. The number of eligible students scoring in levels 3-5 is divided by the total number of eligible students who took the FCAT mathematics test.

Step 4.3 – Calculate Writing Performance: This component recognizes the traditional objective that students be able to write a composition that meets at least minimal requirements. The percentage points earned take into account the percent of students scoring 3.5 and above. The number of eligible students scoring 3.5 and above is then divided by the number of eligible students who took the writing test.

In a hypothetical school, there were 131 eligible students who took FCAT Writing. Ninety-four students scored 3.5 and above. The percent meeting high standards in writing at this hypothetical school is 72%: (94 students 3.5 and above/131 eligible students).
Note: If fewer than 30 eligible students were tested in writing, the district writing average is substituted for writing.

Step 4.4 – Calculate Reading Gains: Including learning gains as a performance measure for determining school grades was initiated in 2002. It emphasizes the importance of learning a year's worth of knowledge in a year's worth of time. Individual student learning gains are determined by comparing each student's prior year test score to the current year test score using three different methods. Schools earn one point for each percent of students who make learning gains in reading. Students make learning gains by any one of the three methods described below. Students can

a. improve one or more achievement levels, e.g., from 1-2, 2-3, 3-4, or 4-5;

b. maintain their achievement levels within levels 3, 4, or 5; or

c. demonstrate more than one year's growth when remaining in achievement level 1 or 2 for both years. Under this alternative, one year's growth is defined in terms of the difference between a student's current year and prior year FCAT developmental score. Students who remain in levels 1 or 2 are credited with learning gains for reading if they improve more than the cut-off scores shown in Table 3.

Note: Retained students are included in methods a. and b. above but not in method c. because the definition of one year's growth is based on taking the FCAT at the next higher grade. Also, when achievement level scores drop, e.g., 4→3, they are not included in the calculation of learning gains, even if the lower score is on or above grade level.

Table 3 One Year's Growth Definition for FCAT Reading Developmental Scores

Grade 4	230
Grade 5	166
Grade 6	133
Grade 7	110
Grade 8	92
Grade 9	77
Grade 10	77

Step 4.5 – Calculate Mathematics Gains: This component is parallel to the reading procedure described in step 4.4. Individual student learning gains are determined by comparing each student's prior year test score to the current year test score using three different methods. Schools earn one point for each percent of students who make

learning gains in mathematics. Students make learning gains by any one of the three methods described below. Students can
a. improve one or more achievement levels, e.g., from 1-2, 2-3, 3-4, or 4-5;

b. maintain their achievement levels within levels 3, 4, or 5; or

c. demonstrate more than one year's growth when remaining in achievement level 1 or 2 for both years. Under this alternative, one year's growth is defined in terms of the difference between a student's current year and prior year FCAT developmental score. Students who remain in levels 1 or 2 are credited with learning gains for mathematics if they improve more than the cut-off scores shown in Table 4.

Note: Retained students are included in methods a. and b. above but not in method c. because the definition of one year's growth is based on taking the FCAT at the next higher grade. Also, when achievement level scores drop, e.g., 4→3, they are not included in the calculation of learning gains, even if the lower score is on or above grade level.

Table 4 One Year's Growth Definition for FCAT Mathematics Developmental Scores

Grade 4*	162
Grade 5	119
Grade 6	95
Grade 7	78
Grade 8	64
Grade 9	54
Grade 10	48

Step 4.6 – Calculate reading gains for the lowest performing students: Special attention is given to the reading gains of the lowest 25% of students or lowest 30 scoring in FCAT achievement levels 1, 2, or 3 in each school. The students included in the calculations for this component are students who

a. meet all criteria for inclusion in school grade calculations for the current year;

b. have both a prior year score and a current year score on FCAT reading;

c. are ranked in the lowest 25% based on their prior year FCAT reading developmental scale scores; and

d. have a prior year score less than or equal to an achievement level 3 score.

The procedure used to identify the lowest 25% of the students in a school is applied separately by grade, and the identified students are combined across all grades to determine learning gains. The first step is to rank the scores of all students in the grade

from highest to lowest based on their prior year reading developmental scale scores. Students without a prior year score are not included. The second step is to identify the developmental scale score that corresponds to the percentile rank of 25. This is not the same as sorting the scores descending as ranking allows for duplicate scores. This scale score becomes the boundary score. The boundary score must not be in FCAT achievement levels 4 or 5. Any student who has a score equal to or below the boundary score is included in the lowest 25%. Students from all grades are combined to form the total pool of students to be evaluated. If the total number of students in the lowest 25% is 30 or more, the percent making learning gains is calculated as described in Step 4.4. If the total number of students in the lowest 25% is less than 30, then the following iterative process is used to determine the 30 or more students who will be included in the lowest performing group. The next developmental scale score higher than the boundary score is identified (separately for each grade). If this new boundary score is equal to or less than an achievement level 3 score, then all students attaining the next higher developmental scale score for each grade are identified and included in the lowest performing group. If the number of students at this point is not at least 30, the step is repeated. After thirty or more students are identified, the percent making learning gains is determined as described in Step 4.4.

If there are not 30 or more students who scored at or below achievement level 3 in the prior year, the reading gains of all students calculated in step 4.4 will be substituted.

The examples in Table 5 illustrate how this component is evaluated.

Table 5 Example of Learning Gains for the Lowest 25% in Reading		
	Shell Elementary School	Dolphin Middle School
Number of eligible students included in the current year school grade	125	1050
Number of eligible students with prior year FCAT reading scores	100	1000
Students in the lowest 25% based on the prior year's FCAT reading scores that are less than or equal to an achievement level 3 score	25	250
Is the number 30 or more?	No	Yes
Identify next higher developmental scale score for each grade that is less than or equal to an achievement level 3 score and add the students attaining that score to the group	29	
Is the number 30 or more?	No	
Identify next higher developmental scale score for each grade that is less than or equal to an achievement level 3 score and add the students attaining that score to the group	40	
Is the number 30 or more?	Yes	
Number showing learning gains	12	150
Percent showing learning gains	30% (12/40)	60% (150/250)
If there are not 30 or more students who scored at or below achievement level 3 in the prior year, the reading gains of all students will be substituted.	If <30 Substitute Reading Gains of All students	

5. Determine the Percent Tested

The procedure for estimating a school's percent tested was developed long before school grades were first calculated. Starting in 1995, the estimating procedure was developed in cooperation with district testing directors and has been modified only slightly over the years. It has always been a straightforward approximation.

The estimate of the percent tested is calculated by dividing the total number of eligible students tested in each subject by the number of eligible students in membership who are expected to take each subject test. Eligibility for school grades participation is defined as those students who are enrolled in the same school for a full academic year. All students are included in the participation calculation unless the student took an alternate assessment because the Florida Comprehensive Assessment Test was not appropriate for the student due to a disability or limited English proficiency. Note that this is a different calculation and population than those students used to calculate percent tested for the No Child Left Behind (NCLB) Adequate Yearly Progress (AYP). The example in Table 6 shows how the percent tested for a hypothetical high school is calculated.

Table 6 Example for Estimating the Percent Tested

	Number Tested	Eligible Membership	Percent Tested
Reading	620	680	
Mathematics	640	680	
Writing	340	350	
Totals	1600	1710	94%

An adjustment of the membership is included to take into account that some students in the membership have actually taken FCAT, but those scores never show up because the students may have answered too few items to generate a score or their test was invalidated due to a testing irregularity. Another adjustment is included for retained grade 10 students who have previously taken and passed the FCAT. These adjustments are accomplished by either adjusting the number tested (the numerator) or the number in membership (the denominator) as appropriate.

6. Determine the Total Points and the Final School Grade
This step is very straightforward.

1. All percentage points are accumulated for each performance measure and added together to obtain the total points.

2. Schools earning enough total points to receive a grade of A must also test at least 95% of their eligible students. All other letter grade designations are based on a minimum of 90% tested. For schools testing less than 90%, the final grade will be one letter grade lower than indicated by the total points accumulated.

3. Schools earning enough points to receive a C or above must demonstrate that at least half of the lowest students make annual learning gains. For a school to be designated a grade of A, adequate progress of the lowest students must be met in the current year. For a school to be designated a grade of B or C, adequate progress of the lowest students must be met in the current or previous year. The final grade will be reduced one letter grade for schools failing to meet this criterion.

Table 7 Summary of School Grading Criteria	
Grade	**Grading Criteria**
A	• 410 points or more • 95% tested or more • Make adequate progress (50%) in the current year with the lowest performing students
B	• 380 points or more • 90% tested or more • Make adequate progress (50%) with the lowest performing students in either the current or the previous year
C	• 320 points or more • 90% or greater tested • Make adequate progress (50%) with the lowest performing students in either the current or the previous year
D	• 280 points or more • 90% tested or more
F	• Fewer than 280 points • 90% tested or more
I	• Less than 90% tested (Schools initially receive a grade of "incomplete" while the status is investigated.)

7. Review of School Grades

State Board Rule 6A-1.09981(9) requires each district to have an accountability contact person to verify that each school is appropriately classified, that students have been correctly identified and properly included for school grading, that matching FCAT records and previous year FCAT records can be identified, and that each school grade was calculated as specified in the Rule. The Rule also permits a 30-day period of time for districts to review the grade assigned. Therefore, the Florida Department of Education has instituted an appeals process described in this section. Requests for grade changes related to the specific requirements of the statute or rule cannot be granted and should not be submitted.

If a school district identifies a data miscalculation or circumstances that might result in the assignment of a different grade, the district can participate in the school grade review process. Appropriate documentation of all elements and data to be reviewed by the Department must be submitted within thirty (30) days from the date of the school grades release. These requests must be submitted by the school district accountability contact rather than by individual schools. Appeals that do not comply with the detailed instructions from the Department will not be reviewed.

Following the thirty (30) day appeal window, the Department of Education will review the appeals documentation and present recommendations to an appeals committee for their review and recommendations. Final recommendations will be made to the Commissioner of Education, and the Commissioner's determination of a school's grade shall be final. The Department will notify each district Superintendent and accountability contact of the final school grade after the final decision of the Commissioner. Local

district officials, as designated by the Superintendent, are responsible for notifying individual schools.

GRADING FLORIDA PUBLIC SCHOOLS 2005-2006

DEPARTMENT OF EDUCATION, JOHN L. WINN, COMMISSIONER, www.fldoe.org

School grades for 2005-06 utilize a point system. Schools are awarded one point for each percent of students who score *high on the FCAT and/or make annual learning gains.*

Scoring High on the FCAT

The Florida Comprehensive Assessment Test (FCAT) is the primary measure of students' achievement of the Sunshine State Standards. Student scores are classified into five achievement levels, with 1 being the lowest and 5 being the highest.

⇒ Schools earn one point for each percent of students who score in achievement levels 3, 4, or 5 in **reading** and one point for each percent of students who score 3, 4, or 5 in **math**.

⇒ The **writing** exam is scored by at least two readers on a scale of 1 to 6. Schools earn one point for each percent of students scoring 3.5 or above. If a school does not have writing scores, the district average for all students in writing will be used.

Making Annual Learning Gains

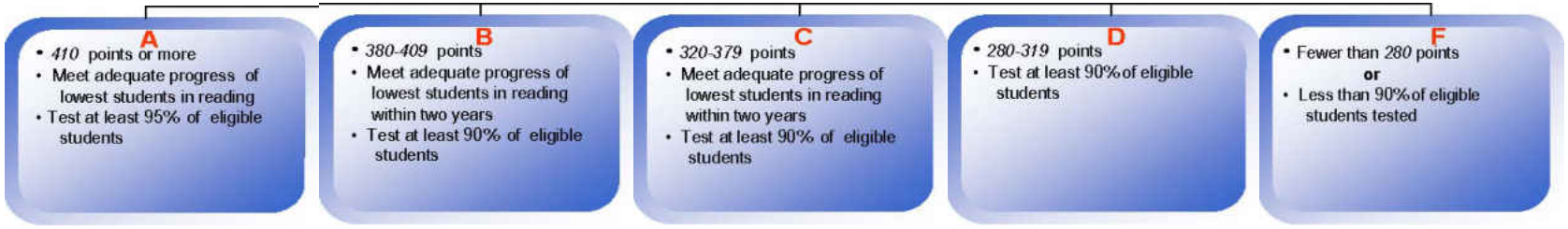
Since FCAT **reading and math** exams are given in grades 3 – 10, it is possible to monitor how much students learn from one year to the next.

⇒ Schools earn one point for each percent of students who make learning gains in reading and one point for each percent of students who make learning gains in math.
Students can demonstrate learning gains in any one of three ways:

(1) Improve achievement levels from 1-2, 2-3, 3-4, or 4-5; **or**
(2) Maintain within the relatively high levels of 3, 4, or 5; **or**
(3) Demonstrate more than one year's growth within achievement levels 1 or 2 (does not include retained students).

⇒ Special attention is given to the reading gains of students in the lowest 25%[1] in levels 1, 2, or 3 in each school. Schools earn one point for each percent of the lowest performing readers who make learning gains from the previous year. It takes at least *50%* to make "adequate progress" for this group.

SCHOOL GRADING SCALE

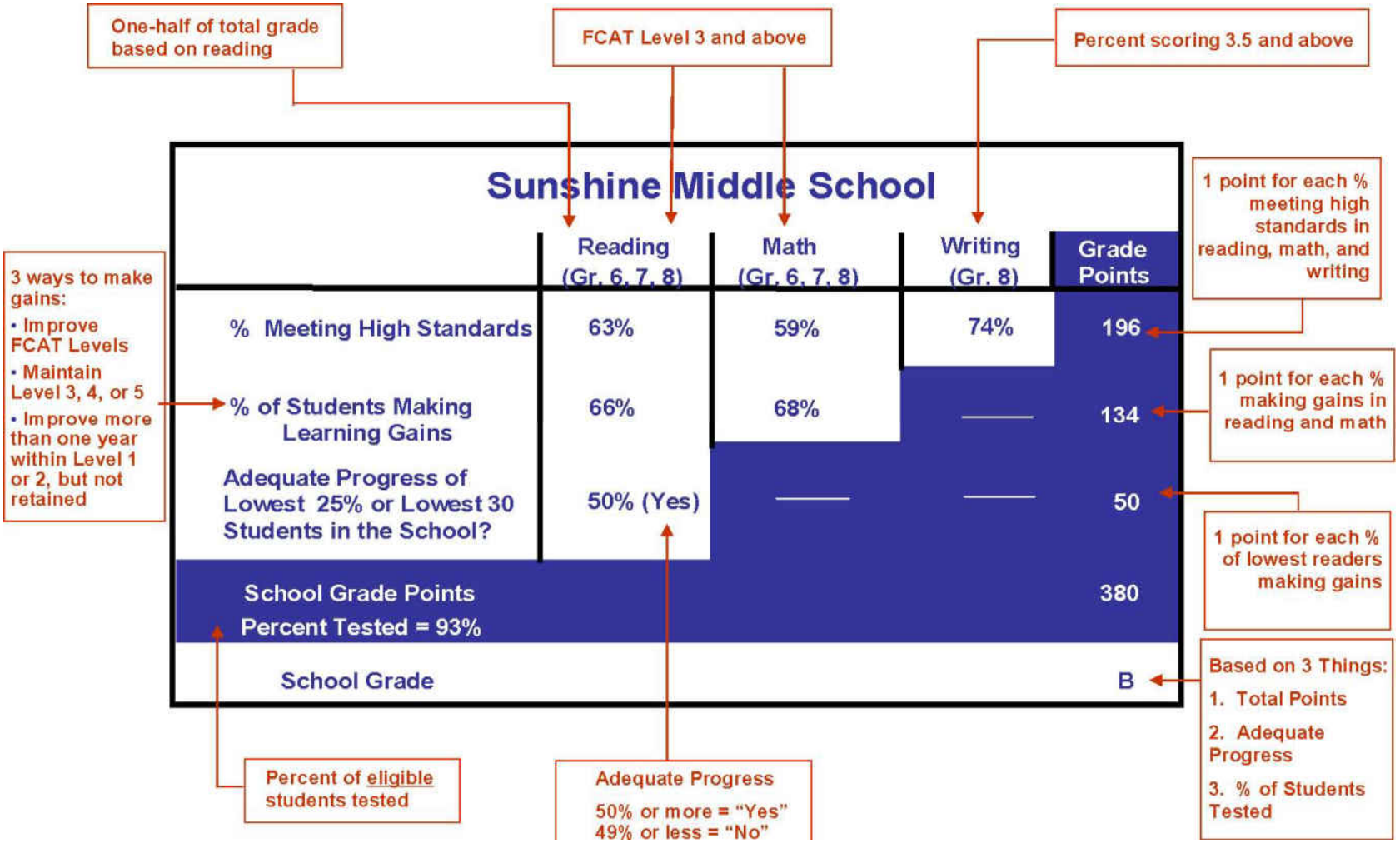


Which students are included in school grade calculations? As in previous years, only standard curriculum students (including Speech impaired, gifted, hospital/homebound, and limited English proficient students (LEP) with more than two years in an ESOL program) enrolled in the same school in both October and February are included in the components for scoring high on the FCAT. For the first time in 2004-05, students with disabilities and LEP students will be included in the learning gains component of the school grade calculation.

What happens if the lowest students in the school do not make "adequate progress" in reading? Schools that aspire to be graded "C" or above but do not make adequate progress with their lowest students in reading must develop a School Improvement Plan component that addresses this need. If a school otherwise graded "C" or "B" does not demonstrate adequate progress in either the current or prior year, the final grade will be reduced by one letter grade. If a school otherwise graded "A" does not demonstrate adequate progress in the current year, the final grade will be reduced by one letter grade.

1For schools with fewer than 30 students in the lowest 25%, the 30 lowest performing students will be substituted.

Example Report for 2006



Attachment B
Definition of One Year's Growth in the A+ Accountability System

Florida's A+ school accountability system has three major components:

• Yearly achievement of high standards in reading, mathematics and writing;

• Annual learning gains in reading and mathematics; and

• Annual learning gains in reading for the lowest 25% of students in each school.

The definition of learning gains is spelled out in State Board of Education *Rule 6A-1.09981*. There are three ways that schools can be credited for the annual learning gains of their students:

1. when students improve their FCAT achievement level from one year to the next;

2. when students maintain their achievement levels within 3, 4 or 5 from one year to the next; or

3. when students demonstrate more than one year's growth within Levels 1 or 2, as measured by an increase in their FCAT developmental scores from one year to the next.

The first two gain definitions are relatively straightforward because student achievement level information is readily available from the FCAT student report and district test data files provided by the Department. The third definition is more complex since it is based on the amount of gain that represents one year's growth. Thus, a definition of "one year's growth" in terms of FCAT developmental scale score gain is required.

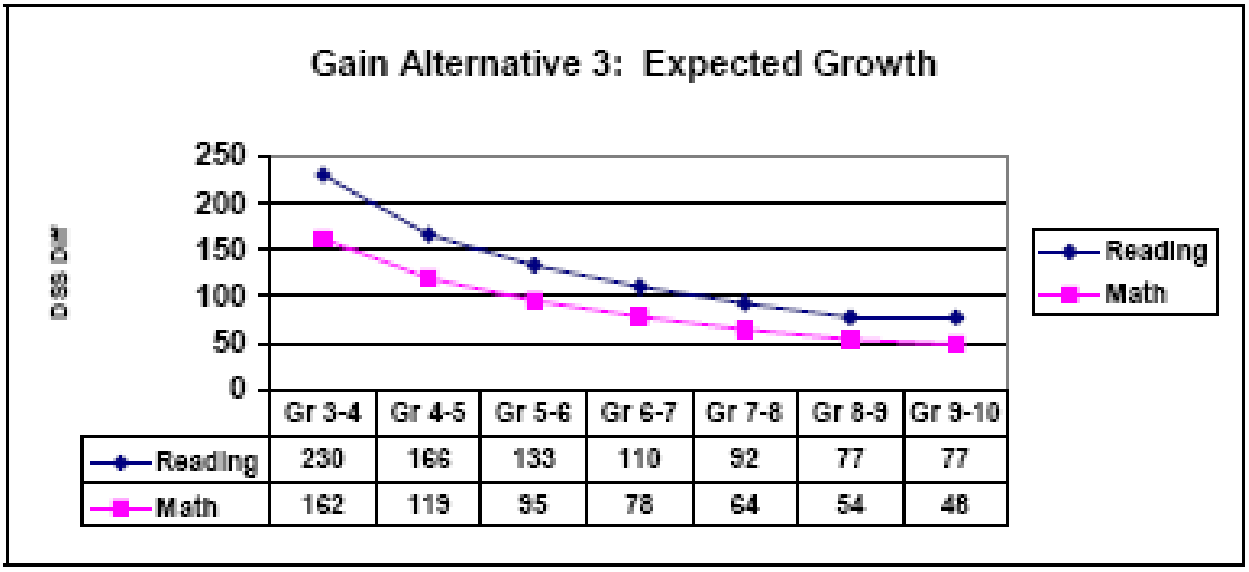
The definition of "one year's growth" applied to the third gain option for calculating school grades is based on the numerical cut-scores for the FCAT achievement levels approved by the State Board of Education. In State Board Rule 6A-1.09422, there are four cut-off scores that separate FCAT scale scores into five achievement levels, with Level 1 being the lowest and Level 5 being the highest. At each of the four cut-off scores between achievement levels, FCAT scale scores (100-500) were converted to FCAT developmental scores that range from 0-3000. This allows all of the cut scores to be placed on the same scale. The increase in FCAT developmental scores necessary to maintain the same relative standing within achievement levels from one grade to the next was calculated for each of the four cut points between the five achievement levels.

The following table provides an example of how the three preceding steps were applied to the reading cut points from grade three to grade four:

Grade 4 Example					
Grade	**Measure**	**Level 1-2 Cut**	**Level 2-3 Cut**	**Level 3-4 Cut**	**Level 4-5 Cut**
3	FCAT scale score	258	283	331	393
	Developmental score	1045	1197	1488	1865
4	FCAT scale score	274	298	338	385
	Developmental Score	1314	1455	1689	1964
3 – 4	Difference in Developmental Scores at the cut points	269	258	201	99
Midpoint of differences at the cut points			230		

The last line of the table shows the expected gain from one achievement level to the next is different, depending on the initial achievement level of the student. To produce a single value that represents the entire student population, the median value of the differences is calculated. The median of the four developmental scale score differences necessary for students to maintain the same relative standing within an FCAT achievement level in the example is 230. The median was considered more appropriate than the average or maximum of the four values because the median is less sensitive to very high or low values.

After median gain expectations were determined for each grade progression (3-4, 4-5, 5-6, 6-7, 7-8, 8-9, and 9-10), a best-fit curve (logarithmic trend line) was calculated, beginning at grades 3-4 and ending at grades 9-10. Other curve fits were considered, including regression lines and polynomial transformations; however, the logarithmic trend line was adopted because it best described the theoretical expectation of greater gains in the early grade levels and lesser at the upper grade levels due to student maturation. The expected gain values for reading and mathematics were obtained separately. The following chart provides the values used to define one year's growth.



It is important to note the following points:

• For purposes of school accountability calculations under the third gain alternative, *6A-1.09981* requires that students who remain within FCAT Achievement Levels 1 or 2 must demonstrate more than one year's growth on the FCAT developmental scale, as determined by the Department. Therefore, for students to be credited with learning gains under the third alternative, they must achieve at least one developmental scale score point more than the values listed above.

• The definition of "one year's growth" in terms of the FCAT developmental score applies to all students who are promoted from one grade level to the next. It cannot be ascertained for retained students who take the same level of the test in two consecutive years.

Other methods for defining one year's growth were also considered prior to the adoption of the procedures described herein. These alternative procedures are described briefly for historical purposes, but each of these options was determined to be less desirable than the one adopted. (1) Expected growth amounts could have been calculated using observed differences in students' developmental scale scores for two consecutive years; however, this approach would lock in expected growth values based on the first year of available gain data and might not reflect actual growth patterns in future years. (2) Expected growth could have been defined at some point in the future after tracking actual cohorts of students over multiple years and determining their average yearly gains; however, this would have delayed the use of learning gains in the accountability system for several more years. (3) The definition of "one year's growth" could have been done separately for students within each of the five achievement levels; however, this method would result in different standards for different students. (4) The definition of

“one year’s growth” could have been based on the values obtained from grades 3-10 without statistical smoothing; however, this would lead to widely fluctuating expectations from grade to grade.

In summary, the definition of “one year’s growth” applied to the calculating of learning gains was based firmly on the numerical cut-scores approved by the State Board of Education for the FCAT achievement levels. The numeric values of the learning gain expectations represent the average progress expected of students from grade to grade.

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