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The Relationship Among Various Learner Characteristics and Reading Achievement as
Measured by the Florida Comprehensive Assessment Test

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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The Relationship Among Various Learner Characteristics and Reading Achievement, As
Measured by the Florida Comprehensive Assessment Test

Amanda Privé

ABSTRACT

The present study examined the relationships among various learner characteristics and reading achievement, as measured by the Florida Comprehensive Assessment Test (FCAT). Using a multiple regression, the independent variables grade, gender, ethnicity, and motivation to read were used to predict the dependent variable, reading achievement. Participants in this study consisted of 585 students from nine elementary, nine middle, and nine high schools across three districts in Florida.

Using archival data from a database composed by the Florida Center for Reading Research, the FCAT and Motivation to Read Profile were used to compute reading achievement and motivation to read, respectively. FCAT reading achievement was measured by the participant's Sunshine State Standard score in reading, and motivation to read was measured by student responses on the 4-point likert scale of the Motivation to Read Profile. The findings indicate that grade level and motivation to read were significant positive predictors of FCAT reading achievement, and African American and Hispanic ethnicity status were significant inverse predictors of FCAT reading achievement. African American ethnicity status was the strongest predictor of FCAT reading achievement and motivation to read was the second strongest. Gender and mixed

ethnicity status did not significantly predict FCAT reading achievement. Results of this study support the findings of previous research.

Chapter One

Introduction

Statement of the Problem

When President George W. Bush delivered his last education reform proposal to Congress, he reported that 70% of fourth graders are unable to read at a basic level. Data indicated that average reading scores for 17 year-olds have not improved since the 1970's, and in 1998, 60% of 12th graders were reading below proficiency (Florida Department of Education, 2003d). Twelfth grade males and females scored lower in reading on average in 2002 than in 1998, and reading scores for Caucasian and African American twelfth grade students have also declined since 1992 (Florida Department of Education, 2003d). Employers reported in 1999 that 38% of applicants lacked the reading skills needed for the job, twice the number they saw in 1996. Children who never learn to read grow up to have dead-end jobs, live on public assistance, and often wind up serving time in prison (Paige, 2003).

Reading has been identified as a central component to success in our society (Snow, Burns, & Griffin, 1998). The focus on reading has become increasingly important due to the findings that a large proportion of children are not able to read (Howell & Nolet, 2000). The report by Snow et al. entitled *Preventing Reading Difficulties in Young Children* (1998) pointed out that the majority of reading problems that are faced by school aged children could have been avoided by preventative efforts in early childhood.

If these problems can be prevented, then why are many students graduating from high school with poor reading skills (Snow et al., 1998)? Without the ability to read documents that are written at higher reading levels, adolescents and adults will have few if any choices for steady income throughout their life. Many full time jobs require upper level reading skills to be successful. The ability to read is valued for social and economic advancement (Snow et al., 1998).

The United States Department of Education is highly concerned by the rates of high school graduates reading at lower levels, in light of the increasing highly competitive economy. In the long run, the government will end up supporting citizens that are not able to support themselves with their own abilities (Snow et al., 1998). When students leave high school in today's society, they must have more than just mere literacy to survive. Unfortunately, many fail to achieve even the most basic reading skills. High school graduates must be able to read demanding material, to have moderate calculation skills, and be able to problem solve independently (Snow et al., 1998). Despite the grim statistics, all hope is not lost. Reading skills can be impacted through multiple educational variables. Research is consistently showing that different models of learning may encompass numerous kinds of learner characteristics that have been found to facilitate reading (DiPerna et al., 2002)

State Accountability Tests of Reading Achievement

In Florida and across the United States, schools and students are now being held accountable for their reading achievement with high stakes testing. Based on the results of these tests, schools and educators receive money and supplies accordingly. These tools facilitate growth in those students with low achievement and motivation.

In Florida, reading achievement is measured by the Florida Comprehensive Assessment Test (FCAT; Florida Department of Education, 2003e). This statewide assessment measures reading, mathematics, science, and writing achievement and was developed by commercial contractors and school district curriculum content committees hired by the Florida Department of Education (Florida Department of Education, 2003e). Correlates of other high stakes reading achievement tests have been studied in past research (Diamond & Onwuegbuzie, 2001). These studies have found that many factors influence performance on standardized reading tests and in turn impact reading achievement. These factors include grade, gender, ethnicity, and motivation to read. Over the past twenty years many theories have been developed to explain these factors and their impact on the general concept of reading achievement. It is important to find factors that impact reading achievement, as measured by the FCAT, and determinants of a child's desire to read so that these variables can be incorporated into interventions to facilitate the building of reading skills.

Factors that Impact Reading Achievement

Herbert Walberg's (1984) Theory of Educational Productivity is a model of school learning that has been extensively tested across grades and subject matter. This model measures variables related to learning and how one variable influences the other variables to facilitate success within a child. Walberg and colleagues researched many models of learning and found that most models included variables representing ability, motivation, quality of instruction, and quantity of instruction (Haertel, Walberg, & Weinstein, 1983). Other models added the constructs of social environment of the classroom, home environment, peer influence, and mass media.

Constructs, such as home environment can significantly impact a child's success in school (Pungello, Kupersmidt, Burchinal, & Patterson, 1996; Wang, Hartel, & Walberg, 1993). Pungello et al. (1996) showed that overall achievement in school was negatively related to low family income and high stressful life events in the home. Wang et al. (1993) also found these results in a review of the literature on factors related to school learning. Wang et al. (1993) found multiple studies supporting the finding that family involvement and positive home environment are directly positively related to academic performance. Recently, DiPerna and Elliot's (2002) model of academic enablers was designed to include many of these common constructs to explain the process of learning and the ways to build academic competence.

Academic enablers are nonacademic skills, attitudes, and behaviors that make contributions to academic success (DiPerna, Volpe, & Elliot, 2002). The theory behind this model is that a child needs more than just pure academic skill to succeed in school. This theory is based on the premise that there are nonacademic variables that influence achievement. The concept of academic competence encompasses all of these variables (DiPerna & Elliot, 2002). Academic competence is a multidimensional construct that includes abilities, motivation, and behaviors of students that facilitate their achievement in school. DiPerna and Elliot (2002) have categorized these abilities, motivation, and behaviors into two distinct domains: academic skills and academic enablers. Academic skills have been identified as language-based skills, mathematics skills, and critical thinking skills. Academic enablers have been identified as interpersonal skills, motivation, study skills, and engagement (DiPerna & Elliot, 2002).

Motivation and Reading Achievement

Large portions of students from all ages and social classes have been shown to have reading difficulties (Snow et al., 1998). Reading failure is independent of gender and ethnicity. However, failure to read is much more likely among poor, nonwhite children, who are nonnative speakers of English. These children are slowly becoming the majority in many of America's schools and within American society. Although the population of school children has increased only faintly, the number of students with English as a second language (ESOL) grew by 85% across the nation between 1985 and 1992 (Snow et al., 1998). In addition to the disproportionate rate of minorities with reading difficulties, there is also a disproportionate rate of males with reading difficulties. Overall, male minorities fare the worst. Females consistently score higher in reading achievement than males at all ages (Diamond & Onwuebuze, 2001).

When compared to males, females may have a higher affinity toward reading in school, which leads them to achieve higher in reading tasks. In regard to reading, females are consistently more motivated to perform and tend to enjoy reading more than boys at all ages (Diamond and Onwuebuze, 2001). However, research regarding minority children's motivation to read has been less apparent. Research has shown that all ethnic groups, across grades, decrease in motivation to read academic reading, but opposite trends have been found for recreational reading. For example, African American students have been shown to have less motivation to engage in recreational reading, but more motivation to engage in academic reading, compared to Caucasian students of the same age and gender (Diamond & Onwuegbuzie, 2001).

These findings that girls are more motivated to read and higher achievers in reading than boys at all ages are very important for instructional research. Equally important is the lack of findings suggesting a consistent trend in motivation to read and reading achievement across ethnicity. The inconsistency of these findings is important to note for future directions of research. Research defining a consistent trend in motivation to read and reading achievement across ethnicity will be useful for teachers and educators to develop new evidence-based methods of instruction and concentrate on the groups of students that have been shown to need instruction the most.

Rationale for the Study

Educators and psychologists have been studying how motivation and cognitive factors impact learning and achievement for at least the last twenty years (Linnenbrink & Pintrich, 2002). The present investigation was the first study to explore the relationship between motivation and reading achievement, as measured by the FCAT. Few studies have been published on reading achievement, as measured by the FCAT and its relationship to academic enablers. This study sheds light on some of the correlates of FCAT reading performance, and in turn, gives direction for reading interventions to develop reading competency.

Purpose of the Study

As of 2004 there are few studies published on the FCAT and its motivational correlates. It was predicted that findings from this study will provide information on the motivational correlates of reading achievement, as measured by the FCAT. This information can be used to design prevention and intervention programs in reading for students at-risk for reading failure. The purpose of this study was to determine whether

there is a relationship among the demographic variables grade, gender, ethnicity, and motivation to read with reading achievement, as measured by the FCAT.

Research Questions

The following research questions were addressed:

1. What is the relationship among the independent variables or various learner characteristics, grade, gender, ethnicity, and motivation to read with the dependent variable, level of reading achievement, as measured by the FCAT?
2. Which independent variable, grade, gender, ethnicity, or motivation to read has the strongest relationship to the dependent variable, reading achievement, as measured by the FCAT?

Chapter Two

Review of Selected Literature

Overview

The purpose of this chapter was to review the existing literature on reading achievement and motivation to read across grade (third, seventh, and tenth), across gender, and across ethnicity. This chapter begins by shedding light on the national crisis in reading. It then covers the topics of accountability in education, the No Child Left Behind Act (NCLB), Florida's statewide assessment system, the Florida Comprehensive Assessment Test (FCAT) and High Stakes Testing. This chapter then defines reading achievement and motivation to read based on the existing literature. This chapter concludes with a summary of the research examining the demographic variables (grade, gender, and ethnicity) related to reading achievement.

National Crisis in Reading

Many students go through school without learning to read beyond a basic level (National Reading Panel, 2000). Large numbers of students, both with and without disabilities, have been found to have serious reading problems at all levels of schooling (Shinn, Walker, & Stoner, 2002). This disturbing trend also is seen across grade and ethnicity (National Reading Panel, 2000). The National Assessment of Educational Progress (NAEP), a national test that tracks student learning, found that 37% of fourth grade students, 26% of eighth grade students, and 30% of twelfth grade students have not

mastered the basic skills to read in society (National Center for Educational Statistics, 2003). Furthermore, this national assessment was found in almost all social, cultural, and ethnic groups tested. Alarming, 29% of Caucasians, 69% of African Americans, 64% of Hispanics, 22% of Asian Americans, and 52% of American Indians did not have the basic skills required to read in the fourth grade (National Reading Panel, 2000).

Eighty-five percent of children who have committed crimes, and 75% of adults that are in prison are illiterate (National Reading Panel, 2000). In the future, the societal costs that will be needed to facilitate the lives of these individuals include 224 billion dollars a year in welfare payments, crime, job competence, lost taxes, and remedial education (National Reading Panel, 2000). In addition, U.S. companies expend nearly 40 billion dollars per year because of illiteracy (National Reading Panel, 2000). Due to the excessive amounts of students in the school system that have been and still are experiencing failure in reading, the government has implemented nationwide accountability acts to hold educational institutions accountable for the outcomes of their students.

Accountability

The literacy and reading achievement rates of school-aged children are at one of their lowest points (Howell & Nolet, 2000). The *No Child Left Behind Act of 2001* (NCLB) was signed on January 8, 2002, by President George W. Bush to address some of these disheartening literacy statistics (Florida Department of Education, 2003d). This new law was inspired by President Bush's reform plan for education and built upon the Elementary and Secondary Education Act (ESEA) that was enacted in 1965.

NCLB supported learning in the early years and was written under the assumption that children need resources during early childhood education to get the right start. The developers of NCLB designed this law based on Snow et al.'s (1998) research that found that children who enter school with language and pre-reading skills are more likely to succeed in reading (Florida Department of Education, 2003d). NCLB had four main themes: accountability for results, an emphasis on empirical and evidence-based interventions, expanded parental choices and resources, and expanded local control and flexibility. The main objective of NCLB was to improve student achievement and change the philosophy of America's schools.

NCLB required annual testing of all public school students in reading and math, grades three through eight and once during high school. Along with this testing, annual report cards were also required to report school performance to parents, voters, and taxpayers. These report cards consisted of easy to read, detailed reports about schools and districts to inform parents about which ones are succeeding and why. For these report cards, all student achievement data were broken down by race, ethnicity, gender, English language proficiency, migrant status, disability status, and low-income status. Also included in this act were plans to ensure that every child in America reads by the third grade and that every public school classroom has a highly qualified teacher by 2005 (Florida Department of Education, 2003d). These report cards hold teachers, administrators, schools, and districts accountable for their students' achievement.

Due to the huge focus on accountability, written into the law was a special emphasis on the use of evidence-based and empirically-based interventions within the public school system. NCLB stated that states and local education agencies could only

use programs and practices that have been supported by scientific research. These were the only programs and practices that would be federally funded. Also under NCLB, parents could track the trends in achievement in their child's school and district, and if their child's school continued to have poor performance, had the option to transfer their child to higher-performing schools in the area or receive extra services from the community.

Along with more parental choices, NCLB also gave state and local education agencies more choices. NCLB stated the role of the federal government in education and how it should be redesigned to make improvements for our educational system. It also set standards for academics, assessments, and the accountability system for achievement within the federal educational system. There was, however, flexibility built in for each state to decide the ways in which they planned to determine their academic standards and assessment procedures.

Florida's Statewide Assessment System

In Florida, an organized statewide assessment program has existed for more than thirty years (Florida Department of Education, 2003c). The Florida Comprehensive Assessment Test (FCAT) is the latest version of Florida's statewide assessment program. This test satisfies the requirement for assessment procedures for the NCLB Act. The FCAT was initiated in 1972 and has gone through many changes over the years. It was administered for the first time statewide in the spring of 1998. The development of the FCAT was guided by the Sunshine State Standards.

The Sunshine State Standards are Florida's academic standards. Sunshine State Standards were designed through the collaboration of many educators from across

Florida, reviewed by the interested parties, reviewed by the school districts, and adopted by the State Board of Education in 1996 (Florida Department of Education, 2003a). They set standards in reading, writing, science, and math. The FCAT developers use these standards from the four different subject areas to design specific questions for this assessment tool (Florida Department of Education, 2003a). These standards represent the knowledge and skills Florida students will need to achieve to succeed in society. They are not minimal skills, but are rigorous, high stakes expectations that will prepare students to compete in the workforce in their future.

The FCAT surpasses the minimum requirements of the NCLB act. NCLB requires assessment in reading and math one time in grades 3-5, 6-9, and 10-12. The FCAT assesses reading and math achievement in all grades 3-10, science in grades 5, 8, and 10, and writing in 4, 8, and 10. The Sunshine State Standards set objectives in reading for preschool through grade twelve. In each grade there are two reading standards that must be met. These standards indicate that each student uses the reading process effectively and that each student constructs meaning from a wide range of texts (Florida Department of Education, 2003e). The questions for FCAT Reading are designed based on these two standards. At each grade level there are different tasks required.

Third grade students must be able to do many things such as use a table of contents, use simple strategies to determine meaning and increase vocabulary for reading, and clarify understanding by rereading, self-correction, summarizing, checking other sources, and class or group discussions. Seventh grade students must be able to do more advanced reading and use background knowledge of the subject and text structure knowledge to make complex predictions of content, purpose, and organization of the

reading selection. Seventh grade students must also be able to do advanced tasks such as identifying the author's purpose in a variety of texts and locate, organize, and interpret written information for a variety of purposes, including classroom research and performing real world tasks. Tenth grade students must be able to take reading one step further and accomplish tasks such as select and use strategies to understand words and text, and make and confirm inferences from what is read, including interpreting diagrams, graphs, and statistical illustrations. They must also be able to demonstrate the ability to analyze the validity and reliability of primary source information and use the information appropriately.

The FCAT Mathematics assesses content in the five areas of number sense, concepts and operations, measurement, geometry and spatial sense, algebraic thinking, and data analysis and probability (Florida Department of Education, 2003e). FCAT Science assesses content from eight content areas, nature of matter, energy, force and motion, processes that shape the Earth, Earth and space, processes of life, how living things interact with their environment, and nature of science (Florida Department of Education, 2003e). For the writing assessment students are given a single essay prompt to test writing proficiency. Students are required to write responses to assigned topics in a single testing period (Florida Department of Education, 2003e). The prompts for fourth grade during 2003 required students to explain why they enjoy playing a particular game or to write an essay about what might happen if they took care of an animal for one day. The eighth grade prompts for 2002 required students to explain what is interesting in their community or to write an essay convincing the school to accept their choice about how the school should spend its money. Finally, the tenth grade prompts for 2003 required

students to explain why a particular course in school might be useful in the future or to write an essay convincing the school board about whether students who have failing grades should be allowed to participate in school clubs or sports.

The FCAT was developed with the assistance of content area committees in Florida who teach or supervise mathematics, reading, writing, and science. The designers at the Department of Education have to approve the overall test design, the benchmarks to be assessed, the test specifications, and the test items themselves. The initial materials were developed by the Florida Department of Education test contractor and then the outside content area committees, consisting of math, reading, writing, and science teachers and supervisors, served as the reviewers and validators. NCLB requires that each statewide assessment program must specify what children are expected to know and should be able to do, contain demanding content, and encourage the instruction of complex skills. The Florida system meets these requirements. The FCAT Individual Student Report shows the student's performance and how he/she compares to the national sample. This report shows what the child is able to do and what he/she should be able to do. It also provides a measure of growth that parents and teachers can compare from year to year. Through the use of the Sunshine State Standards there are many challenging questions designed and the use of complex skills are needed to solve them. These skills are measured on the FCAT through challenging academic achievement standards and are referred to as FCAT Achievement levels.

High Stakes Testing

The FCAT and the standards developed for Florida are built upon the premise that all children can learn. Students learn in varied ways and many require more time and/or a

different type of instruction (Howell & Nolet, 2000). By putting into place a universal standardized statewide assessment, controversy has emerged between Florida educators and policy makers regarding its appropriateness for all children. The main disagreement is over the use of high stakes testing. High stakes testing for students involves using test results to make critical decisions about a student's future (e.g., grade retention). These decisions are made directly based on one test.

The National Association of School Psychologists (NASP) proposed in their position statement on high stakes testing (National Association of School Psychologists, 2002), that it is not appropriate to use the scores of one standardized test for making many important decisions about a child. NASP hopes that districts and states take into consideration the tests used and what they measure before making decisions about graduation, retention, and the amount of pay for teachers or funds for a school (National Association of School Psychologists, 2002). Poor outcomes on the FCAT could be an indicator of the need for early intervention, changes in the curriculum, or a screening for learning problems. Multiple measures of academic achievement, including teacher and family input, should all be taken into account when making more important decisions (National Association of School Psychologists, 2002).

Policy makers are attracted to high stakes testing due to the low cost compared to the amount needed for systems or organizational change within a school or district. These tests are also easy to administer and do not take a lot of time. The results are easy to read and are readily available after the test is administered (Linn, 2000). However, these results may have negative and immediate effects on a child's present and future schooling (National Association of School Psychologists, 2002). Amrein and Berliner (2003)

showed through the results from 18 states, that high stakes tests do not lead to higher student achievement and actually can decrease student motivation to learn and lead to higher student retention and dropout rates. They found results supporting the idea that if rewards and sanctions are connected to test outcomes and performance, then students become less intrinsically motivated to learn. In addition, high stakes tests can lead teachers to seize more control over classroom learning and give students less opportunities to dictate their own learning (Amrein & Berliner, 2003). Given their results, Amrein and Berliner (2003) concluded high stakes testing may actually hurt student achievement rather than enhance it.

Importance of Reading Achievement

Along with the goal of measuring accountability, high stakes tests are often given to assess the level of reading achievement in a student and to assess the amount of material they have learned throughout the school year. Reading has become an increasingly valuable facet of life with the growing competitiveness of society. Reading is also a key component to a successful life within contemporary society (Snow et al., 1998). In Florida, reading is the focus of many current educational reform projects that are passing through the legislature. Unfortunately, many public school children are having major difficulties learning to read, and teachers are trying their best to help, without much avail (Florida Department of Education, 2003d). Major difficulties encompass problems within all areas of reading from phonemic awareness, phonics, and fluency to problems learning vocabulary and comprehension. Higher levels of literacy are demanded through statewide assessment programs, and students, teachers, and schools are being held accountable for their reading scores (Florida Department of Education,

2003a). Reading achievement in Florida is quantified as a child's level attained on the FCAT reading tests (Florida Department of Education, 2003e). A Level 2 or higher is considered passing, and a Level 1 is considered failing. In Florida during the 2003 testing of reading achievement, 23% of third grade students, 25% of fourth grade students, 25% of fifth grade students, 28% of sixth grade students, 28% of seventh grade students, 26% of eighth grade students, 43% of ninth grade students, and 33% of tenth grade students scored at Level 1 (Florida Department of Education, 2003b). These statistics show that more than one-fourth of Florida's students are not able to read at a level needed to function successfully in life, and the percentage drastically increases after middle school (Florida Department of Education, 2003b).

Due to this travesty, Snow et al. (1998) cited the need to identify factors that correlate with reading achievement. Past research has shown that grade, gender, ethnicity, and motivation to read have all been related to reading achievement (Diamond & Onwuegbuzie, 2001). Motivation to read is a variable that researchers have been increasingly focusing on over the past couple of years due to the relationship it has been found to have with reading achievement (Bong, 2001; Diamond & Onwuegbuzie et al., 2001; DiPerna and Elliot, 2002; Gambrell et al., 1996b; McKenna, Kear, and Ellsworth, 1995).

Theories of Motivation to Read Related to Reading Achievement

Teachers have believed for many years that before any achievement gains can be made in reading, first, a child must be motivated to read (Gambrell, Palmer, Codling, & Mazzoni, 1996b). A lack of motivation from the student is related to many long lasting problems throughout the year for a teacher. Motivation, however, is a very complex

construct. There have been many theories over the years that have tried to explain motivation and its role in reading. Oldfather and colleagues (Oldfather & Dahl, 1994; Oldfather & McLaughlin, 1993) describe motivation as the enduring drive to acquire more information throughout life. Other theories of motivation stress that self-perception plays a major role in learning to read (Dweck, 1986). These theorists believe that motivation is a result of a student's learned beliefs about his/her own competencies and abilities. Some research (Dweck, 1986; Eccles, Wigfield, Harold, & Blumenfeld, 1993) supports the belief that learned self-perceptions and expectations are the main determinants of motivation.

Due to the complexity of motivation, many theories have been proposed to try to explain this construct. There are countless theories of motivation that are directly related to reading, but there are four theories that are currently receiving the most attention in the education literature: expectancy-value theory, goal orientation theory, intrinsic and extrinsic theories of motivation, and motivational systems theory (Gambrell, 2001). These theories are discussed in this chapter to present the reader with a background of the current ways in which motivation to read is defined and conceptualized within educational institutions.

Expectancy Value Theory. The expectancy-value theory (EVT) of motivation hypothesizes that motivation is influenced by an individual's beliefs about what he/she thinks that they are able to accomplish (Gambrell, 2001). This theory also includes how much an individual likes the task or wants to complete it. Research has shown that the expectancy part of EVT is a very crucial component and shows that readers who believe they have the ability to read and be successful are more likely to surpass those who do

not have the expectancy beliefs (Schunk, 1985). Gambrell (1995) examined the roles of self-concept and value in motivation to read. Gambrell and colleagues (1995) interviewed 330 third and fifth graders from four schools in two Maryland counties. All 330 participants responded to a reading survey, and 48 participants were selected to participate in two Conversational Interviews. The 330 participants came from 27 classrooms. The 27 teachers of these students grouped each student into above-grade, on-grade, and below-grade level reading groups, and then each teacher chose two motivated and two unmotivated students from each group, based on their own perception.

Forty-eight of these students were then randomly chosen to be used for the two Conversational Interviews about motivation to read. The results showed that third grade students had more positive beliefs about reading than fifth grade students, and there was also a statistically significant difference among students grouped by their reading ability when expectancies were taken into account. Students with lower ability scored lower in their self-concept as a reader and in their motivation to read. The results of this study imply that students who believe that they have the ability to read are more likely to be better readers. This study had a limitation built into its method. The teachers chose two motivated and unmotivated students from each of the ability groups based on their own perceptions of those children. The teachers may have thought the students were motivated or unmotivated, but without discussing it with the child, they may have been wrong. These children were then used for the analyses involving the Conversational Interviews. These results may have been skewed due the faulty selection of the participants.

Goal Orientation Theory. In another theory named goal orientation theory there are two types of goals: learning and performance (Gambrell, 2001). This theory is different from the former theory discussed based on this distinction of goals. Learning goals are expectations of what a student wants to learn and performance goals are based on what a student needs to learn to get a grade. The grade is the performance goal. Learning goals have been shown to lead to increased learning and more time devoted to an assignment. Children with literacy learning goals read because they like to and want to learn to read (Gambrell, 2001). The Maehr (1976) study examined the effects of different variables on extrinsic and intrinsic motivation. This study analyzed some of the studies that had evaluated motivation in educational research up to 1976 and comprised a literature review of these articles. This study was not specific about its data collection method. Maehr (1976) found that a learning goal orientation was related to a higher intrinsic motivation, enjoyment, and drive to read.

Extrinsic and intrinsic motivation are two primary types of motivation discussed by motivational theorists. Extrinsic motivation refers to motivation to accomplish something that fulfills an outside goal. Teacher praise and feedback are examples of extrinsically motivating forces. Intrinsic motivation refers to motivation to choose to do something and then doing it because you like to and not for outside rewards (Gambrell, 2001). An example would be a child choosing to read a book from the *Harry Potter* series just to see what happens or for the thrill of reading. Wigfield and Guthrie (1997) examined students' extrinsic and intrinsic motivation. They also looked at the amount and the breadth of their reading. There were 105 fourth and fifth grade children who participated in this study. These students completed a reading motivation questionnaire,

designed for this study, twice during the school year. The amount and breadth of the participant's reading were measured using diaries and questionnaires. Students who were highest in intrinsic motivation read almost three times as many minutes per day and read more broadly than students lowest in intrinsic motivation. Groups high and low in extrinsic motivation did not have significant differences on the amount read or breadth of reading. A limitation of this study was the use of a new reading motivation survey that had not been supported by former research to have internal validity and reliability. Another limitation was that students self-reported the amount of reading that they were doing. Depending on their level of motivation to read may have affected their willingness to self-report accurately.

Motivational Systems Theory. Ford (1992) posits a motivational systems theory (MST) that encompasses three aspects of motivation: personal beliefs, emotional processes, and personal goals. Personal beliefs include beliefs about one's capability to perform a goal and if the context will support its attainment. Emotional processes are the feelings inside a person when evaluating personal values. Personal goals symbolize what a learner wants to know in the future. This theory is built on the premise that people will always try to accomplish the goals that they believe they can achieve. They take into account these three aspects when evaluating if they will be able to achieve something or not.

All four of the motivational theories just discussed take into account an individual's expectation of success or failure as well as the amount of worth he/she places on the attainment of the task (Gambrell, 2001). Students who trust that they are able and proficient readers are more likely to outperform those who do not hold such beliefs

(Schunk, 1985). Research has been investigating the construct of motivation for the past thirty years (Maehr, 1976). This research has shown that high reading achievement has been directly related to whether they motivated to read (Wigfield & Guthrie, 1997). Research has also shown that students who believe that they have the ability to read are also the highest achievers in reading (Gambrell, 1995; Schunk, 1985). However, one limitation of all of the results of the studies mentioned earlier is that they only used samples of elementary aged children. Motivation to read has been scarcely researched across higher grade levels with very little research at the high school level.

Reading Achievement

Motivation to Read and Reading Achievement. Research has supported a strong link between motivation to read and reading achievement (Bong, 2001; DiPerna and Elliot, 2002; Gambrell et al., 1996b; McKenna, Kear, and Ellsworth, 1995). McKenna et al. (1995) investigated this relationship using a sample of 18,185 students in grades one through six. The sample included students from 229 schools and 95 districts in 38 states. Motivation to read in this study, as measured by the Elementary Reading Attitude Survey (McKenna & Kear, 1990), was analyzed to measure its relationship to reading ability. Reading ability was defined by each participant's teacher as above average, average, or below average based on his or her perception. Motivation to read was found to be significantly positively related to perceived reading ability. One implication of this study is that this relationship has been replicated in earlier studies. This replication in findings will help to design interventions focusing on motivation to read, which is a variable that many teachers may overlook when designing reading interventions. The limitation of this study is that reading achievement was not assessed through a standardized measure. It

was assessed by each participant's teacher's perception of his or her ability. The collection of data on reading ability, based on a person's perception, may have yielded biased results.

The Gambrell et al. (1996b) study found similar results. Gambrell et al. (1996b) used a sample of 330 third- and fifth-grade students in 27 classrooms from four different schools. These schools were in two separate school districts in an eastern U.S. state. The Motivation to Read Survey was used to measure motivation to read and each participant's teacher's rating of high, middle, or low reading achievement was used to assess reading achievement in this sample of participants. The participants' teachers read each item aloud and recorded their student's answers. The researchers found that motivation to read was significantly positively correlated to reading achievement. Information obtained from this study could be used to plan instructional assignments within the classroom to facilitate a young student's development of reading. The limitations of this study included the use of a self-report instrument and the procedure of its completion. This survey was completed by each student with his/her teacher asking the questions. With self-report instruments it is very hard to determine if participants actually feel the way that they report (Gambrell et al., 1996b). Additionally, since the teacher was the rater of reading achievement, the results yielded from this research may have been skewed by false data.

DiPerna, Volpe, and Elliot (2002), also conducted a study to examine this relationship. They used 394 students in kindergarten through sixth grade and 104 teachers. The students were split into two groups of primary (grades K-2) and intermediate (3-5) students. The primary sample consisted of 192 students (56% female,

44% male), with 27% of a minority status and 73% of a majority status. The intermediate sample consisted of 202 students (55% females, 45% males), with 19% from a minority status and 81% from a majority status. The sample was taken from 21 schools in the Northeastern United States. The Iowa Test of Basic Skills (ITBS) measured the student's reading achievement, and their academic skills and motivation to read were assessed using the Academic Competence Evaluation Scales (ACES, DiPerna & Elliot, 2000). Each participating teacher randomly selected five students from her class and completed the ACES for each of these students at 6-8 weeks into the school year and then again during the final month of the school year. Structural Equation Modeling was used to analyze the data. DiPerna and colleagues (2002) found the relationship between reading achievement and motivation to read to be significantly positively correlated. For the students in the primary grades there was a significant positive correlation found of 0.62 between motivation and reading achievement. For the students in the intermediate grades there was a significant positive correlation found of 0.66. These results indicate a significant relationship between reading achievement and motivation to read at the elementary school grade level. These results imply that these two constructs may be related and that this relationship can be used to design interventions to promote motivation to read and reading achievement.

Other studies have found similar results. Walberg and Tsai (1985) found statistically significant positive correlations between reading achievement and motivation to read when using data from a National Assessment of Educational Progress collected during 1979-1980. The sample in their study was 1,459 nine year-old students. The sample represented all regions and sizes of communities within the United States. In the

first stage of sampling, the United States was divided into groups of contiguous counties, or primary sampling units. In the second stage, schools were sampled within each primary sampling unit. Within each school, test booklets were administered to a random sample of nine year-old students. The booklet contained a general reading achievement test as well as a seven-item survey that was used to assess motivation to read. A significant positive correlation between reading achievement and motivation to read was found. These results imply that there may be a significant relationship between reading achievement and motivation to read. This information can be helpful when designing interventions for low reading motivated or low reading achieving students. A major limitation of this study was that the sample only consisted of nine-year old students. More research needs to be conducted to determine if this trend is supported with data from middle or high school aged children.

Many studies have been conducted to examine the relationship between reading achievement and motivation to read (Bong, 2001; Diamond & Onwuegbuzie et al., 2001; DiPerna, Volpe, and Elliot 2002; Gambrell et al., 1996b; McKenna et al., 1995). There have also been studies that have examined the relationship between motivation to read and level of schooling (Davies & Brember, 1993; Diamond & Onwuegbuzie, 2001; Eccles et al., 1993; Gambrell et al., 1996). Inconsistent trends have been found and are discussed below.

Motivation to Read and Grade. Research in the area of reading motivation has shown that children start school with many hopeful beliefs and attitudes toward reading (Gambrell, 1995). Some of the time these positive beliefs start to decline across the elementary years (Davies & Brember, 1993; Diamond & Onwuegbuzie, 2001; Eccles et

al., 1993; Gambrell et al., 1996b). Davies and Brember (1993) assessed motivation to read among elementary and middle school children. Participants included 216 second grade students, 189 fourth grade students, and 206 sixth grade students. The participants were administered the Smiley Self-report Questionnaire (SSQ, Mortimore, Sammons, Stoll, Lewis, Ecob, 1988) to measure their attitudes toward reading. Results indicated that the reading attitudes of boys and girls declined across the elementary school years. These results are important for designing reading policy and practice in primary and intermediate schools. Some limitations of this study were that it only used a single questionnaire to assess children's motivation to read and it used cross-sectional data instead of longitudinal data to look at results across time.

Diamond and Onwuegbuzie (2001) and McKenna et al. (1995) reported similar results. Diamond and Onwuegbuzie (2001) examined motivation to read as a function of grade, gender, ethnicity, and socioeconomic status. Participants in this study were 1,968 children in kindergarten through fifth grade. They were all from a small inner city school district in Georgia. Approximately 77% of the sample was nonwhite at each grade level. McKenna et al. (1995) investigated several issues related to motivation to read. The logistics of this study were discussed in the section above. The sample included students from 229 schools and 95 districts in 38 states. Reading attitudes in both of these studies, as measured by the Elementary Reading Attitude Survey (McKenna & Kear, 1990), decreased as children advanced through the elementary grades. An implication of these studies is that there might be a sequence of development in motivation to read across the elementary school years and that early intervention in an effort to catch reading difficulties may help to stop the decline in motivation to read. A limitation from both of

these studies is that these findings only show levels of motivation to read for children at one point in time. Future longitudinal studies using the same students at each point in time may provide further support of a trend in motivation to read across grade level.

Gambrell, Mazzoni, and Korkeamaki (1996a) established that motivation to read increased during the first grade but then declined during the second grade for Finnish and U.S. students. This finding was reported at the annual meeting of the American Educational Research Association in New York, but no further information could be found on this sample. Such results may indicate that first grade is a very important year in the development of motivation to read. Gambrell et al. published similar results on an older sample that same month (1996b), when designing the Motivation to Read Profile. This sample was discussed above. The Motivation to Read Survey was used to measure motivation to read in this sample of participants. The participants' teachers read each item aloud and recorded their student's answers. The researchers found that third-grade students reported more positive scores for motivation to read than fifth-grade students. Information obtained from this study could be used to plan instructional assignments within the classroom to facilitate a young student's development of reading. The limitations of this study included the use of a self-report instrument and the procedure of its completion. This survey was completed by each student with his/her teacher asking the questions. With self-report instruments it is very hard to determine if participants actually feel the way that they report (Gambrell et al., 1996b). Additionally, because the teacher was the examiner, the students may have felt pressured to answer the questions with answers that were socially desirable for their teacher and could have skewed the results of this study.

Tunnell, Calder, and Phaup (1991) found results consistent with the above studies. The purpose of their study was to examine the results of the Short Form Reading Attitude Survey (Tunnell, Calder, & Justen, 1988). They used a sample of 508 students in grades two through six from two different states. The students were from elementary and middle schools within an urban school district in Arkansas and a rural school district in Illinois. They measured the participants' motivation to read with the above mentioned survey. Participants were administered this survey by their classroom teacher. Results of this study showed that children had very favorable attitudes toward reading during the primary grades, but these attitudes slowly started to decline during fifth and sixth grade. Independent t-tests were done to determine if significant differences arose between the specific grade levels. They found significant t scores between third and fourth grade and between fifth and sixth grade students. One implication of this study is that a short survey could be used to measure student's motivation to read. This information can be used as a screening tool to catch the declines in motivation to read before a child stops doing his/her work and falls behind. These results also imply that motivation to read does significantly decline across grade. This information is needed to develop curriculum and instructional activities within classroom settings for late elementary and early middle school. The limitations of this study are parallel to the limitations of the study mentioned earlier by Gambrell et al. (1996b). The Tunnel et al. (1991) study also used a self-report survey to collect all of their data, and used classroom teachers as their primary examiners.

Kush and Watkins (1996) found a similar trend. This study was completed to examine the stability of the construct of motivation to read over time. They examined the motivation to read scores of 319 students enrolled in first through fourth grade in a

southwestern, suburban school district. They also examined this sample's motivation to read scores again three years later during third through sixth grade, but due to attrition over the years, were only able to analyze a final sample size of 190 students (83 boys, 107 girls). The Elementary Reading Attitude Survey was used to rate their motivation to read. Their motivation to read had a consistent decline across the elementary school years. This trend occurred in recreational and academic reading. Results of this study indicate that instructional framework for reading used during late elementary school should include activities that help to increase student's motivation to read in order to buffer the decline across these years. This study used a self-report survey and shares this limitation with studies discussed earlier. This study also had a limitation due to the amount of the sample that was lost over the three years to sample attrition. Over one third of the sample was lost and the inclusion of these students' results in the analyses may have led to different results.

The Anderson, Tollefson, and Gilbert (1985) study was completed to compare, in a cross-sectional design, gifted students' motivation to read. The participants included 276 gifted students (135 boys, 140 girls) from a moderately sized community serving a diverse student body. The majority of the school was Caucasian (70%), but 30% of the school consisted of African-American, Chicano, American Indian, and English as a second language students. The researchers measured motivation to read across first through twelfth grade among the sample. The Anderson et al. (1985) study used a questionnaire that was designed to measure the construct of motivation to read. This measure was designed, especially for this study, due to the lack of surveys available to assess motivation to read in participants older than elementary school aged children. The

items were field tested prior to being included in the questionnaire, and the content validity was assessed by expert judges. These researchers found that primary students had a higher motivation to read than did senior high students. They also found that primary students reported reading more books than the intermediate, middle school, or high school students. This study implies that motivation to read decreases as students mature and progress through school. This trend may be due to the differences in the reading materials used within classrooms by older and younger students. A limitation of this study is the homogeneity of this sample. Gifted students are given a heavier and more involved workload throughout their years at school. The amount and length of books that gifted students in middle or high school may have to read may make these results difficult to generalize to general education students.

Contrary to the studies discussed so far in this section, Parker and Paradis (1986) found dissimilar effects across elementary school. This study was conducted to assess if motivation to read changed as boys and girls progressed through elementary and middle school. For this study 134 children in first through sixth grade were given the Heathington Reading Attitude Inventory (Alexander & Filler, 1976; Heathington, 1975) to measure their motivation to read. The sample was taken from seven elementary schools in the Rocky Mountain Region. Each item on the survey was read to each participant by the examiner before a response was marked. Administration was approximately 10 to 15 minutes. The researchers found no significant decreases in motivation to read over first through third grade students, but there was a statistically significant increase in motivation to read recreational reading, library reading, and general reading from fourth to fifth grade. Due to the discrepancy of the findings, further

research is needed to determine if there is a universal trend toward poorer motivation to read in the higher grades. One limitation of this study was the nongeneralizability of this sample to many school districts in the United States. The sample was from a rural community of 25,000 people located in the Rocky Mountain region and the conditions and school in this small region may differ from other rural, suburban, or urban districts within the remaining United States population. Motivation to read has been researched across grade, but due to the discrepancies in the findings, more research needs to be conducted. New research will help establish trends in motivation to read across different levels of schooling.

Contrary to the finding that motivation to read may decrease over time, most studies found results indicating that reading achievement in school aged children and adolescents may increase over time. These two findings are conflicting for educational research. More studies on these two variables may be needed to find more information about the relationship between these two constructs.

Grade and Reading Achievement. Few studies have been undertaken within the last decade examining the changes in reading achievement across grade (Diamond & Onwuegbuzie, 2001; DiPerna & Elliot, 2002; DiPerna et al., 2002; Pungello et al., 1996). Reading achievement has been found to be more directly related to gender, ethnicity, and SES (Diamond & Onwuegbuzie, 2001). The few studies that have been conducted are not comparable due to the differences in grades examined. DiPerna et al. (2002) conducted a study to test the adequacy of an academic achievement model for explaining the achievement of students in kindergarten through grade six. Their sample included 394 students and 104 teachers in kindergarten through sixth grade. The sample was taken

from 21 schools across the Northeastern United States. Primary grades consisted of kindergarten through second grade and intermediate grades consisted of grades three through six. Approximately 27% of the primary sample were minorities and 11% of the students had an identified disability. The Iowa Test of Basic Skills (Hieronymus et al., 1990) was used to measure reading achievement in this study. The researchers found an increase in reading achievement across the primary grades and into the intermediate grades. This implies that there may be a universal increase in reading achievement across years of schooling.

The Pungello et al. (1996) study found a similar trend. This study was completed in order to examine the long term effects of low family income and stressful life events on reading achievement. Participants in this study were 1,253 children (52% girls, 48% boys). This study was a longitudinal study completed across four years. A population of 1,860 was chosen for this study, but due to a combination of factors, such as consents withheld, lack of participation, and ethnicity not specified as either African American or Caucasian, only 1,253 participants were included in the analyses. The majority of the sample was Caucasian (60%), and there were 40% African American. The Science Research Associates Academic Achievement Test (SRA, Naslund, Thorpe, & Lefever, 1987) and the Iowa Test of Basic Skills were used to measure achievement in this study. The researchers found that reading scores increased through the fifth grade, and then remained stable through the seventh grade. This study implies, along with the previous one discussed, that reading achievement increases over time. However, this study also implies that there may be a level of schooling in which the increase levels off. This study is limited its sample. The sample for this study consisted only of students who identified

themselves as either African American or Caucasian and that stayed in the study for more than one year. The part of the sample that was lost may have had an effect on the results that were found.

Diamond and Onwuegbuzie (2001) found the opposite trend. This study was conducted to investigate reading achievement as a function of grade, gender, ethnicity, and socioeconomic status. This study was discussed previously. This study used the same outcome measure, the Iowa Test of Basic Skills. There was a drastic decrease in reading achievement from second to third grade found for the sample used. There was also a decline across the elementary years (from second to fifth). These results are contrary to most other studies that have examined reading achievement, and these results imply that more research may need to be conducted to test if there is a universal increase or decrease across reading achievement for different groups of students. The information gained from these future studies may inform intervention planning for students at different levels of schooling.

Overall, most studies have found that achievement tends to increase across grade. Some studies, however, have not found this trend (Diamond & Onwuegbuzie, 2001). Due to the discrepancy, more studies are needed to find the correlates of reading achievement to assess what other factors may be related to this increase or decrease in achievement. Similar to reading achievement across level of schooling, there has also been opposing trends found for reading achievement across gender.

Gender and Reading Achievement. Some studies have found that gender is related to reading achievement (Diamond & Onwuegbuzie, 2001; Pungello et al., 1996) and

other studies have found no significant correlation between these two variables (Flynn & Rahbar, 1994).

Pungello et al. (1996) conducted a study to examine the effects of low income and stressful life situations were related to reading achievement. This study was discussed in the above section. The majority of the sample was Caucasian (60%), and there were 40% African American. Scores from the Science Research Associates Academic Achievement Test and the Iowa Test of Basic Skills were used to measure reading achievement. Being male was significantly negatively related to reading achievement scores. The results of this study imply that interventions targeting males may be very important tools to use throughout elementary school.

Consistent with these results, Diamond and Onwuegbuzie (2001) found that gender was statistically significantly related to reading achievement. The researchers used the Iowa Test of Basic Skills to assess the level of reading achievement in the sample. The results of this study showed that girls had higher reading achievement scores than boys based on scores obtained on the Iowa Test of Basic Skills. These results, like the study discussed earlier imply that boys may be in need of more intense reading interventions than girls within the elementary school setting. A very important limitation of this study is the sample that was used for the analyses. This sample was 77% African American and 23% Caucasian and came from a small inner city school district. The results could only generalize to similar samples of students.

Contrary to the above findings, Flynn and Rahbar (1994) found no difference between gender and reading achievement. Flynn and Rahbar (1994) examined whether more boys than girls fail reading on standardized tests. The participants were 708

kindergarteners (51.6% boys, 48.4% girls) from 13 districts in Northern Europe. The participants used were tested in kindergarten and then again in first and third grade. To be used for the study they had to be present for all three testing sessions. The tests used to measure reading achievement were the Iowa Test of Basic Skills, the California Achievement Test, and the Stanford Achievement Test. Reading failure was measured by total reading scores that were at or below the 10th percentile. There were no significant differences between the amount of girls and boys who failed the given reading tests. This study implies that more research is needed on these two variables. So far, research has not shown a universal trend between gender and reading achievement. A limitation of this study was that it was conducted in Northern Europe. The reading curriculum in Europe may be different than the curriculum in the United States and students in America may be taught in different ways. These results should only be generalizable to the Northern European population. Another limitation of the sample was that this particular population had significantly more males referred for special education than females, suggesting a gender bias with regard to students with potential learning-disabilities.

The research that has been performed to examine gender and reading achievement has found results that parallel the trends that have been found in the research examining gender and motivation to read. For both constructs, reading achievement and motivation to read, girls have been shown to have stronger significantly positive relationships in most of the research. However, there have been differences found within gender (Diamond & Onwuegbuzie, 2001; Graham, 1994). Within the variable of gender, different ethnic groups have been shown to have different levels of achievement.

Ethnicity and Reading Achievement. Some studies have found that African Americans do less well in reading than Caucasian (Diamond & Onwuegbuzie, 2001; Graham, 1994; Pungello et al., 1996; Steele & Aronson, 1995). Graham (1994) noted this trend based on the information taken from over 140 studies of African American achievement and motivation used in her narrative review. Pungello et al. (1996) found an analogous trend. In this study African American status was negatively associated with achievement, and overall, Caucasians had a statistically significantly higher mean in their reading achievement as measured by the Science Research Associates Academic Achievement Test and the Iowa Test of Basic Skills. There were a total of 1253 children used for the analyses during the first year of this study (60% Caucasian, 40% African American). During the second year there were 584 students used in the analyses and during the analyses for the third and fourth year there were 397 students used.

Diamond and Onwuegbuzie (2001) reported consistent findings with African American students exhibiting statistically significant lower levels of reading achievement than their Caucasian counterparts. One implication of each of the studies discussed in this section is that due to the lack of research and discrepant findings in this area, more research is greatly needed. Also, if a trend is found between ethnicity and reading achievement, interventions can be designed keeping this in mind, which will facilitate lower resistance to interventions and higher achievement rates. Due to the differing results from these studies, the findings imply that more research is needed on these two variables to effectively design reading interventions and curricula for ethnically diverse groups.

Summary

Florida is using a high stakes statewide assessment system to hold their school districts accountable for reading achievement. Many states have put systems like this in place due to the requirements of the No Child Left Behind Act of 2001. This act holds states accountable for their students' reading achievement scores in their K-12 public schools. More than one-fourth of Florida's students are not able to read at a level needed to function successfully in life, and the percentage drastically increases after middle school.

Academic enablers, such as motivation, have been found to be related to reading achievement. Also, grade, gender, and ethnicity have been shown to be significantly related to reading achievement. Reading achievement in Florida is currently measured by the FCAT. Few empirical studies have been undertaken on the FCAT thus far to test its demographic and motivational correlates. If the correlates of the FCAT are shown to be the same correlates of academic achievement, as measured in other studies, then interventions can be developed to enhance student success in reading and performance on high stakes tests.

Purpose of This Study

Within the field of educational research, an established relationship exists among motivation to read, grade, gender, and reading achievement. Also a small number of studies support a significant relationship between ethnicity and reading achievement. The purpose of this study was to find the relationship among motivation to read, grade, gender, ethnicity, and reading achievement, as measured by the FCAT.

Chapter Three

Method

The archival data used for this study were obtained from a larger database maintained by the Florida Center for Reading Research through a grant entitled, Individual Differences in FCAT Performance (FCAT grant). The Individual Differences in FCAT Performance Grant was used to conduct a study that evaluated the reading and cognitive skill profile of children who attain different levels of outcome on the FCAT. Measures of oral reading fluency, phonemic decoding efficiency, sight word vocabulary, oral language vocabulary, listening comprehension, verbal and non-verbal reasoning ability, motivation, and exposure to print were completed by the full set of participants. This investigation focused on the subset of 585 participants that completed the reading portion of the FCAT and the Motivation to Read Profile. The instruments and method discussed relate only to those used with this subset of participants.

This chapter begins with a discussion of the participants and the settings. The instruments used in this study are presented along with a detailed description of the procedures.

Participants

The sampling frame consisted of 585 third, seventh, and tenth grade students aged 7 to 17 years from the Hillsborough, Broward, and Leon County School Districts in Florida. Broward County included 203 participants, Hillsborough County included 168

participants, and Leon County included 214 participants. Each county's participants were divided among third, seventh, and tenth grades. The participants were enrolled in public elementary, middle, and high schools during the 2002-2003 school year. All participants in the study were given a consent form to have their parents sign and return, and only those who returned the signed consent form were eligible to participate in this study. Only 585 of the 630 proposed participants returned their consent forms in time for the study. All of the students in this study took the FCAT during the 2002-2003 school year.

Demographic information of the 585 participants is presented in Table 1. Three hundred thirty-three were female (56.9%) and 252 (43.1%) were male. Of the 585 respondents, 238 (30.7%) were Caucasian, 219 (37.4%) were African American, 101 (17.3%) were Hispanic, 13 (2.2%) were Asian, 10 (1.7%) had more than one ethnicity noted, and 4 (.7%) participants did not respond to this question. Table 1 also shows that, 182 (31.1%) participants were in tenth grade, 188 (32.1%) were in seventh grade, and 215 (36.8%) were in third grade.

Table 1

Demographics- Gender, Ethnicity, and Grade Level (N=585)

Variable Name	<u>n</u>	%
Gender:		
Male	252	43.1
Female	333	56.9
Ethnicity:		
Caucasian	238	40.7
African-American	219	37.4
Hispanic	101	17.3
Asian/Pacific Islander	13	2.2
Mixed	10	1.7
Missing	4	.7
Grade level:		
Tenth	182	31.1
Seventh	188	32.1
Third	215	36.8

Setting

The three counties where data were collected are located across the state of Florida. These counties included Leon, Hillsborough, and Broward. Table 2 summarizes the data from the 2002-2003 school year from the three counties in the following categories: number of high schools, middle schools, and elementary schools, number of total residents, number of total students, percent of students at each level eligible for free or reduced lunch, breakdown of ethnicities, total number of school staff, total number of school staff with advanced degrees, average number of years of teaching experience, and the percentage of out-of-field teachers.

Table 2

Demographic Information of Participating Counties

Variable Name	Frequencies		
	Leon	Hillsborough	Broward
Number/Percentage			
High schools	5	28	27
Middle schools	8	44	40
Elementary schools	25	123	136
Total residents	240,000	999,000	1,600,000
Total students	Over 30,000	171,000	255,000
MS F/R lunch	34%	49%	43%
ES F/R lunch	44%	54%	46%
Caucasian students	57%	47%	25.5%
African American students	35%	23%	36%
Hispanic students	3%	24%	23.1%
Asian students	1.7%	1.8%	3%
Indian students	.3%	.3%	.3%
Multiracial students	2.2%	4%	2.1%
Staff with advanced degrees	40%	33%	38%
Average years of teaching	18	12	12
Out-of-field teachers	1%	6.5%	3%

Note. F/R is Free/Reduced, MS is Middle School, and ES is Elementary School; High School Free/Reduced lunch not available.

Leon County is the one hundred thirty-third largest school district in the United States. It is located on the panhandle of northern Florida. Hillsborough County is located on the western coast of central Florida, and is the eleventh largest school district in the United States. Broward County is the fifth largest school district in the United States, and is located on the east coast of southern Florida. Out of the three counties, Broward is the largest and has the greatest minority population. It is also notable that Leon County has by far, the smallest Hispanic population, and Hillsborough County has the most out-of-field teachers. For all three counties data on the percentage of high school students that were eligible for free and reduced lunch were not available from each district due to the lack of families that apply within the high school setting.

Instrumentation

Florida Comprehensive Assessment Test (FCAT). The FCAT is a statewide test that measures reading, mathematics, science, and writing achievement and was developed by commercial contractors and school district curriculum content committees hired by the Florida Department of Education (Florida Department of Education, 2003e). However, the only portion that was used for this study was the reading test. The FCAT was administered over a week long time period. This included the time needed to distribute materials, provide directions, and to complete all of the subject tests.

The FCAT was a reading achievement test that is used for school aged children and adolescents. The FCAT reading assessed content from two areas of the Reading and Language Arts Sunshine State Standards. These areas assessed a student's ability to construct meaning from informational text and meaning from literature (Florida Department of Education, 2003e). The FCAT Achievement levels were developed by the

Department of Education. This study was concerned with the Sunshine State Standard (SSS) scaled scores on the FCAT reading test. A scaled score in third grade between 407-500, in seventh grade between 402-500, and in tenth grade between 385-500 equaled a Level 5 Classification. This meant that the child had success with the most challenging content of the Sunshine State Standards. At this level, a student answered most of the test questions correctly. By achieving a scaled score in third grade between 345-406, in seventh grade between 357-401, and in tenth grade between 368-384 a child received a Level 4 Category. This meant that a student was successful with most of the challenging content, but may have missed the questions that were the most difficult. Achieving a scaled score in third grade between 297-344, in seventh grade between 313-356, and in tenth grade between 340-367, equaled a Level 3 Category which meant that the student had partial success with the challenging content and was less successful with the most difficult questions. Attaining a scaled score in third grade between 272-296, in seventh grade between 280-312, and in tenth grade between 300-339 equaled a Level 2 Category. This indicated that the student had limited success with the difficult content. Finally, achieving a scaled score between 100-271 in third grade, 100-279 in seventh grade, and 100-299 in tenth grade equals a Level 1 rating and indicated that a student had little success with any of the content (Florida Department of Education, 2003e).

The rationale for choosing the FCAT for this study was because the governor requires all students grade three through ten, in the state of Florida, to take the FCAT to establish their reading achievement. This instrument has been purported to be appropriate for measuring the intended variable of reading achievement in students. The content-related validity of the FCAT was shown by the correspondence between the test and the

benchmarks the items are supposed to measure. All of the items were pilot tested on small groups of students and the students were interviewed after each sitting. All test items were then field tested with large random samples of Florida students, accomplished by administering statewide field tests or by imbedding items within operational forms. These tests were conducted by the Florida Department of Education.

The FCAT was highly correlated with the Stanford 8. Additionally, the FCAT-Sunshine State Standards Assessment component and the FCAT-Norm Referenced Test are correlated at about the 0.83-0.85 level. In the FCAT Briefing book published by the Department of Education (2001) reliability and validity are discussed. This publication affirms that the fourth, fifth, eighth, and tenth grade FCAT assessments all had reliability indices above .90. This means that the internal consistency of the items was correlated at .90 or above. This test has also been shown to yield reliable scores but no reliability indexes are specified (Florida Department of Education, 2001).

Motivation to Read Profile. The Motivation to Read Profile (MRP; Gambrell et al., 1996b) includes two sections, the Reading Survey and the Conversational Interview. The Reading Survey was the only section used for this study. Additionally, two questions were added to the survey used in this study to measure the motivation that the participant had for the upcoming FCAT. The Reading Survey is a 20-item self-report measure that consists of two subscales and takes about fifteen minutes to distribute, administer, and complete. This measure was chosen by the administrators of the FCAT grant to assess motivation to read. It was placed in the beginning of the battery of tests given to each participant of this study, but the data collectors had flexibility when giving this set of assessments and could change the order of tests given as they saw fit.

The names of the subscales of the MRP are Self-Concept as a Reader (10 items) and the Value of Reading (10 items). All of the survey items used a 4-point response scale. Item choice for the MRP was established through a review of research theories related to motivation and an investigation of existing tools designed to assess motivation and attitudes toward reading. Items were gathered from this review and used for the development of an initial pool of items for the MRP. Three experienced teachers, who were graduate students in reading, critically examined over 100 items for their construct validity in assessing motivation to read. The items that were agreed upon by all three teachers with 100% agreement were selected as options for the survey. These items were then given to four classroom teachers, who sorted them into categories of measures of self-concept, measures of value of reading, and items that did not specifically fit into either category. The items that received 100% trait agreement were then selected to comprise the final Reading Survey and used for field testing.

The field trial version of the Reading Survey, which included 20 items, was administered to 330 third through fifth grade students in twenty-seven classrooms in four schools from two school districts in an eastern U.S. state. Factor analyses were performed using the unweighted least squares method and a varimax rotation. The final published version only included items that loaded cleanly on the two traits, Self-Concept as a Reader and Value of Reading. According to Gambrell et al. (1996b) Cronbach's alpha statistic was calculated and was moderately high for both subscales (self-concept= .75, value= .82). In the current study the Cronbach alpha coefficient was .83. For the Gambrell et al. (1996b) study the pre- and post-test reliability coefficients also were moderately high (self-concept= .68, value= .70) (Gambrell et al., 1996b). A high score on

this scale indicated that a student has high self-perceived competence in reading and self-perceived performance relative to peers. This score also indicated that a student places a high amount of value on reading tasks and related activities.

Procedure

To obtain a representative sample of public school students in Florida, three regional, university based representative sites were chosen by the FCAT grant administrators. At these sites, faculty from Florida State University, the University of South Florida, and Florida Atlantic University were chosen to represent and collect data for Leon, Hillsborough, and Broward counties, respectively. The faculty representatives from each university were accountable for obtaining Institutional Review Board (IRB) approval from their respective county and university, enlisting and training the data collectors, choosing the participating schools, and collecting data within each school. Each of the three counties was to have 210 participants assessed, divided among three elementary schools, three middle schools, and three high schools. The schools chosen at each level were to include one with a low socioeconomic status (SES) population, one with a middle SES population, and one with a high SES population at each of the elementary, middle, and high school levels.

The regional investigators within Hillsborough County discussed a list of all of the schools in the county with two school experts from the local university. They narrowed the list of schools in the county down to 18 elementary schools, 16 middle schools, and 16 high schools that were identified as specifically fitting into the category of low socio-economic status (SES), middle SES, and high SES. Then the list of schools was sent to the FCRR for further reduction. A study administrator at the FCRR entered

those 50 schools into a database containing the SES levels of every school in the respective county in order to choose an elementary, middle, and high school in the high, middle, and low SES ranges (Great Schools, 2003). One high SES, one middle SES, and one low SES level school was chosen at each of the elementary, middle, and high school levels. Backup schools also were chosen for each county in the case that the selected school personnel were not interested in participating in the study.

The Broward and Leon county sites used similar procedures to shorten their lists of schools but selected their final schools based primarily on ethnicity and secondarily on the SES composition of the school. All three districts decided on one school with a low SES population, one school with a middle SES population, and one school with a high SES population at each of the elementary, middle, and high school levels. After each university representative received IRB approval, they contacted the building principals to request participation, and in some cases e-mailed a study summary statement. At each school, the principal decided how to distribute informed consent forms. All third and seventh grade students at each school received consent forms from their teachers, and those whose parents agreed for their children to be involved signed and returned the consent forms. Only students with signed consent forms were able to participate in this study. At each high school, the assistant principal or the reading specialist was contacted and given the consent forms to distribute to reading and English teachers for their tenth grade students. Only those tenth grade students that returned their signed consent forms were eligible to participate in the study.

Data Collectors/Recruitment and Training. Each university used similar methods for recruiting data collectors. Specifically, at the University of South Florida, data

collectors were sought through e-mail and flyers around the College of Education and Department of Psychology. The students who were interested were interviewed by the university representative. The data collectors that were chosen at the University of South Florida consisted of two undergraduate psychology majors, six graduate students enrolled in Ph.D. programs in school psychology, one graduate student enrolled in a Ph.D. program in Curriculum and Instruction with an emphasis in Special Education, and five graduate students enrolled in an Applied Behavior Analysis Master's Program. Data collectors from each county were paid by the FCRR. They were trained to administer a battery of assessment tools including the MRP during two, six hour sessions by researchers involved with the FCAT study from the FCRR. On the training day for each county, data collectors were trained to use each assessment tool, had an opportunity to practice administering each tool, and were allowed time for questions. They were then given one complete tenth grade protocol, one training manual, and one test kit with a stopwatch included. They were also informed about the importance of the FCAT and the process for administering the MRP in schools to third, seventh, and tenth grade students.

Data Collection. Each data collector was given one or more schools as data collection sites. They assessed the participants during school hours within the months of April and May in the year of 2003. The testing took approximately two hours, and the data collector had the choice to do one, two-hour session or split the assessment into two, one-hour sessions. Although there was a prescribed arrangement of tests, the examiner could give them in any order.

The participants were removed from their classrooms by the examiner and escorted into a testing room. The examiner then explained the study to the participants,

and that it was only voluntary, and then asked for their assent. The participants were asked to orally give their answers to each of the questions on the MRP. The other instruments were filled out individually by the seventh and tenth grade students but were read aloud for the third grade students. The participants were given no time limit to complete the instruments. After the participant had finished, he/she was escorted back to his/her respective classroom by the examiner.

Once per week, the data collectors turned in the completed protocols into the university representatives. The university representatives entered the data into a database and then the data were sent to the FCRR to organize in a main database for further use. Two researchers at the FCRR completed inter-rater checks on all incoming data, and a senior researcher settled any discrepancy between the site-rated protocol and the researcher-rated protocol by rescoreing the protocol. This procedure indicates that the data were collected in a systematic manner. The FCAT was given earlier in the year throughout March during regular school hours.

Research Design

To illustrate the characteristics of the sample, the group was described by grade level, gender, and ethnicity. Additionally, descriptive statistics including the mean and standard deviation for the Motivation to Read Profile and the FCAT are included by grade level, gender, and ethnicity. Within the study, the particular variables being examined, grade, gender, ethnicity, motivation to read, and FCAT reading achievement, were analyzed through a multiple regression. Finally, the regression was assessed to determine the relationship of each predictor variable to the dependent variable FCAT reading achievement.

Chapter Four

Results

The present study was developed to examine the relationship among various learner characteristics such as, grade, gender, ethnicity, motivation to read and reading achievement, as measured by the FCAT. Two specific research questions were investigated in this study: 1) what is the relationship among the independent variables or various learner characteristics, grade, gender, ethnicity, and motivation to read with the dependent variable, level of reading achievement, as measured by the FCAT, and 2) which independent variable, grade, gender, ethnicity, or motivation to read has the strongest relationship to the dependent variable, reading achievement, as measured by the FCAT will be discussed in this chapter.

Descriptive Information

The information obtained to address these research questions was provided by surveying a random sample of third, seventh, and tenth grade students from Broward, Hillsborough, and Leon Counties. Of the initial 630 participants, 585 were eligible to include due to missing data. The fact that there are missing student data, due to absences during FCAT administration or incomplete survey completion, means that the results of this study should be interpreted cautiously.

Table 3 includes the descriptive statistics including the mean, standard deviation, range, skewness, and kurtosis for the Motivation to Read Profile, and Table 4 includes

the descriptive statistics including the mean, standard deviation, range, skewness, and kurtosis for reading achievement, as measured by the FCAT. These variables are described in Appendix A, by grade level, gender, and ethnicity. The group classified as Mixed or Other Ethnicities was too small to be able to adequately compare its analyses to the other groups.

Table 3

Descriptive Statistics for the Motivation to Read Profile (N= 576)

<u>M</u>	<u>SD</u>	Range	Skewness	Kurtosis
68.06	7.707	41	-.396	-.174

Note. The scores for the Motivation to Read Profile ranged from 43 to 84. Low scores represented low motivation to read while high scores represented high motivation to read.

Table 4

Descriptive Statistics for FCAT Sunshine State Standard Scores (N=571)

<u>M</u>	<u>SD</u>	Range	Skewness	Kurtosis
312.25	56.063	400	-.106	1.420

In Table 4 Sunshine State Standard scaled scores are reported. The conversion of these scores into achievement levels are presented in Appendix B. For typical achievement reports, levels are reported from 1, low to 5, high. The proportion of students in the sample at each achievement level across grades is illustrated in Table 5. These proportions are consistent with the overall Florida student population at the same grades.

Table 5

FCAT achievement level frequencies across all counties and grade levels (N = 585)

FCAT Achievement Level	<u>n</u>	%
1	125	21.4
2	135	23.1
3	146	25.0
4	124	21.2
5	41	7.0
Missing	14	2.4

Multiple Regression Analysis

Multiple regression analyses are based on several assumptions. The data were screened and an assessment of each assumption was made. The first assumption is that there is a large enough sample size. Stevens (1999) recommends that for social science research, about fifteen subjects per predictor variable are needed. In this study there were four predictor variables which required 60 total participants to be used for the analysis to be reliable. This study had a sample size of 585 participants which did not violate this assumption. Next, multicollinearity and singularity were examined. Multicollinearity is present when the independent variables are highly correlated at .9 and above (Pallant, 2001). To test for multicollinearity, intercorrelations were examined between the predictor variables (see Table 6). Since no intercorrelations of .90 or higher were found, this assumption did not appear to be violated. Singularity occurs when one independent variable is actually a combination of other independent variables (Pallant, 2001). None of

the independent variables in this study were a combination of any of the other independent variables, and therefore, this assumption did not appear to be violated either.

An examination of scatterplots revealed linear relationships among the variables and nothing in the design of the study would lead researchers to question the independence of the residuals. To examine the homoscedasticity assumption the residuals were plotted with the predicted values. This assumption did not appear to be violated. The residuals were also found to be approximately normally distributed.

Outliers were screened for using standardized residuals. The maximum values found were -4.238 and 3.590, respectively. Tabachnick and Fidell (1996) define outliers as cases that have a standardized residual of more than 3.3 or less than -3.3. With large samples, such as 565, it is not uncommon to find a number of outlying residuals (Pallant, 2001). This leads to the belief that none of the cases are having an undue influence on the regression analysis. An internal consistency reliability estimate of the continuous predictor was .83 for motivation to read, leading to the conclusion that the measurement error is relatively small. Finally, the predictors can not be considered fixed, but regression is robust to violations of this assumption. In summary, based on the screening of the data it appeared appropriate to proceed with the regression and examine its results as valid.

The first research question was developed to address the relationship among the independent variables or various learner characteristics, grade, gender, ethnicity, and motivation to read with the dependent variable, level of reading achievement, as measured by the FCAT. To analyze this relationship, intercorrelations were examined (Table 6) and a multiple regression was conducted, using the Statistical Package for the

Social Sciences (SPSS, 2003). Multiple regression predicts the amount of variance accounted for in one variable by a set of predictors (Stevens, 1999).

The demographic or predictor variables of motivation to read, grade, gender, and African American ethnicity status, Hispanic ethnicity status, and Mixed ethnicity status were entered into the multiple regression. By leaving out Caucasian ethnicity status, it becomes the comparison variable and the results of the regression for all other ethnicities are in comparison to Caucasian ethnicity status. Each ethnicity was dummy coded with minority status as one and Caucasian status as zero. Therefore, in the analysis, those with higher scores on the ethnicity variable were those from a minority culture. Additionally, missing data were accounted for in the regression by excluding cases pairwise. This means that participants' data were only used in the analysis if there were no missing values for the variables compared. The participant may have missing values for variables used in other analyses (Pallant, 2001). Correlation procedures were used prior to conducting the multiple regression analysis to determine how and to what degree the predictor variables were related. Correlation data indicated that the relationships between the variables ranged from $-.012$ to $-.357$. These results are shown in Table 6.

Table 6

Intercorrelations for Reading Achievement and Predictor Variables (N= 565)

Variable	1	2	3	4	5	6
FCAT SSS scaled score	.236**	-.012	-.027	-.353**	.002	.084
Predictor Variables						
1. Motivation to Read	--	-.357**	-.175**	.069	-.040	.021
2. Grade Level	--	--	.041	-.047	.094*	-.032
3. Gender	--	--	--	-.092*	.049	-.012
4. African American	--	--	--	--	-.350**	-.146**
5. Hispanic	--	--	--	--	--	-.088*
6. Mixed	--	--	--	--	--	--

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

When the multiple regression analysis was conducted the obtained R^2 value was .215, suggesting about 21.5% of the variance in reading achievement was accountable by the set of predictors. Cohen's (1992) effect size $f^2 = R^2 / (1 - R^2)$ was computed to be .27, which can be interpreted as a medium to large effect using Cohen's rough guidelines (.02 small, .15 medium, .35 large).

Table 7

Multiple Regression Summary for Variables Predicting FCAT

Variable	<u>B</u>	<u>SEB</u>	<u>β</u>
Motivation to Read	2.076	.296	.287**
Grade Level	1.631	.780	.084*
Gender	-1.365	4.329	-.012
African American	-48.591	4.768	-.418**
Hispanic	-20.520	5.994	-.139**
Mixed	2.164	11.644	.007

Note. $R^2 = .215$ ($N = 565$, $p < .001$).

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

Equation: reading achievement = $183.621 + 2.076*$ motivation to read + $1.631*$ grade level + $-1.365*$ gender + $-48.591*$ African American + $-20.520*$ Hispanic + $2.164*$ Mixed

The results of the multiple regression analyses are found in Table 7. In this table the first column lists the independent predictor variables. The next columns report the unstandardized coefficients (B), the standard error of B, and the betas, and the significance levels. These values are followed by the prediction equation. Thus, if two students are compared who are in the same grade and have the same gender and ethnicity, those with one point higher motivation to read scores would be predicted to have 2.076 points higher on their reading achievement test or on the Sunshine State Standard FCAT reading scaled score. Similarly, if two students, one Caucasian and one African American, are compared who are in the same grade and have the same gender and

motivation to read score, those who are African American would be predicted to have 48.591 points lower on their reading achievement test or on the Sunshine State Standard FCAT reading scaled score. The regression coefficients for motivation to read, grade level, and African American status and Hispanic status are all statistically significant ($t(565) = 7.024, p < .001, t(565) = 2.092, p = .037, t(565) = -10.191, p < .001, \text{ and } t(565) = -3.424, p = .001$, respectively). However, the regression coefficient for gender and Mixed status was not significant ($t(565) = -.315, p = .753 \text{ and } t(565) = .186, p = .853$, respectively).

To further analyze the contribution of each predictor variable to the prediction of reading achievement, the standardized regression coefficients were calculated. These coefficients indicate that a one standard deviation change in motivation to read leads to a .287 standard deviation change in predicted reading achievement, holding grade level, gender, and ethnicity constant.

The second research question was developed to examine which independent variable, motivation to read, grade, gender, or ethnicity has the strongest relationship to the dependent variable, reading achievement, as measured by the FCAT. To determine the results of this question standardized betas were examined for each of the predictors. Betas with a positive sign in front of them describe a positive prediction and those with a negative sign describe a negative prediction. A positive prediction means that if one score goes up the other score will go up, or as one score goes down the other will go down. A negative prediction means that as one score goes up the other score will go down. African American ethnicity status has the highest beta ($\beta = -.418, p < .001$) which means that it was the strongest predictor of reading achievement, and motivation to read had the

second strongest relationship to the dependent variable, reading achievement ($\beta = .287$, $p < .001$). Neither gender nor Mixed ethnicity status significantly predicted FCAT reading achievement and were equally weak predictors.

Because African American ethnicity status had a negative Beta, this indicates that those students identified as African American in the analysis had lower FCAT reading achievement scores than Caucasian participants, and those who were Caucasian had higher FCAT reading achievement scores than African American participants. Because motivation to read had a positive Beta, this means that for the participants in this study, those with high motivation to read scores also had high FCAT reading achievement scores, and those with low motivation to read scores similarly had low FCAT reading achievement scores. Contrastingly, the variables of gender and Mixed ethnicity status were equally weak predictors of FCAT reading achievement. These two variables did not significantly predict the level of FCAT reading achievement that a participant obtained.

Chapter Five

Discussion

The purpose of this study was to examine the relationship among the learner characteristics grade, gender, ethnicity, and motivation to read with reading achievement, as measured by the FCAT. A summary of the results of the study and their implications for school psychology and contributions to the field of education are described in this chapter. Additionally, the delimitations and limitations of this study, recommendations for future research, and conclusions are included.

Summary of Results

Research question one addressed the relationship among the independent variables grade, gender, ethnicity, and motivation to read with the dependent variable, level of reading achievement, as measured by the FCAT. Motivation to read, grade level, African American ethnicity status and Hispanic ethnicity status when compared to Caucasian ethnicity status were significant statistical predictors of reading achievement and accounted for 21.5% of the total variance. Both motivation to read and grade level had significant positive relationships with FCAT reading achievement, while, both African American and Hispanic ethnicity status had significant negative relationships. Although all of these variables had statistical significance at the .05 level, only the African American ethnicity status and motivation to read predictors demonstrated practical significance. These two variables had Betas stronger than .25, which is the value

most commonly found for these predictors in past research (Bong, 2001; DiPerna & Elliot, 2002; Gambrell et al., 1996b; McKenna et al., 1995).

The finding of motivation to read as a significant positive predictor of FCAT reading achievement suggests that children in this study who were most motivated to read also had the highest FCAT reading achievement scores. These results are consistent with past research in which motivation to read has been found to be significantly related to various other high stakes tests of reading achievement (Bong, 2001; DiPerna & Elliot, 2002; Gambrell et al., 1996b; McKenna et al., 1995). Because the results of this study are consistent with past research, a more dependable relationship can be supported between the constructs of reading achievement and motivation to read, and educators can design purposeful interventions to include these variables.

The significance of the grade level predictor indicated that the grade in which the student was in, at all levels, after entering the other predictors, predicted the level of FCAT reading achievement. This result was congruent to the findings of DiPerna et al. (2002), but inconsistent with the findings found by Diamond and Onwuegbuzie (2001). The results of the present study imply that the grade level of each participant determined the level of reading achievement that they obtained. The higher the grade level that the participant was in, the higher FCAT achievement standard score they obtained. At each grade level, the FCAT assesses different skills. This may suggest that students at lower grades may not be achieving a high grade on the FCAT, but throughout their years of schooling they acquire a wider amount of knowledge and test taking skills to receive higher scores. Alternatively, this may suggest that the students who are performing at the lowest levels on the FCAT at the lower grades may be dropping out of school by the time

that they get to the tenth grade. This would mean that students taking the FCAT in the tenth grade may not be representative of the students that are taking the FCAT in the third and seventh grades. The inconsistency with past research examining this construct of reading achievement across grade indicates that more research is needed in this area. Grade and reading achievement have been examined in most other studies utilizing elementary and middle school aged children (Diamond & Onwuegbuzie, 2001; DiPerna & Elliot, 2002; DiPerna et al., 2002; Pungello et al., 1996). The significance of the grade level predictor of reading achievement within the present study of participants with the inclusion of high school aged students suggests that the lower level FCAT examinations may be testing skills that students are not proficient in until higher grades.

African American and Hispanic students had significantly lower reading achievement scores compared to Caucasian students. This finding of ethnicity related to reading achievement is consistent with past research on other measures of reading achievement (Diamond & Onwuegbuzie, 2001; Graham, 1994; Pungello et al., 1996; Steele & Aronson, 1995). Although past research has shown that ethnicity is related to reading achievement, few studies have examined minority students other than African Americans. The results of this study add to the literature because now a relationship between African American and Hispanic ethnicity status with FCAT reading achievement has been introduced. Future research will need to investigate this further to establish consistent trends. Moreover, these results have a very important implication. These results suggest that minority students as a group are performing worse than majority students on high stakes measures of reading achievement. This may occur due to reasons such as test bias or unaccounted for moderating variables, such as socioeconomic status

(SES). In the current study during exploratory analyses, when SES was added into the regression, it was found to significantly negatively predict FCAT reading achievement meaning that those students considered low SES and coded as a 2 or 3 (free and reduced lunch, respectively) had significantly lower FCAT reading achievement scores. This factor is important to examine in this study because although only 36% of the total sample was considered low SES, 16% of the Caucasian students, over half (59%) of the African American students, and 40% of the Hispanic students sampled were of low SES. This means that due to the significantly larger portion of the African American and Hispanic students categorized as low SES, the variable of SES may have contributed to their lower scores on the FCAT and not their ethnic status. Families that have low socioeconomic status may not have the necessary resources in the home or in the neighborhood school to allow their children to learn the material needed to demonstrate proficiency on high stakes tests of reading (Molfese, Modglin, & Molfese, 2003). Consequently, the results of the present study need to be interpreted cautiously.

In contrast, the two remaining predictor variables, gender and Mixed ethnicity when compared to Caucasian ethnicity were not significant predictors of FCAT Sunshine State Standards scaled scores. Consistent with the results of this study, Flynn and Rahbar (1994) found that gender was not significantly related to reading achievement. However, Diamond and Onwuegbuzie (2001) and Pungello et al. (1996), in previous studies, found gender to be a significant predictor of reading achievement measured with other instruments. The results of the present study may have differed with past research due to the conflicting ethnic composition of the samples. The present examination used a very diverse sample of students, including 41% Caucasian, 37% African American, and 17%

Hispanic and they were spread throughout third, seventh, and tenth grades. Both the Pungello et al. (1996) and the Diamond and Onwuegbuzie (2001) studies used less diverse samples. Pungello et al. (1996) used a longitudinal sample of 60% Caucasian and 40% African American students in elementary and middle school and the Diamond and Onwuegbuzie (2001) study used a sample of 77% African American and 23% Caucasian students that included students in Kindergarten through fifth grade. Because no studies were found that examined the relationship between Mixed ethnicity and reading achievement, it was hypothesized that the low sample size for the Mixed ethnicity group ($n=4$ or less) undoubtedly reduced its predictive power.

Research question two addressed which independent variable, grade, gender, ethnicity, or motivation to read had the strongest relationship to the dependent variable FCAT reading achievement. In this study African American ethnicity status was found to be the strongest predictor of FCAT reading achievement scores. A strong link between ethnicity and reading achievement has been observed on most other high stakes tests of reading achievement (Diamond & Onwuegbuzie, 2001; Graham, 1994; Pungello et al., 1996; Steele & Aronson, 1995). These studies have also shown a strong link between SES level and reading achievement (Diamond & Onwuegbuzie, 2001). These studies have consistently reported that African American students do less well in reading than Caucasian students, and children from low SES level households do less well in reading than students from middle or high SES level households. Similar to the present study, standardized achievement tests were used to measure reading achievement in past research citing this trend. The present findings support the consistent link between African American ethnicity status, SES level, and high stakes reading achievement tests,

and should be taken into careful consideration by educators using these tests to make culturally competent decisions for any minority student.

The finding that this was the strongest predictor is very important to consider. Such a finding means that above all other variables examined in this study, African American ethnicity status most powerfully predicted reading achievement scores on the FCAT. However, as mentioned earlier, this finding may be accounted for by variables left out of the design. Low SES has been shown in past research to be related to low levels of reading achievement, and because the African American students in the present study had a significantly larger amount of low SES families than the Caucasian students, this finding needs to be examined cautiously (Diamond & Onwuegbuzie, 2001; Pungello et al., 1996).

Motivation to read was found to be the second strongest predictor of FCAT reading achievement. This link between motivation to read and reading achievement on other standardized measures has been supported by past research and the implications of this relationship were discussed earlier (Bong, 2001; Diamond & Onwuegbuzie et al., 2001; DiPerna and Elliot, 2002; Gambrell et al., 1996b; McKenna, Kear, and Ellsworth, 1995). The present finding indicates that above all other predictors except African American ethnicity status, including grade, gender, Hispanic ethnicity status, and Mixed ethnicity status, motivation to read was the strongest predictor of FCAT reading achievement score. Due to the strong predictability of motivation to read on FCAT reading achievement, this variable is important to assess when working with students of low reading ability within the Florida school system.

Additional support for these results include that the distribution of FCAT achievement levels obtained by the present sample paralleled the distribution of FCAT achievement levels obtained by the population of Florida students in grades three, seven, and ten during the same school year (Florida Department of Education, 2004a). Thus, the distribution of achievement levels across third, seventh, and tenth grade students on the 2002-2003 FCAT, matched the distribution of this sample.

Implications for School Psychology

Within the field of school psychology, researchers are assessing the effects of motivation to read on reading achievement. To date, few studies have investigated the relationship of this variable and FCAT reading achievement. This study demonstrates that grade, ethnicity, and motivation to read were found to be significantly related to the FCAT reading achievement, linking these results to past research in which these same variables were examined in relation to other tests of reading achievement.

The implications of these findings suggest that school psychologists in Florida need to expand their efforts when designing interventions to increase both motivation to read and reading ability. School psychologists must be more aware of this significant relationship and actively design interventions that address both skill and interest. Additionally, the findings suggest that interventions may need to be more intense and sensitive for African American and Hispanic students or students from a low SES household due to the lower scores that these groups of students are receiving on the FCAT. A further implication for the field of school psychology is the use of the results of the present study in training programs. If African American and Hispanic ethnicity status, SES level, and motivation to read are repeatedly found to be such strong predictors of

FCAT reading achievement, training programs might want to assign articles, develop assignments, and design research to explore these relationships further to ensure that future school psychologists have the ability to design academic interventions taking reading ability, motivation to read, and ethnicity into account.

School psychologists have a further role of fostering an environment in which motivation and ability is able to thrive. As seen by the review of the literature, many things can affect the level of motivation in a particular student (Gambrell, 2001). Systemic issues within a school or the climate of a school with a failing grade as measured by the FCAT the year before, may not facilitate normal development of motivation for academics. Furthermore, if a student's home environment does not cultivate the growth of motivation for academics then it is especially important for schools to assume this responsibility. An additional role for a school psychologist would be to take research from the current study and similar research to promote the importance of fostering an environment in which both motivation and ability are able to grow.

Finally, school psychologists should carefully examine these results in support of a model of academic enablers, and their effects on reading achievement in schools (DiPerna & Elliot, 2002). Academic enablers are nonacademic attitudes and behaviors, such as motivation to read, that allow a student to partake in, and profit from academic instruction (DiPerna & Elliot 2002). Currently, researchers in school psychology are designing models to assess the effect of academic enablers on actual achievement in schools. This study supports that motivation as an academic enabler for reading predicts a significant amount of reading achievement which indirectly predicts a significant amount of academic competence. A proposed model by DiPerna and colleagues (2002) suggests

that motivation to read directly influences study skills and engagement in school, and that these two enablers directly influence the development of academic skills. These researchers further suggest that prior achievement and interpersonal skills can directly impact motivation to read. Many past theoretical and empirical models of academic achievement have not included many of these student variables or enablers (DiPerna et al., 2002). The model examined by DiPerna and colleagues attends to these because failing to address them may lead to faulty assessment and intervention plans deficient in crucial factors that are fundamental to a student's academic failure (DiPerna et al., 2002).

Contributions to the Field of Education

These results are especially important to the field of education. Educators across the state are facilitating the development of student's reading skills by implementing the Reading First initiative, the Just Read Families program, and the Families Building Better Readers workshops, all which include a variety of reading interventions (Florida Department of Education, 2004b). The results of the present study should inform the design of these interventions and future ideas for reading development in schools.

Reading First has as its goal for every child to read at or above grade level by 2012. Florida received \$52 million in federal Reading First funds, which will total over \$300 million in six years to help aid this goal. The Just Read Families program is a summer reading program which provides parents with information about actively reading with their children during the summer months. Finally, the Families Building Better Readers workshops are designed for parents of Kindergarten through third grade students to learn about simple activities they can do with their children to improve reading performance (Florida Department of Education, 2004b).

The federal and state governments are spending much of the education budget on these reading interventions to enable Florida to satisfy the requirements of No Child Left Behind (NCLB) and Adequate Yearly Progress. NCLB was put into place to enhance all children's reading abilities, regardless of race, ethnicity, poverty, Limited English proficiency, gender, and migrant status (Florida Department of Education, 2003d). The results of the present study suggest that African American and Hispanic children are receiving significantly lower grades on the assessment used for measuring achievement to meet the requirements of NCLB in Florida and that level of SES also may play a major role. Keeping the results of this study in mind, educators must consistently disaggregate and analyze data from FCAT reading achievement and ensure that it lacks test bias. They must also take into account the level of SES and ethnicity of each child for which they use FCAT results to make high stakes decisions.

Additionally, these results are important for teachers and staff when designing interventions. To increase motivation to read, children need to be involved in high interest activities to facilitate intrinsic motivation, have incentives to promote extrinsic motivation and be given increased choices about the books that they can read in order to learn to view reading as fun and exciting (Gambrell, 1996). When a student is active in designing his/her reading environment, their attitude towards reading is positively affected (Towell, 2001). The implications seem clear for educators. Early intervention in reading achievement may curb the later decline in motivation to read.

While the practical application of this study to the specific school systems in which the data were collected is great, the results should not be automatically generalized to other school districts whose demographic variables vary from the sample that was used

in this study. However, the results that indicated that motivation to read was significantly positively related to reading achievement were consistent with the McKenna et al. (1995) study that used a nationally stratified random sample. In turn, this study may be able to add to the field of education because it further supports this correlation.

Likewise, the inverse relationship between African American status and Hispanic status with achievement in reading is important in an educational system in which minorities are slowly becoming the majority in many counties. Of the participants used in this study, Hispanic students comprised almost one-fifth of the sample, while the number of African American students was almost equal to the number of Caucasian students (37% and 41%, respectively). Of particular interest is whether factors such as the lack of African American and Hispanic teachers as role models play a part in students' lower reading achievement. In Broward County minority students comprise 74.5% of the total students and minority teachers only comprise 33% of the total teachers. In Hillsborough County minority students comprise 53% of the total student population and minority teachers only comprise 23% of the total teachers. Finally, in Leon County minority students comprise 43% of the total student population and minority teachers comprise 25% of the total teachers (Florida Department of Education, 2004c). This may be important for the field of education to examine further. Additionally, minority children may not have the opportunities to be encouraged or inspired by role models that they can relate to in the schools as teachers or in the books that they read (Donato, 1997). Also, stereotype threat may be contributing to this finding. Stereotype threat is a view that many African American children have in which they associate their success in education with "acting white" (Suskind, 1998). Steele and Aronson (1995) found this to be related

to intelligence test performance so it may also be important to consider when examining achievement test performance.

Delimitation

The research design included one intentional limitation. This delimitation is related to ethnic diversity. For the purposes of this study, participants who reported any other ethnicity than African American, Caucasian, or Hispanic/Latino, were placed into another category labeled Mixed Ethnicities prior to performing the statistical analyses. Also, those who reported more than one ethnicity were also placed into the Mixed Ethnicity category.

Limitations of this Study

The research design for this study had several external and internal threats to validity. A possible threat to the internal validity of this study was the use of self-report to assess a child's motivation to read. It is not possible to conclude whether children actually feel, believe, or do the things they report (Gambrell et al., 1996). In addition, due to the flexibility of the order in which the battery of tests were given in the larger study that these participants were sampled from, self-reported motivation to read may have been influenced. If the motivation to read survey was given before the two hour battery of tests, motivation to read may have been reported differently than if the survey was given after the two hours of reading and intelligence testing.

Another possible threat to the internal validity of this study was the use of a single measure to assess reading achievement. The FCAT is a timed high stakes test that is taken during school hours. Additionally, many children may get anxious about this test. An additional possible threat to the internal validity of this study was the use of the

Motivation to Read Profile to measure the variable of motivation to read. As seen within the review of the literature, there are multiple motivational theories within the field of education. Because of the controversy regarding theories of motivation, the use of a single measure to assess motivation to read may be criticized.

A threat to external validity was that the sample was only taken from three counties in the state of Florida. Therefore, the population and ecological generalizability (Tashakkori & Teddlie, 2003) of the study need to be interpreted with caution.

Additionally, because the sample of schools was chosen by SES and not by the ethnic breakdown of the school, the demographics of this sample do not reflect the demographics within the state of Florida. This means that because schools were sampled by their SES level, the racial makeup of these schools may have been overlooked and the minority students may have been oversampled. The group of participants utilized for this study slightly oversampled African American students. The percentage of African American students in this study equaled 38% of the total sample, yet the percentage of African American students within the public schools across the three counties utilized for this study was only 31%. The slight oversampling may explain why African American status was the strongest predictor of reading achievement. In contrast, the distribution of achievement levels obtained by this sample on the FCAT were comparable to the distribution of achievement levels obtained across the state of Florida during the same school year (Florida Department of Education, 2004a). These data imply that even though the ethnic representation of the sample used for the study was not equal to the ethnic representation of Florida population of students during the 2002-2003 school year they did, nonetheless, match in their distribution of scores on the FCAT.

Another threat to the external validity of the study is sample bias. This means that even though the schools were chosen to be ethnically diverse and representative of multiple SES levels, only the students who returned a consent form were selected as participants. Therefore, the comprised sample may have unequally represented SES levels and ethnicities than were primarily intended in the design of the study.

Directions for Future Research

Due to the limitations of this study, several recommendations are suggested for future research. In regards to the limitations involved in using a self-report measure, future studies should use qualitative methods as well as quantitative methods to gain a comprehensive rating of a child's motivation to read. Interviews with students, their parents, and their teachers may facilitate the design and implementation of a successful literacy program in Florida. Also, due to the variety of motivational theories within the field of education, future researchers should use multiple measures to assess this construct.

Another recommendation for future research would be to use a larger, more representative sample of students. The sample used for this study can only be generalized to the participating counties. Additionally, the sample was restricted to only those students who returned a consent form within the amount of time allotted. Additional studies with more time to collect data should mail out additional consent forms to families that did not return them and reminder postcards to ensure a more representative sample.

Further analysis of these constructs is suggested. In previous studies, gender has been a significant predictor of reading achievement (Diamond & Onwuegbuzie, 2001;

Pungello et al., 1996). Contrary to prior research, this study found the opposite trend. Future studies should further investigate these contradictory findings. Furthermore, future analyses could examine these same research questions, but investigate differences across both SES level and ethnicity. In regards to ethnicity, future studies may be needed that include larger samples of other ethnic groups (e.g., Asian or Native American). For the variable of SES, future studies should investigate its relationship not only with FCAT reading achievement but also with motivational correlates.

Moreover, although this study was a snapshot of a diverse group of students, future studies may add more valuable information by using a longitudinal design to assess reading and motivation to read across time in the same students. In addition, to replicate the results of this study, the relationship between motivation to read and reading achievement could be examined in relation to other assessments of reading achievement such as Curriculum-Based Measurement or permanent products within the classroom setting. Replications of these results are needed to assist educators in recognizing students who are the most in need of interventions.

Conclusions

This study was conducted to examine the relationship between demographic variables such as grade, gender, ethnicity, and motivation to read and reading achievement, as measured by the FCAT. The findings indicate that motivation to read, grade, African American ethnicity status, and Hispanic ethnicity status are significant predictors of reading achievement, as measured by the FCAT. African American status was the strongest predictor in the present study and had an inverse relationship with FCAT reading achievement, while motivation to read was the second strongest predictor,

but had a positive relationship to FCAT reading achievement. In contrast, gender and Mixed ethnicity status were not found to be significant predictors of FCAT reading achievement in this study. Because reading achievement, as measured by the FCAT is important to measure school accountability, these results are important for the field of school psychology and the future of education. The variables of grade, ethnicity, and motivation to read need to be taken into account when designing individual interventions and when conceptualizing state-wide legislation or classroom reading interventions.

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Appendix

Appendix A

Mean and Standard Deviation of the Motivation to Read Profile and the FCAT (N=585)

Variable Name Third

	Male			Female		
Ethnicity	C (43)	AA (31)	H (12)	C (40)	AA (58)	H (19)
Motivation \bar{X}	70.5	69.8	70.7	71.8	72.4	70.7
Motivation s	6.3	9.1	8.4	6.2	6.0	7.9
FCAT \bar{X}	346.2	270.4	304.9	326.4	293.6	300.8
FCAT s	65.5	42.5	49.0	52.4	53.9	79.6

Seventh

Ethnicity	C (35)	AA (23)	H (9)	C (53)	AA (40)	H (16)
Motivation \bar{X}	65.5	68.4	67.4	69.6	67.7	69.1
Motivation s	7.5	5.7	6.2	6.5	7.1	6.7
FCAT \bar{X}	319.5	281.1	312.1	345.4	298.5	334.8
FCAT s	58.0	51.8	34.5	49.1	47.7	57.5

Tenth

Ethnicity	C (33)	AA (26)	H (27)	C (34)	AA (38)	H (17)
Motivation \bar{X}	59.6	64.9	63.4	66.1	66.4	65.8
Motivation s	8.3	7.8	5.9	9.5	7.0	6.6
FCAT \bar{X}	320.4	292.9	303.3	331.7	276.8	321.2
FCAT s	37.2	49.0	45.2	47.7	30.9	30.2

Note. Numbers in parentheses reflect frequencies; Ethnicity: C is Caucasian, AA is

African American, and H is Hispanic.

Appendix B

SSS Scaled Score Conversions to FCAT Achievement Levels

Achievement Level	Grade		
	3	7	10
1	100-271	100-279	100-299
2	272-296	280-312	300-339
3	297-344	313-356	340-367
4	345-406	357-401	368-384
5	407-500	402-500	385-500