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## Achievement Gaps Throughout The Education Pipeline: Tracking The Trends Before And After The Florida Education Governance Reorganization Act Of 2000

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ACHIEVEMENT GAPS THROUGHOUT THE EDUCATION PIPELINE: TRACKING THE  
TRENDS BEFORE AND AFTER THE FLORIDA EDUCATION GOVERNANCE  
REORGANIZATION ACT OF 2000

By

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B.S. Florida State University, 2007

A thesis submitted in partial fulfillment of the requirements  
for the degree of Master of Arts  
in the Department of Political Science  
in the College of Sciences  
at the University of Central Florida  
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## ABSTRACT

To assess the effectiveness of the Florida Education Governance Reorganization Act of 2000, I analyze the achievement gaps across different levels of the education pipeline: elementary, secondary, and postsecondary. This paper evaluates three objectives of Florida's new system: strengthening of foundation skills, improvement of college and career readiness, and the expansion of opportunities for postsecondary degrees, by asking: Has the introduction of a PreK-20 seamless system in Florida reduced the educational achievement gaps between students, compared to Texas, which has not instituted a seamless system? At the elementary level, the analysis looks at 4<sup>th</sup> and 8<sup>th</sup> grade National Assessment of Education Progress (NAEP) average scale scores, from 1998 to 2007, of White, African-American, and Hispanic students and those students eligible and ineligible for the National School Lunch Program. At the secondary level, a comparison is made between the Advanced Placement passing rates of White, African-American, and Hispanic students from 1997 to 2008. At the postsecondary level, this paper examines the proportion of professional, master, and doctoral degrees awarded to White, African-American, and Hispanic students from 1995 to 2007. Results show that although Florida has raised the level of achievement for White, African-American, and Hispanic students in the past ten years, disparities between these groups still exist in NAEP scores, AP passing rates, and the proportion of graduate degrees conferred. Therefore, while the state has made progress towards its three goals, achievement gaps still remain in several levels of Florida's PreK-20 education system.

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## CHAPTER ONE: INTRODUCTION

### A General Overview of Educational Achievement Gaps

The demographic makeup of the United States is rapidly changing. In the year 2050, African-Americans and Hispanics will constitute 39.1% of the population (U.S. Census Interim Projections, 2004). Unfortunately, the educational achievement of these minority students is not yet on par with their White peers. By the time African-American, Hispanic, and low-income students in the U.S. reach 4<sup>th</sup> grade, they are about two school years behind other students, academically. Once these students reach 12<sup>th</sup> grade, their academic skills measure about four school years behind other students. In fact, English, math, and science skills of 17-year old minority or low-income students are comparable to those of 13-year old White students (Haycock, Jerald, and Huang, 2001). This disparity in academic accomplishment has severe consequences for these individuals and the nation as a whole.

With a college education, an individual also reaps long-term economic and social benefits. Over the course of their professional life, full-time workers with a bachelor's degree had a median salary of \$42,877 compared to \$27,351 earned by high school graduates. Throughout their lifetime, a college graduate will earn almost twice as much as an individual with a high school diploma: \$2.1 million compared to \$1.2 million (U.S. Census Employment, 2005). Those with a college degree also attained a higher quality of life for their children, created greater levels of financial saving, and spent more time on leisure activities (Haney,

Madaus, Abrams, Wheelock, Miao, and Gruia, 2004). College graduates garner life-long benefits for themselves, their families, and their community. The ongoing discrepancies in educational attainment between demographic groups, therefore, lead to social and financial gaps that are extremely difficult to overcome.

As the nation's demographic composition shifts towards a greater proportion of African-Americans and Hispanics, it is even more important that these student groups attain higher levels of learning so that the United States continues to be a well-educated nation. Today's global economy is driven by technology and innovation, requiring a higher level of critical thinking skills. Without viable and lasting changes in the way we educate all of our citizens, the nation may encounter difficulty maintaining its competitiveness in the global labor market.

The gaps in educational performance that separate minority and White students have been the center of discussion, research and controversy for nearly half of a century. The phrase "achievement gaps" has generally referred to the disparities in academic performance, achievement, or persistence between groups of students (Viadero and Johnston, 2000). This concept is most often used to describe the troubling academic performance gaps between low-income, African-American, and Hispanic students and their more affluent, White peers. While these gaps had narrowed considerably through the 1980s, progress since then has been marginal and, in some instances, encountered a reversal (Davies, 2006; Rothstein, 2006). It is an unfortunate fact that in the 21<sup>st</sup> century, the academic underachievement of low-income and minority students still remains one of the most urgent problems we face in the United States (Anderson, Medrich, and Fowler, 2007; Gardner, 2007; Ilon and Normore, 2006; Swail, Redd, and Perna, 2003).

## Recent Legislation and the Achievement Gap

Recently, national legislative efforts have been made in order to reduce these achievement gaps in educational attainment. The No Child Left Behind Act of 2001 (NCLB) was passed as a reauthorization of the Elementary and Secondary Education Act of 1965, in order to “ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education” (No Child Left Behind Act of 2001 § 20, U.S.C. § 6301, 2001). In an effort to fulfill this purpose, NCLB has enacted a series of standards-based education reforms; these include higher standards of accountability, increased flexibility in school choice, and annual assessments for every student. These outcome-focused changes are based on the belief that setting lofty standards and creating quantifiable goals can improve the effects of education.

With these system-wide changes, NCLB has focused on national, state, and local efforts to raise the level of academic achievement for minority and low-income students. In order to achieve the stated purpose of providing a high-quality education for everyone, NCLB looks “to close the achievement gap between high- and low-performing children, especially the achievement gaps between minority and non-minority students, and between disadvantaged children and their more advantaged peers” (No Child Left Behind Act of 2001 § 20, U.S.C. § 6301, 2001). Under the provisions of NCLB, the annual school accountability reports must disaggregate student data by major racial group, free/reduced lunch program eligibility, limited

English proficiency, and students with disabilities. This supplies vital information on the level of educational performance of these students groups and allows research to track changes in the achievement gaps.

The structure of education in the state of Florida has recently incorporated an important concept in modern political science: the pipeline theory. The pipeline theory predicts that minorities serving in lower-levels of political office will utilize those resources and experiences gained at those entry-levels to advance to higher office. After all, previous experience is a necessary condition to be considered a well-qualified candidate. Based on this theory, scholars have predicted that the election of increasing numbers of minorities to state and local offices will result in proportionate increases in minority representation in the higher levels of government (Cooper, Chavira, and Mena, 2005).

This pipeline metaphor is a simple way of conceptualizing a continuous education system. A “pipeline is a delivery system comprised of several components with intake and output points all along the continuum” (Florida’s College System, 2008). However, just as with the political pipeline theory, those individuals who reach high levels of educational achievement earlier, often go farther along the pipeline.<sup>1</sup> In an effort to increase student achievement, Florida has developed a comprehensive educational system that provides smoother transitions for learning, following this concept of an education pipeline.

In November 1998, Florida’s voters passed a constitutional amendment mandating the reorganization of Florida’s public education governance structure. Shortly after the passage of

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<sup>1</sup> For instance, students who enter gifted courses in elementary school often persist in college and prove to be more successful in completing a degree.

this amendment, thirty-five leaders throughout the state were appointed by the Commissioner of Education to a Blue Ribbon Committee on Education Governance in order propose a new governance structure of the state's education system. With the Committee's final suggestions presented in February, the Legislature passed the Florida Education Governance Reorganization Act of 2000, which generally embraced the majority recommendations of the Committee. This Act also formed an eleven-member Transition Task Force, responsible for making statutory suggestions on the following topics: education system integration, economies of education services, realignment of staff functions, and the operation of Florida Virtual School (Reorganization of education governance, 2000).

The structural changes undertaken by the task force included the creation of a seven-member, governor-appointed Florida Board of Education, charged with the selection of a Commissioner of Education. This Commissioner of Education now oversees all four divisions within Florida's education system, as illustrated below in Figure 1. Under the new structure, the Board of Regents has been abolished and the State Board of Education is now responsible for serving as a single voice for education. The Commissioner of Education, serving as the chief educational officer of the state, is responsible for the management of every level of education, from kindergarten through college.

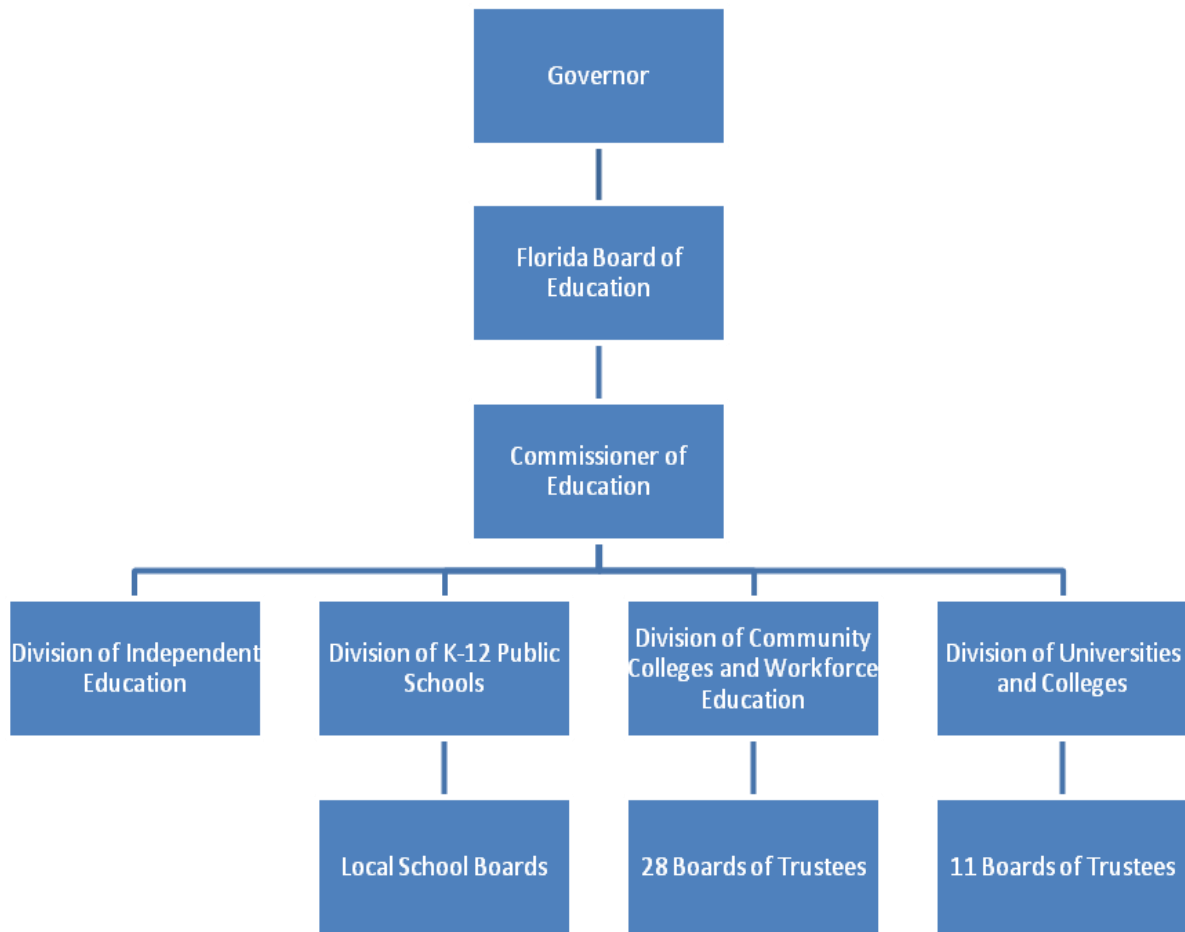


Figure 1: Florida’s Education Structure: Statewide Education System Following the Passage of the Florida Education Governance Reorganization Act of 2000

The purpose of this seamless system is to establish an academic coordination that promotes an integrated continuum from kindergarten through graduate school for all of Florida's students. By the language of the statute, Florida's PreK-20 education system “shall be a decentralized system without excess layers of bureaucracy,” in order to “allow its students to increase their proficiency by allowing them the opportunity to expand their knowledge and skills through rigorous and relevant learning opportunities” (Florida Statute XVI, Ch. 229 § 006,

2000). The new, streamlined arrangement of Florida's education governance structure was formed to

... realize the full potential of all students within one seamless, efficient system, and to create an accountability process that measures progress toward the following goals: highest student achievement, seamless articulation and maximum access, skilled workforce and economic development, and quality efficient services (Florida Statute XVI, Ch. 229 § 006, 2000).

This mission statement is coupled with five objectives, called "strategic areas of focus." These goals, described by the Legislature, are: strengthen foundation skills, improve college and career readiness, expand opportunities for postsecondary degrees and certificates, improve quality of teaching in the education system, and improve K-12 educational choice options.

The five objectives outlined above are measured by various performance benchmarks set by the Florida Board of Education. For instance, in order to improve college and career readiness, Florida must look to 1) increase the number and percentage of students performing at college-ready levels in math and language arts, 2) raise the number and percentage of students enrolled in Algebra I before 9<sup>th</sup> grade, and 3) increase student participation and performance in accelerated options (Florida's next generation PreK-20 education strategic plan, 2008).<sup>2</sup> To expand opportunities for postsecondary degrees and certificates-- another one of the strategic

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<sup>2</sup> The high school accelerated options included in the performance benchmarks are: Advanced Placement, International Baccalaureate, Dual Enrollment, and Advanced International Certificate of Education programs.



areas of focus-- the state's education system must 1) increase the postsecondary enrollment rate, 2) increase the diversity and number of high school graduates who enroll in postsecondary education, 3) increase the diversity and number and percentage of high school graduates who earn a certificate or a degree at a community college, 4) and increase the diversity and number and percentage of community college or state university system students who enroll in and complete upper division program of study (Florida's next generation PreK-20 education strategic plan, 2008). Each of these performance benchmarks was selected in order to evaluate the efficiency of Florida's new system of education in reaching the objectives outlined by the express language of the statute.

To assess the effectiveness of such a monumental shift in the state's education structure, I look to whether these specified goals have been met. In order to evaluate three of the five main objectives of the PreK-20 education system, the strengthening of foundation skills, improvement of college and career readiness, and the expansion of opportunities for postsecondary degrees and certificates, I ask the following question: Has the introduction of a PreK-20 seamless system in Florida reduced these educational achievement gaps between students, compared to Texas, which has not instituted a seamless system? This paper analyzes the size of the educational achievement gaps in Florida and Texas, in order to see whether the introduction of this system has served one of its most vital purposes: raising the level of academic achievement for low-income and minority students.

## CHAPTER TWO: LITERATURE REVIEW

### Research on Educational Achievement Gaps

In generations past, hard-working Americans were able to craft successful careers without a college degree. In the 21<sup>st</sup> century, however, individuals require some form of postsecondary training in order to compete in the highly-skilled, technology-driven, global labor market. Now emphasizing the importance of instruction beyond high school, this increase in the societal value of a college degree has created some unforeseen externalities (Engle and Tinto, 2008). After entering kindergarten already behind their wealthy and White peers, many low-income and minority students are unable to reach the standards of their own grade levels and never get a chance to attend college (Crisis at the core, 2005). By the end of 12<sup>th</sup> grade, the reading and mathematics skills of African-American and Hispanic students are nearly the same as those of 8<sup>th</sup> grade White students (Haycock, Jerald, and Huang, 2001). At the age of 29, African-Americans are about half as likely as Whites to have earned a bachelor's degree; Hispanic individuals are nearly one-third as likely (Barton, 2003)

These discrepancies in the level of educational attainment between demographic groups have severe, long-term repercussions. The annual median earnings for full-time workers, based on degree, are as follows: high school diploma, \$32,500; associate's degree, \$42,000; bachelor's degree, \$53,000; master's degree, \$63,000; and professional degrees, \$100,000+ (U.S. Census

Earnings, 2005).<sup>3</sup> It is clear that the cost of not “getting a college education has increased sharply in the past 25 years. Changes in the structure of work have left the least-skilled workers in a precarious economic position, with decreasing opportunities to earn enough to support a middle-class lifestyle” (Cracks in the education pipeline, 2005, page 21). This indicates that minority students, who lag far behind White students in college completion rates, are far less likely to reap the ongoing social and financial benefits of a postsecondary education.

During the successful social movements of the 20<sup>th</sup> century, issues of equality rose to the forefront of the American political scene. Social science research explored the extensive inequities between various demographic groups. It was recognized that the economic and social disparities between White and minority adults could be traced back to the gaps in educational performance between these groups. As young people, minority students often began their formal education on a different “track” than their White classmates (Fry, 2004). By entering school with lower income levels and parents with less formal education, many minority and low-income students found themselves trapped in a feedback loop of underachievement (Fry, 2002; Haney, et. al., 2004).

Education research has long focused on the inequities of access and success between different groups of students. And although the achievement gap is a commonly-used concept in education, researchers have failed to agree on a definition. This scholarly discord concerning concept definition makes calculating the achievement gap an even more difficult task. Researchers have proposed countless measures, found at all levels of education, in order to monitor and assess the educational achievement gaps. In the field of early childhood and

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<sup>3</sup> These figures are reported for all full-time workers who are at least 25 years old.

elementary education, several criteria are used to gauge the gaps in achievement. These features include access to high-quality preschool instruction, early reading and math skills, participation rates in gifted programs, state test scores, size of vocabulary, and letter recognition skills (Ballou and Springer, 2008; Barton, 2003; Creating the will, 2000; Haskins and Rouse, 2005; Rothstein, 2004).

At the secondary level, some of the factors used to evaluate the achievement gap include course rigor, number of advanced courses, graduation rates, state test scores, college entrance exam scores, and class rank (Barton and Coley, 2008; Creating the will, 2000; Engle and O'Brien, 2008; Greene, Winters, and Forster, 2003; Hall, 2005; Harris and Herrington, 2006; Horn and Carroll, 1997; McCall, Hauser, Cronin, Kingsbury, and Houser, 2006; Tinto, 2004). These factors, generally considered reliable measures of academic success in high school, are not always comparable between states or over time. This can often hinder the achievement gap research performed at the secondary level. Scholars sometimes use nationally collected data to supplement the state-level measures outlined above. Achievement gaps at the collegiate level can be illustrated by several standards, which are more easily comparable over time (Cabrera, Burkum, and La Nasa, 2005). The measures used to evaluate these gaps take into account college selectivity, number of remedial courses required, amount of time taken to complete a degree, graduation rates, type of degree earned, and grade point average (Barton, 2003; Creating the will, 2000; Engle and O'Brien, 2008; Haney, 2006; Horn and Chen, 1998; Swail, Cabrera, Lee, and Williams, 2005; Toews and Yazedjian, 2007).

Throughout the field of education research, the achievement gap is sometimes identified as the difference in the academic performances of poor, minority students and their white,

wealthier peers (Carpenter, Ramirez, and Severn, 2006; Cooper, Chavira, and Mena, 2005; Gardner, 2007; Green, 2006; Haney, et. al., 2004; Kober, Chudowsky, and Chudowsky, 2008; Lee, 2004; Martinez and Klopott, 2003; McGuinness, 2002; Venezia, 2002). The disputes in demonstrating and evaluating the achievement gaps are made even more complex when researchers begin to ask why these gaps occur. The proposed explanations of the educational achievement gaps are plentiful, but difficult to remedy. These reasons include cultural and institutional factors relating to the student, their family, the school or district, and the structure of the education system.

Cultural diversity often plays a considerable role in the understanding of the achievement gaps in education. Low-income and minority students often have parents with lower levels of education, which can lead to a lack of educational resources in the home and a lack of information about the education system. This lack of resources and information may also lead to lowered educational aspirations, expectations, and goals for the student (Haskins and Rouse, 2005). In addition to the educational expectations of their family and community, minority students believe that their teachers and classmates see them as less capable and expect little of them. With little incentive to persevere in school, since they have been led to believe they won't succeed anyway, students may become academically disengaged and discouraged (Borman, Stringfield, and Rachuba, 2000; Campaign for high school equity, 2007; Olszewski-Kubilius, Lee, Ngoi, and Ngoi, 2004). These negative attitudes towards minority students often exhibit themselves unintentionally and in subtle ways. Some of the discriminatory experiences dealt with by minority student include: being called on less frequently, provided with less time to answer a question, being paid less positive attention, and given harsher and more frequent

criticism (Borman, Stringfield, and Rachuba, 2000; Cooper, Chavira, and Mena, 2005). The cultural differences between demographic groups may affect the way that we educate these students, whether or not educators are aware of these instructional inconsistencies.

These low-income and minority students who start school with cultural disadvantages often encounter institutional conditions that only augment the gap in educational attainment. At its core the “prevailing method for the funding of schools, which relies on the wealth of the local tax base, these differences tend to favor wealthier communities and place poor and minority communities at a disadvantage” (Borman, Stringfield, and Rachuba, 2000, page 6). Low-income and minority students often attend schools with inadequate funding and fewer high-quality teachers (Borman, Eitle, Michael, Eitle, Lee, and Johnson, 2004; Conklin, 2005; Gardner, 2007; Haycock, 2006). These barriers to success are extremely difficult to overcome and are often related: high-quality teachers do not want to work in a school with limited funding and a school with limited funding cannot afford to recruit high quality teachers (Callan, Finney, and National Center for Public Policy and Higher Education, 2003; Horn and Chen, 1998; Ilon and Normore, 2006; Lee, 2008, Wyner, Bridgeland, and Dilulio, Jr., 2007).

Additionally, this inadequate funding at the school level has severe consequences on the opportunities available to students. From computers and projectors to textbooks and pencils, these underfunded schools cannot provide the resources that students need to master the skills required of them (The role of nonacademic factors, 2008). Low-income and minority students are also presented with fewer opportunities to excel, not just persist, in school. These students are less likely to participate in gifted, college-prep, or dual credit acceleration programs, which have been found to be great predictive factors of college success (Bailey and Karp, 2003;

Bangser, 2008; Bridgeland, Dilulio, Jr. and Morison, 2006; Dougherty, Mellor, and Jian, 2006; Florida Board of Education, 2003; Hale, 2001; Martinez and Klopott, 2005; Mattern, Shaw, and Williams, 2008; Noeth and Wimberly, 2002; Olszewski-Kublius, et.al., 2004; Waits, Setzer, and Lewis, 2005). The institutional and cultural barriers to academic success listed above are only a small sample of the accounts given to explain the persistence of the achievement gaps in education.

The wide variety of factors that have been found to influence the educational achievement of students have led to an expansive range of proposed remedies in order to narrow these gaps. At the school level, many researchers suggest raising the level of educational expectations and aspirations for students who otherwise would not seriously consider attending college. This involves forming a new paradigm for administration, guidance counselors, and teachers, in which every high school graduate should go on to attend college (Bangser, 2008; Barton, 2003; Borman, Stringfield, and Rachuba, 2000; Bridgeland, Dilulio, Jr., and Morison, 2006; Campaign for high school equity, 2007; Creating the will, 2000; Cronin, Kingsbury, McCall, and Bowe, 2005; From risk to opportunity, 2003; Horn and Carroll, 1997; Martinez and Klopott, 2003; Walpole, 2007). The idea of altering our social expectations of minority and low-income students is a popular suggestion. But with little advice to its practical application, this seems like a slow process of changing our social prejudices and outlooks.

At the classroom level, several changes have been proposed to raise the academic performance of students. Although research results have been mixed, smaller class sizes, as required under NCLB, have been suggested to provide more one-on-one, quality instructional time between the teacher and students (Balfanz and Legters, 2004; Creating the will, 2000;

Cronin, et.al., 2005; Ilon and Normore, 2006; Swail, Redd, and Perna, 2003). Many scholars suggest that schools and districts raise the number of accelerated options in high school: advanced placement, international baccalaureate, and dual enrollment courses. Also, guidance counselors and teachers are asked to encourage low-income and minority students to take these courses in order to challenge them and increase the rigor of their high school career (Bailey and Karp, 2003; Bangser, 2008; Barton, 2003; Creating the will, 2000; Crisis at the core, 2005; Florida Board of Education, 2003; Hale, 2001; Horn and Carroll, 1997; Jehl, 2007; Kirst, 1998; Lee, 2006; Martinez and Klopott, 2005; Waits, Setzer, and Lewis, 2005). Additionally, some research proposes an increase in instructional quality by ensuring that educators are teaching classes in their field of study; for instance, a teacher with a degree in social science and secondary education should not be teaching a 5<sup>th</sup> grade mathematics class (Barton, 2003; Campaign for high school equity, 2007; Creating the will, 2000; Haycock, 2006; Lee, 2004).

At the district level, involving the larger community, several suggestions have been made to increase the educational success of all students and close the achievement gaps. Some propose that school districts provide more information to parents about school choice, free pre-kindergarten and after-school programs, and pre-college workshops that are usually available at no cost to the student. Additionally, scholars recommend that this information should be provided in the parent's native language in order to avoid issues of translation (Bridgeland, Dilulio, Jr., and Morison, 2006; Campaign for high school equity, 2007; Cooper, Chavira, and Mena, 2005; Creating the will, 2000; From risk to opportunity, 2003; Olszewski-Kublious, et. al., 2004; Venezia, Kirst, and Antonio, 2003). Another suggested remedy at the district level is to increase the number of magnet or charter schools, which have been shown to increase



performance and achievement in all students, regardless of race or ethnicity (Creating the will, 2000; Hurst, Tan, Meek, Sellers, and McArthur, 2003; Walpole, 2007). However, many of these proposed changes at the district level require a great deal of money and the existing economic crisis makes this nearly impossible.

At the state level, the suggested changes have been more comprehensive. Scholars suggest increased funding for specific student populations or programs in order to raise the achievement of these groups, such as literacy coaches or language immersion programs for English language learners (Campaign for high school equity, 2007; Cracks in the education pipeline, 2005; Haskins and Rouse; 2005; Haycock, 2006; Hurst, et. al., 2003; U.S. Commission on Civil Rights, 2004). This suggestion of increasing the budget for various specific programs is often recommended, but given the current financial climate, one must question the feasibility of this solution.

Even before the popularity of NCLB and its standards-based reforms, researchers have claimed that the introduction of greater accountability and data systems will help increase the transparency and effectiveness of education governance. This, proponents assert, will allow for greater information about the shortcomings of the current education systems and provide insight into the efficacy of programs with regards to specific student populations (Callan, Finney, Kirst, Usdan, and Venezia, 2006; Dixon, 2008; Hurst, et. al., 2003; The No Child Left Behind Act of 2001 and the pathways to college network, 2005). On the other hand, some scholars argue that instituting these systems of accountability does little to increase minority student performance without other major alterations to the education structure (Borman, et. al., 2004; Haycock, Jerald, and Huang, 2001; Horn and Chen, 1998; Stiefel, Schwartz, and Chellman, 2007). Since the

institution of NCLB's outcome-based reforms, researchers have analyzed the success of these accountability systems on reducing the educational achievement gaps, but with too few years of comparable data to draw trustworthy conclusions.

A substantial, system-wide, structural change that has been proposed as a remedy to these achievement gaps, involves the alignment of curriculum and standards throughout the education pipeline. This is suggested to help those students who face transitional difficulties in the flow of education, from one level of education to the next. Moreover, the young people who fall through these cracks in the pipeline are more likely to be low-income and minority students (Callan, et. al., 2006; Horn and Carroll, 1997; Jehl, 2007; Krueger, 2006; Noeth and Wimberly, 2002; Plank, McRobbie, Klasik, Mullen, and Williams, n.d.; Van de Water and Rainwater, 2001; Venezia, Kirst, and Antonio, 2003). Specifically concerned with the transition between high school and college, many of these pipeline proposals suggest a shift in the way we view the role of high schools (Florida Community Colleges and Workforce Education, 2005; Scatton, Coley and McBride, 2006; Waits, Setzer, and Lewis, 2005).

Conventionally, we have viewed high schools as performing two primary tasks: preparing some students for postsecondary education and preparing most students for work.

Although that division may have been appropriate decades ago, it is no longer relevant today, primarily because of the increasing technological and educational demands of the contemporary workplace (Callan, et. al., 2006, page 6).

This idea of aligning curricula between levels of education has been gaining favor in research, administrative, and political circles, under the name PreK-16 or PreK-20 seamless educational systems.<sup>4</sup> The concept “PreK-20” is a term used to identify and emphasize the interconnectedness of different levels of education: elementary, secondary, and postsecondary. These continuous education systems have several goals that include: smooth transitions from one level of education to the next, close the achievement gaps between minority and white students, improve teacher education and retention, strengthen relationships between parents and schools, create a greater range of educational opportunities for students in high school, and improve college and career readiness (Bangser, 2008; Cooper, Chavira, and Mena, 2005; Dounay, 2002; Venezia, 2002). Under this model, a great number of stakeholders are involved: education advocates in K-12 and higher education, community business leaders, politicians, teachers and professors, administrators, students, and parents (KewalRamani, Gilbertson, Fox, and Provasnik, 2007; Pappas Consulting Group, 2007). As illustrated in Figure 2 below, each stage of education should persist to the next.

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<sup>4</sup> When the term Pre-16 or Pre-20 is used, the category of early childhood education is also included, as “P” stands for pre-kindergarten programs. Those programs through 16 include college and those through 20 include graduate school.

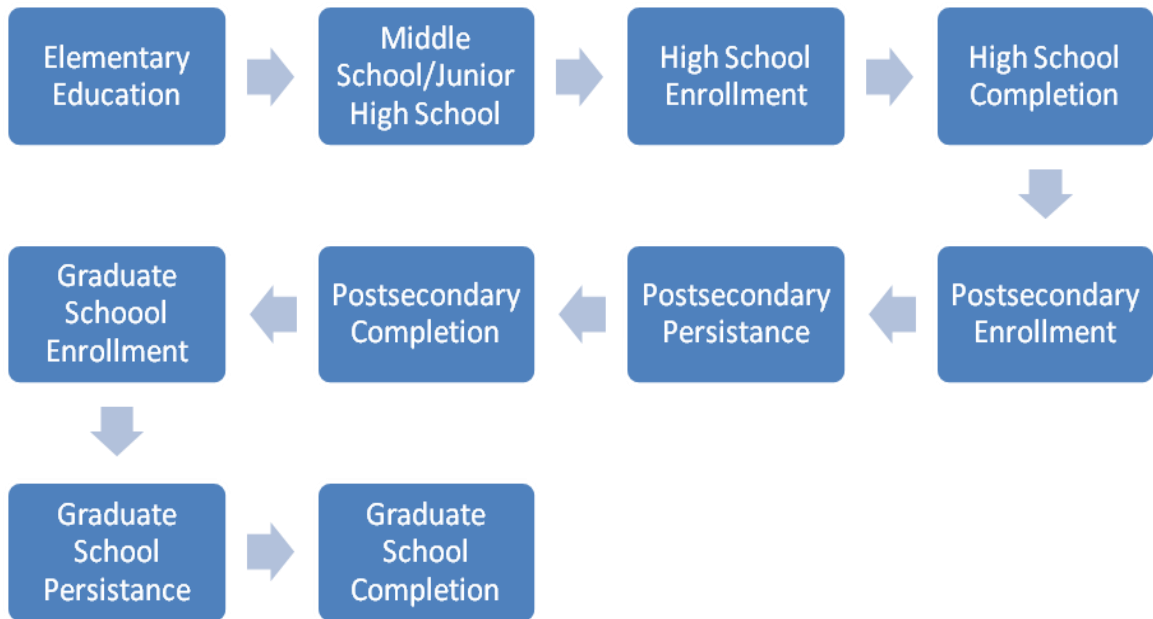


Figure 2: PreK-20 Model of Education: An Illustration of a Seamless Education System

### Legislation Addressing the Educational Achievement Gaps

By the late 20<sup>th</sup> century, the United States government proposed several reforms in an effort to reduce the growing gaps in educational achievement and raise the social and economic status of all Americans. In 1969, the federal government instituted the National Assessment of Education Progress (NAEP), called the Nation’s Report Card, in order to track the academic development of students (U.S. Commission on Civil Rights, 2000). With evidence of substantial inequities in the early 1970’s, the NAEP helped to illustrate the narrowing of these achievement

gaps throughout the 1970's and 1980's. In the 1990's, however, these gaps in achievement began to increase again (Lee, 2002). Although progress was made, the narrowing of the achievement gaps does not always indicate progress for low-income and minority students. Instead, the changes may be evidence of a decrease in performance by White and wealthy students. The goal, then, must be to increase achievement for all students while accelerating gains for the low-income and minority students who are furthest behind, thereby closing achievement gaps.

To reach this goal of advancement for all and accelerated advancement for minority and low-income students, the federal government passed the No Child Left Behind Act of 2001. Passed as a reauthorization of the Elementary and Secondary Education Act of 1965, NCLB works to “ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education” (No Child Left Behind Act of 2001 § 20, U.S.C. § 6301, 2001). In an effort to fulfill this purpose, NCLB mandated a series of standards-based education reforms; these include higher standards of accountability, increased flexibility in school choice, and annual assessments. These outcome-focused changes are based on the belief that setting high standards and creating quantifiable goals can improve the results of education. Along with these system-wide changes, NCLB has also concentrated national efforts to minimize the gaps in educational attainment between students.

For NCLB to achieve its stated purpose of providing a high-quality education to everyone, the United States must begin “to close the achievement gap between high- and low-performing children, especially the achievement gaps between minority and non-minority students, and between disadvantaged children and their more advantaged peers” (No Child Left

Behind Act of 2001 § 20, U.S.C. § 6301, 2001). Under the provisions of NCLB, the annual school accountability reports must disaggregate student data by major racial group, free/reduced lunch program eligibility, limited English proficiency, and students with disabilities. This supplies vital information on the level of educational performance for these students groups and allows us to track the changes in the achievement gaps. NCLB has helped to refocus the public's attention on the underachievement of our low-income and minority students.

Two years before the passage of NCLB, in November of 1998, Florida's voters passed a constitutional amendment mandating the reorganization of Florida's education cabinet and governance structure. Shortly after the passage of this amendment, thirty-five leaders from across the state were appointed to a newly-formed Blue Ribbon Committee on Education Governance. Selected by the Commissioner of Education, the committee proposed to the Legislature a new structure for the state's education governance. By 2001, the Legislature passed the Florida Education Governance Reorganization Implementation Act, which formed an eleven-member Transition Task Force. This group of selected state leaders was given the responsibility of making statutory suggestions on several topics, including the integration of system components, the realignment of staff functions and the reorganization of responsibility throughout the new system (Pappas Consulting Group, 2007; Reorganization of education governance, 2000; Venezia and Finney, 2006).

Between 2001 and 2003, major structural reforms to the statewide education system were adopted and implemented. These changes included the creation of a seven-member, governor-appointed Florida Board of Education, charged with the selection of a Commissioner of Education. Under Florida's new system, this Commissioner of Education has the responsibility

of overseeing all four branches of education: the Division of Independent Education, the Division of K-12 Public Schools, the Division of Community College and Workforce Education, and the Division of Universities and Colleges. Serving as the chief educational officer of Florida, the Commissioner of Education is responsible for the management of every level of education, from kindergarten through college and graduate school (Florida's College System, 2008).

This new arrangement, under the authority of the Florida State Board of Education, utilizes a coordinated, seamless system for kindergarten through graduate school that is “student-centered in every facet, maximizes education access and academic success, refuses to compromise academic excellence, and emphasizes local control of institutions” (Florida Statute XVI, Ch. 229 § 006, 2000). The reorganization of Florida's education structure was the first of its kind in the United States (Plank, et. al., n.d.; Zinth, 2005). Therefore, research must begin to look into the effectiveness of these changes in regards to the reduction of the achievement gaps. This will help to assess the effectiveness of a PreK-20 seamless system in other states. Since the introduction of a PreK-20 seamless system in Florida, has there been a reduction in the educational achievement gaps between students? This paper analyzes the size of the achievement gaps before and after the overhaul of Florida’s education governance structure in order to answer this question.

## CHAPTER THREE: METHODS

The restructured arrangement of Florida's education governance system was produced in order to

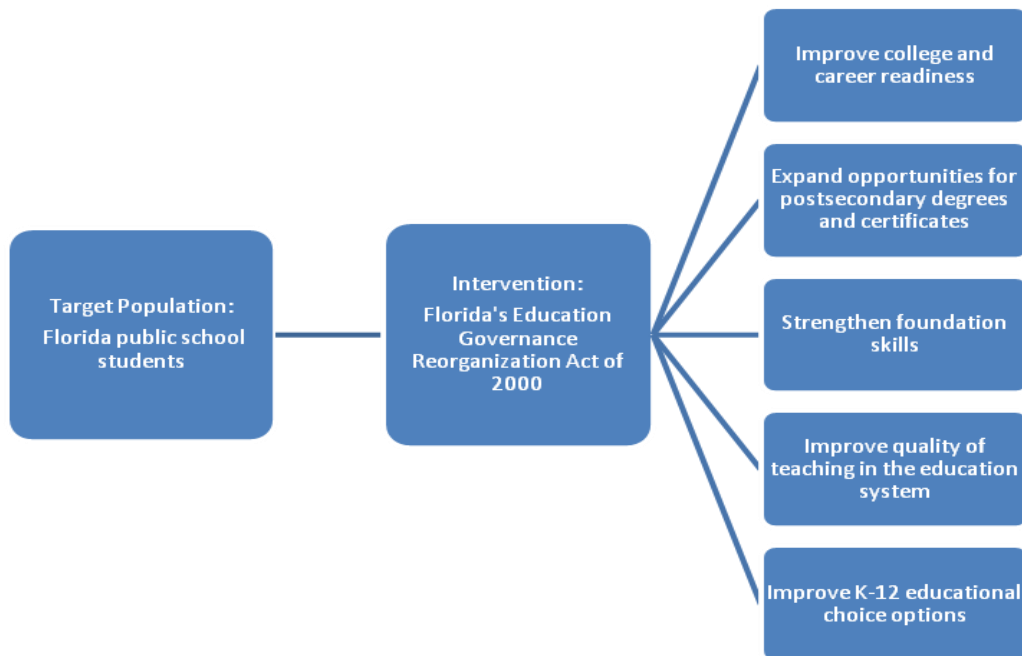
realize the full potential of *all* students within one seamless, efficient system, and to create an accountability process that measures progress toward the following goals: highest student achievement, seamless articulation and maximum access, skilled workforce and economic development, and quality efficient services. (Florida Statute XVI, Ch. 229 § 006, 2000)

The goals articulated in this mission statement are supported by five strategic areas of focus, outlined by the Legislature as follows: strengthen foundation skills, improve college and career readiness, expand opportunities for postsecondary degrees and certificates, improve quality of teaching in the education system, and improve K-12 educational choice options. These five strategic areas of focus are measured by various standards set by the State Board of Education (Florida's next generation PreK-20 education strategic plan, 2008).

In order to improve college and career readiness, for example, Florida must look to increase the number and percentage of students scoring at a college-ready level, raise the number and percentage of students enrolled in Algebra I before 9<sup>th</sup> grade, and increase student participation and performance in accelerated high school options. With the purpose of expanding opportunities for postsecondary degrees and certificates, another strategic area of



focus, Florida’s system must increase the postsecondary enrollment rate, increase the diversity and number of high school graduates who enroll in postsecondary education, increase the diversity and number and percentage of high school graduates who earn a certificate or a degree at a community college, and increase the diversity and number and percentage of community college or state university system students who enroll in and complete upper division program of study (Florida’s next generation PreK-20 education strategic plan, 2008). Each of these performance benchmarks was selected in order to appraise the efficiency of Florida’s new system of education in reaching the objectives outlined by the language of the statute, as illustrated in the theory of change below in Figure 3.



Source: Lipsey and Holdzkom, 2008

Figure 3: Logic Model Specifying a Theory of Change: Logic Model of Florida Education Governance Reorganization Act of 2000

To assess the effectiveness of this significant shift in the Florida's education governance, research must analyze whether these specified goals have been met. I ask the following question: Since the introduction of a PreK-20 seamless system in Florida, has there been a reduction in the educational achievement gaps between student groups? In this paper, I evaluate three of the five main objectives of the K-20 education system: the strengthening of foundation skills, improvement of college and career readiness, and the expansion of opportunities for postsecondary degrees and certificates. To see whether the introduction of this system has served to raise the level of academic achievement for low-income and minority students, this paper compares the achievement gap trends in Florida to those in Texas. The three hypotheses under study track the trends in achievement gaps throughout those levels of education under the PreK-20 seamless system: elementary, secondary, and postsecondary. This chapter will go on to establish methods of analysis, state the hypotheses, indicate the sources of the data, and determine any possible threats to validity.

### Method of Analysis

To assess the effectiveness of Florida's new, streamlined education structure, I utilize the structure of an interrupted time series with a comparison group. Interrupted time series designs help to explain patterns by introducing serial measurements both before and after the intervention; in this case, the intervention under study is the shift in the Florida's education structure (Lipsev and Holdzkom, 2008). The addition of a second time series for a comparison

group helps to provide a check on some of the threats to validity that often plague the single interrupted time series design. The study uses several waves of observation in both the treatment and comparison groups, before and after the introduction of the independent variable in the treatment group. An interrupted time series with a comparison group research design is demonstrated below, in Figure 4.

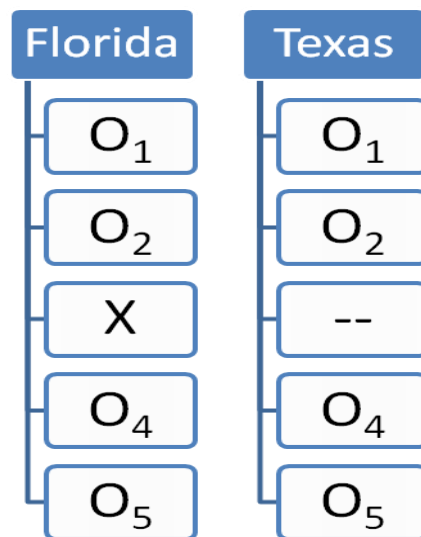


Figure 4: Illustration of an Interrupted Times Series with a Comparison Group

Given that Florida’s legislative reforms were implemented to affect the structure of public education in the state, the data under analysis is derived from public school students. The two racial achievement gaps under study include the Black-White gap and the Hispanic-White gap between students.<sup>5</sup> Also, since every Florida student underwent these same institutional

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<sup>5</sup> Throughout the text, these gaps will be referred to as such. However, when I speak of these students, I refer to the demographic group of African-Americans, not “Blacks.” Previous research has also used these terms to simplify concepts and streamline the dissemination of research results.

changes, I look at nationally collected data for each hypothesis so as to provide a state-by-state comparison. This allows for a “control group” which did not receive the treatment that Florida’s students received and extrapolate upon the different outcomes in each state. With each hypothesis, I utilize percentages and proportions so that the data of the two groups can be more easily compared. The state chosen for comparative analysis is Texas. There are several factors involved in the selection of Texas for a comparison group. Firstly, Texas and Florida are national leaders in the field of education policy reform; both states implemented high-level accountability systems years before the passage of NCLB, lending additional support to the comparison of these two states (Hurst, et. al., 2003). Some of the factors that previous research has deemed important to a comparison of statewide education systems are outlined below, in Table 1 (Barton and Coley, 2008; Borman, Stringfield, and Rachuba, 2000; Cracks in the education pipeline, 2005; Haskins and Rouse, 2005; McGuinness, 2002).

Table 1: Factors for Comparison: Snapshot of Education in Florida and Texas, 2006-2007

Factor	Florida	Texas
Percentage of White students	46.77%	35.65%
Percentage of African-American students	23.1%	14.44%
Percentage of Hispanic students	24.22%	46.3%
Percentage of students eligible for free/reduced lunch program	45.2%	47.24%
Per pupil spending	\$7,917	\$7,684
Pupil to teacher ratio	16.4	14.8
Number of Public Postsecondary Institutions	40	109

Source: National Center for Education Statistics, State Profiles Application. Data from Common Core of Data and Integrated Postsecondary Education Data System (IPEDS): 2006-2007.

## Hypotheses

For decades, research has tracked the size of the achievement gaps in academic performance between minority and non-minority students and low-income and wealthy students. Data has shown that by the time African-American, Hispanic, and low-income students in the United States reach 4<sup>th</sup> grade, they are about two school years behind White students. Once these students reach 12<sup>th</sup> grade, they are about four school years behind their White classmates (Haycock, Jerald, and Huang, 2001). The implementation of Florida’s seamless education system was designed to “maximize educational access and academic success for all Floridians, safeguard equity, and refuse to compromise academic excellence,” thereby reducing these disparities in academic achievement (Florida Statute XVI, Ch. 229 § 006, 2000). Therefore, as these low-income and minority students traverse the academic pipeline, Florida’s new education system should ensure that their education does not fall behind that of their White and higher-income peers. This leads to hypothesis one:

Hypothesis 1: With the implementation of a PreK-20 education system in Florida, the gap in average scores on the National Assessment of Education Progress between poor students and wealthier students, and between minority and non-minority students, will have narrowed more than those same gaps have in Texas, where a PreK-20 system has not been implemented.

To analyze hypothesis one, I utilize performance data from the National Assessment of Education Progress (NAEP), referred to as the “Nation’s Report Card” (U.S. Commission on Civil Rights, 2004). The specific tests under study will include the 4<sup>th</sup> and 8<sup>th</sup> grade NAEP

Reading subject tests in 1998, 2000, 2003, 2005 and 2007.<sup>6,7</sup> To track the gap between these student groups, I employ the average scale score—not the percentage of students that meet a specified achievement level. This helps to ensure comparability across time, since the cutoff scores for these achievement levels have changed throughout the past ten years (Haney, 2006). Utilizing state-level data, I look at the NAEP average scale score for the following groups of students: African-American, Hispanic, White, and those students eligible and ineligible for the National Free Lunch Program. Although the control and experimental groups are not randomly selected, the guidelines for participation in NAEP ensure a randomized sample of students, within each school district and each individual school.<sup>8</sup> Schools are randomly selected from the Common Core of Data, a national database of schools to be tested every two years. Due this “random selection, not all the schools in a district, nor all the students in a school, nor all the students in a grade, are selected to participate in the assessment in any given year” (KewalRamani, Gilbertson, Fox, and Provasnik, 2007).

As Florida’s PreK-20 strategic plan outlines, in order to improve college and career readiness, the state must look to increase the number and percentage of students scoring at a college-ready level and increase student participation and performance in accelerated high school options. The specific benchmarks look at the number of students who enroll in the Advanced Placement (AP) courses and pass the end-of-year exams (Florida’s next generation PreK-20

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<sup>6</sup> Prior to 1996, no testing accommodations were permitted for students with disabilities and English language learners. However, by evaluating data only after 1996, I look to make certain the continuity of the definition of student groups throughout the years analyzed.

<sup>7</sup> The mathematics subject tests were not used because Florida did not participate in the NAEP mathematics testing in 2000, providing no corresponding data before the restructuring of the state’s education system.

<sup>8</sup> The control group and experimental groups are made up of the student population in Texas and Florida, respectively. Due to the nature of this observational study, the nonrandomized sample of these groups cannot be helped. This possible threat to validity will be address later in the chapter.

education strategic plan, 2008). For these reasons, the new seamless education system should look to enroll in accelerated high school programs more of those students who did not previously participate, specifically minority students. As a result, hypothesis two states:

Hypothesis 2: With the implementation of the PreK-20 education system in Florida, the gap between minority and non-minority students in the number of Advanced Placement exams with passing scores will have narrowed more than those same gaps have in Texas, where a PreK-20 system has not been implemented.

In order to determine the AP achievement gap trends, I compute the number of exams with passing scores taken by students from each demographic group as a percentage of all exams with passing scores from 1997 to 2008.<sup>9</sup> This data was collected from the website of the College Board, which produces the Advanced Placement Program. The students who take part in this accelerated high school program are more likely to be higher-achieving students—no matter their race, ethnicity, or level of income. Also, those students who take an AP course are not required to take the exam and those students who take an AP exam do not need to have taken the course<sup>10</sup> (Handwerk, Tognatta, Coley, and Gitomer, 2008). A passing score on the AP end-of-year exam is difficult to achieve and, in recognition of this level of difficulty, is deemed worthy of college credit. Those students who have passed these exams then enter their postsecondary career with a head start on credit hours and a college-going mindset.

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<sup>9</sup> I look to the number of exams, not the number of students, because an individual can take more than one AP exam in a given year.

<sup>10</sup> This is helpful, for example, when a student has taken an AP course in a previous year and did not pass the end-of-year exam. That student can sit for the AP exam in that same course in the following school year.

Florida's new seamless education system looks to expand opportunities for postsecondary degrees and certificates by increasing the postsecondary enrollment rate, increasing the diversity and number of high school graduates who enroll in postsecondary education, increasing the diversity and number and percentage of high school graduates who earn a certificate or a degree at a community college, and increasing the diversity and number and percentage of community college or state university system students who enroll in and complete upper division program of study (Florida's next generation PreK-20 education strategic plan, 2008). Since the 1960's, progress in higher education has been consistently measured primarily by whether or not enrollment, retention, and graduation rates of undergraduate minority students have increased. Tracking these data trends has been essential, as African-American and Hispanic students have continued to lag behind Whites in all three areas (Viadero and Johnston, 2000). Unfortunately, a consequence of this focus on undergraduate education is that less time is spent discussing how few minority students ever reach the highest levels of academic performance: a graduate degree. Since Florida has chosen to implement a system of education that specifically recognizes the importance of graduate school, hypothesis three asserts:

Hypothesis 3: With the implementation of the PreK-20 education system in Florida, the gap between the proportion of minority and non-minority students who earn a graduate degree will have narrowed more than those same gaps have in Texas, where a PreK-20 system has not been implemented.

In analysis of this hypothesis, I compare the gap between the proportion of minority and non-minority public students who earned a graduate degree for the school years between 1995 and 2007. The degree levels under study include masters, doctoral, and professional degrees.



This data was available through the website of the Integrated Postsecondary Education Data System (IPEDS), under the National Center for Education Statistics. The institutions were selected by the IPEDS system under the conditions of two variables: state and sector. Therefore, the colleges under study are located in Florida or Texas and are classified as a “public, 4-year or above” institutions. The list of these selected institutions from each state is available in Appendix A.

### Issues of Validity

To make sure that the results of these analyses are conclusive, I must discuss any possible threats to internal and external validity. The possible threats to internal validity include history, maturation, statistical regression, selection, experimental mortality, testing, instrumentation, and design contamination (Bloom, 1999). I will address each threat individually by answering whether or not the analyses may be affected by the hazard. To know if the threat of history has influenced the study, we ask: did some other current event effect the change in the dependent variable? This presents the greatest threat to the internal validity of any interrupted time series analysis, but the one current event which may pose the greatest threat to validity, the passage of NCLB, was implemented in both states at the same time. Additionally, both states had a high-level accountability system already in place before NCLB. While NCLB may have altered the patterns of educational achievement gaps, it should have affected these two states in a similar

fashion. There is little doubt that other relevant current events occurred during this time period, which may have affected these two states differently. However, it is impossible to isolate and identify all of those actions which may have influenced educational outcomes.

Secondly, concerning the issue of maturation, I ask: were changes in the dependent variable due to normal developmental processes? This may be problematic for these three hypotheses. In this study, the data for each year of testing is from different individuals; in example, I compare the scores of 4<sup>th</sup> grade students in 1998, before the intervention, to the scores of 4<sup>th</sup> grade students in 2007, following the intervention. During this time, there may have also been a shift in the quality of teachers or the instruction of material. Still, while changes in the size of the achievement gaps do fluctuate in a natural progression, they generally do not do so at a level of statistical significance (Haney, et. al., 2007). Also, research has shown that aggregated academic performance does not usually increase over time without an “education intervention” of some sort (Mattern, Shaw, and Williams, 2008). The threat of statistical regression leads me to ask: did the subjects come from low or high performing groups? Statistical regression is concerned whether changes in the dependent variable are produced when subjects are chosen because of extreme scores and then changes on that measurement are tracked in the study (Campbell and Stanley, 1970). For these analyses, though, the subjects were not chosen based on their level of academic performance, but by their self-selection into a demographic group. Theoretically, this threat to validity should affect each of the groups in Florida and Texas in the same fashion; thereby, avoiding any problems of statistical regression.

The issue of selection asks whether the subjects were self-selected into experimental and control groups, which could affect changes in the dependent variable. This may be a factor in

these analyses, since students in Florida and Texas constitute the experimental and control groups, respectively. However, it is nearly impossible to say whether students from Texas and Florida have something inherently different about them. Additionally, I do not compare the achievement gaps in Florida and Texas to each other, but compare the past achievement gap levels in each state to those at the present time; this should help to reduce the threat of selection (Lipsey and Holdzkom, 2008). Fifth, experimental mortality asks whether some subjects drop out and this affect on the results. Since this is not a cohort study and, instead, looks at different groups of students in the same grade at different years, experimental mortality is not an issue (Campbell and Stanley, 1970). The issue of testing is eradicated for the same reason: the pre-test could not have affected the scores on the post-test because the cohort of students was different for each test. During this study, the tools of measurement were not changed; therefore, the results were not affected by the threat of instrumentation. Lastly, design contamination occurs when the control group finds out about the experimental treatment (Campbell and Stanley, 1970). This threat is reduced because I perform an observational study, long after the testing period, with no interaction with the subjects under study.

Possible threats to external validity and the generalizability of the study include any interaction between the selection of the target population and the treatment applied. These concerns include interaction effect of testing, interaction effects of selection biases and the experimental variable, reactive effects of experimental arrangements, and multiple treatment interference effects (Bloom, 1999). The idea of reactive or interaction effect of testing describes a situation in which a pretest might increase or decrease a subject's sensitivity or responsiveness to the experimental variable (Campbell and Stanley, 1970). However, different cohorts of

students took the pre-test and post-test and these examinations were administered for purposes other than research. Therefore, the reactive effect of testing shouldn't be a serious threat in this analysis. A second threat to external validity involves the interaction effects of selection biases and the experimental variable. This issue looks to whether an experimental outcome can be generalized to a larger population, when it may be due to an interaction of the independent variable and biased subject selection (Pollock, 2005). In this study, though, the sample groups under study from each state are not any more or less sensitive to the experimental treatment than other samples from the population.

Due to a threat called "reactive effects of the experimental arrangements," it may be difficult to generalize to non-experimental settings if the effect was attributable to the experimental arrangement of the research (Campbell and Stanley, 1970). In this analysis, the experimental arrangements are not unique and can be easily replicated. This provides an opportunity to reproduce the analysis and check its generalizability. Lastly, the threat of multiple treatment interference occurs when multiple treatments are given to the same subjects, making it difficult to control for the effects of prior treatments (Campbell and Stanley, 1970). The treatment under study, the reorganization of Florida's education structure, occurred only once. While it can be argued that NCLB was another "treatment," both states experienced this event simultaneously. Additionally, NCLB instituted a series of standards-based reforms, but made no changes to the governance structures of state education systems. Consequently, the threat of multiple treatment interference is eliminated.

To further ensure the comparability of the two states over time, I have expanded the data from Table 1 and included the data from the school years 1996-97 and 2006-07 in Tables 2 and

3. This will help to determine if the trends in achievement gap could be attributed to any other significant changes in specific education figures in the two states. These numbers show that the changes in both states were simply a natural evolution of their education figures. Additionally, the changes in both states occurred in the same directions: increase in minority students, decrease in pupil to teacher ratio, increase in per pupil spending, etc.

Table 2: Education in Florida: Factors for Comparison from 1996-97 and 2006-07

Factor	1996-97	2006-07
Percentage of White students	56.71%	46.77%
Percentage of African-American students	25.36%	23.10%
Percentage of Hispanic students	15.91%	24.22%
Percentage of students eligible for free/reduced lunch program	43.21%	45.20%
Per pupil spending (public elementary and secondary schools)	\$6,182	\$7,917
Pupil to teacher ratio (public elementary and secondary schools)	18.6	16.4

Source: National Center for Education Statistics, State Profiles Application. Data from Common Core of Data: 2006-2007.

Table 3: Education in Texas: Factors for Comparison from 1996-97 and 2006-07

Factor	1996-97	2006-2007
Percentage of White students	45.61%	35.65%
Percentage of African-American students	14.34%	14.44%
Percentage of Hispanic students	37.41%	46.30%
Percentage of students eligible for free/reduced lunch program	53.23%	47.24%
Per pupil spending (public elementary and secondary schools)	\$5,843	\$7,684
Pupil to teacher ratio (public elementary and secondary schools)	15.5	14.8

Source: National Center for Education Statistics, State Profiles Application. Data from Common Core of Data: 2006-2007.

## CHAPTER FOUR: RESULTS

### Hypothesis One

Hypothesis 1: With the implementation of a PreK-20 education system in Florida, the gap in average scores on the National Assessment of Education Progress between poor students and wealthier students, and between minority and non-minority students, will have narrowed more than those same gaps have in Texas, where a PreK-20 system has not been implemented.

In order to analyze hypothesis one, I first look to patterns in the economic achievement gaps in 4<sup>th</sup> and 8<sup>th</sup> grade reading in Florida and Texas on the NAEP Reading assessment between students eligible and ineligible for the National School Lunch Program. I then consider the racial achievement gaps in these two states. The average reading scale scores are based on the NAEP scale, which ranges from 0 to 500. This scale is a composite, combining separate dimensions for each reading context specified by the framework.<sup>11</sup> After reporting the size and statistical significance of each of these achievement gaps in tables, I illustrate these trends over time in a graphic format so as to detect any patterns or trends.

The statistical significance of a result is the probability that the observed relationship or a difference between means in a sample occurred by pure chance and that in the population from which the sample was drawn, no such relationship exists. To find the statistical significance of

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<sup>11</sup> In 4<sup>th</sup> grade, this includes reading for literary experience and reading for information. In 8<sup>th</sup> grade, this includes explaining those contexts and reading to perform a task. These are described on the National Assessment of Educational Progress website: <http://nces.ed.gov/nationsreportcard/reading/interpret-results.asp#reporting>.

the difference between these means, I find the p-value of these achievement gaps between average NAEP scores. P-values, which range from 0 to 1; those values closer to zero indicate that the null hypothesis may be false. The higher the p-value, the less assured we are that the observed relationship between variables in the sample is a reliable gauge of the relation between these variables in the population. In this study, the results that yield  $p \leq 0.05$  are considered statistically significant, those of  $p \leq 0.01$  are labelled very statistically significant, and those with a value of  $p \leq 0.005$  are called extremely statistically significant. (Pollock, 2003) The standard errors and p-values for the tables included in hypothesis one can be found in Appendix B. These p-values are used to determine the statistical significance of these achievement gaps in each year. After detailing these values, I look to see if the trends in these achievement gaps are also statistically significant. The p-values and standard errors for each group in each year were made available through the NAEP Data Explorer website, produced by the U.S. Department of Education.

Firstly, I analyze the economic achievement gaps in reading in 4<sup>th</sup> grade, in Florida and Texas, from 1998 to 2007. Next, I look to these same achievement gaps in 8<sup>th</sup> grade reading performance. Then, I will analyze the racial achievement gaps in reading performance for Florida and Texas. In doing so, I compare the average scores of White students to those of African-American and Hispanic students separately to determine the White-Black and White-Hispanic gaps. I find the p-values for each of these gaps to determine if the disparity between average scores of these student groups is statistically significant, in any given year.

### *NAEP Economic Achievement Gaps*

In this section, I compute the economic achievement gaps on the NAEP Reading assessments in 4<sup>th</sup> and 8<sup>th</sup> grade from 1998-2007. After calculating the size and significance of the disparities, I illustrate these gaps over time in a graphic format. In doing so, I compare the average scale scores of students eligible and ineligible for the National School Lunch Program.

Table 4: Florida 4th Grade Reading Scale Scores, by National School Lunch Program Eligibility

	Program Ineligible	Program Eligible	Gap
1998	219.8	190.4	29.4**
2002	227.1	204.5	22.6**
2003	231.1	204.7	26.3****
2005	230.4	209.5	20.9**
2007	234.0	212.8	21.2****

\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.



Table 5: Texas 4th Grade Reading Scale Scores, by National School Lunch Program Eligibility

	Program Ineligible	Program Eligible	Gap
1998	229.7	198.7	31.0**
2002	227.9	209.5	18.4*
2003	226.5	205.0	21.5**
2005	231.7	207.8	23.9****
2007	232.3	208.6	23.7****

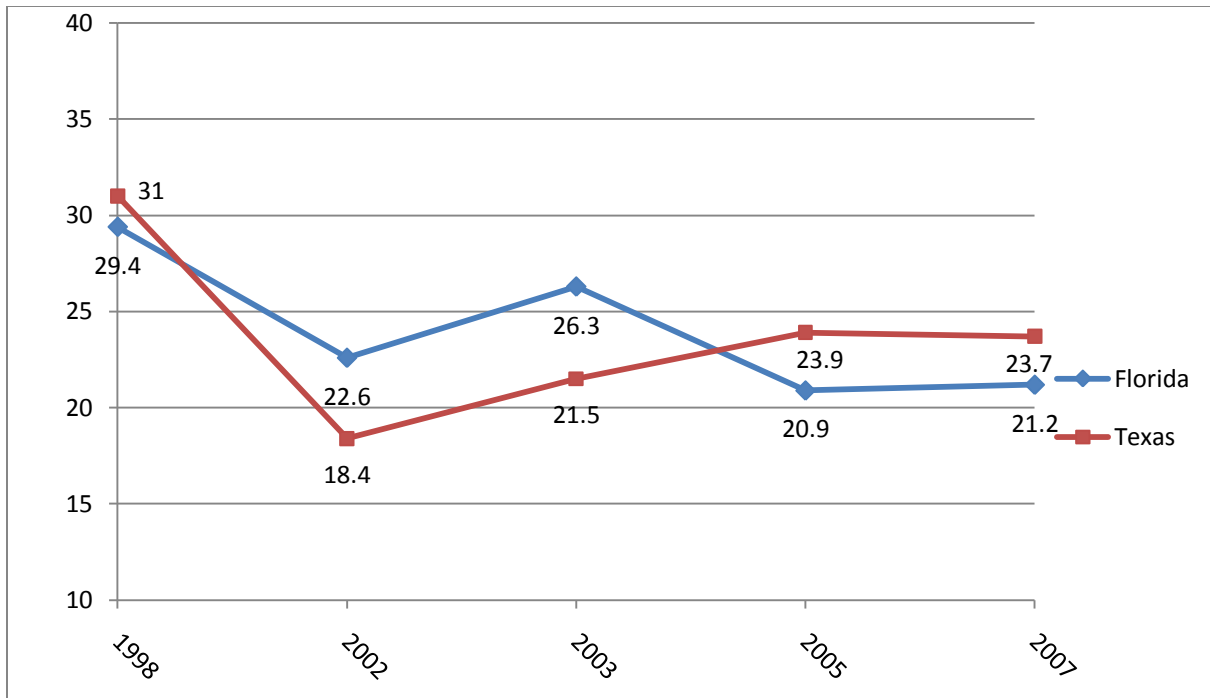
\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

As seen above, Tables 4 and 5 help to demonstrate the patterns of these achievement gaps within Florida and Texas, respectively. It is clear that both states have made serious progress in narrowing this disparity in academic performance. Additionally, the scale scores of both student groups have increased; therefore, the narrowing of the gap has not been due to the underperformance of wealthier students. However, I am interested in how the achievement gap trends in each state compare to one another. Figure 5, below, is an illustration of the 4<sup>th</sup> economic reading achievement gap over time in Florida compared to the same gap in Texas.



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Figure 5: Tracking the Economic Achievement Gaps over Time: 4th Grade Reading in Florida and Texas

It is clear from Figure 5 that the size of this achievement gap has decreased considerably in both states. In 1998, Florida and Texas had a similarly sized achievement gap between these low-income students and their wealthier peers: 29.4 and 31 points, respectively. By 2002, immediately following these policy changes, these achievement gaps narrowed considerably. In Florida, the gap shrunk slightly less than seven points, from 29.4 to 22.6 points. In these same four years, Texas reduced this gap by more than 12 points. This huge decrease this achievement gap was not maintained in either state from 2002 to 2003, when both Florida and Texas lost some of the ground they had gained. Unfortunately, in 2005 and 2007, Texas continued to lose

the progress they had previously gained. By 2007, this performance disparity in Texas had reached 23.7 points; more than five points greater than the gap size in 2002. On the other hand, Florida managed to reverse the short-term widening of this achievement gap from 26.3 in 2003 to 21.2 by 2007. The overall trends in this 4<sup>th</sup> grade reading achievement gap between low-income and wealthier students provide good news: this disparity in academic performance is decreasing. Due to the erratic nature of these patterns, however, the list of possible causes of the recent narrowing of this achievement gap in Florida are difficult to isolate and identify.

The performance gaps between low-income and wealthy students are wide by the time these students reach the 4<sup>th</sup> grade. What, then, do these achievement gaps look like for 8<sup>th</sup> grade students? In Table 6 and 7, I compute the difference in average scale scores for those students eligible and ineligible National School Lunch Program. Figure 6, below, illustrates the trend in these achievement gaps over time.

Table 6: Florida 8th Grade Reading Scale Scores, by National School Lunch Program Eligibility

	Program Eligible	Program Ineligible	Gap
1998	240.7	264.7	24.0**
2002	249.2	269.2	20.1*
2003	245.2	267.3	22.1**
2005	245.8	263.7	17.9**
2007	249.1	267.6	18.5**

\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Table 7: Texas 8th Grade Reading Scale Scores, by National School Lunch Program Eligibility

	Program Eligible	Program Ineligible	Gap
1998	246.5	270.3	23.9**
2002	248.4	274.9	26.4**
2003	245.7	269.3	23.6**
2005	246.6	268.9	22.4***
2007	249.4	273.2	23.9***

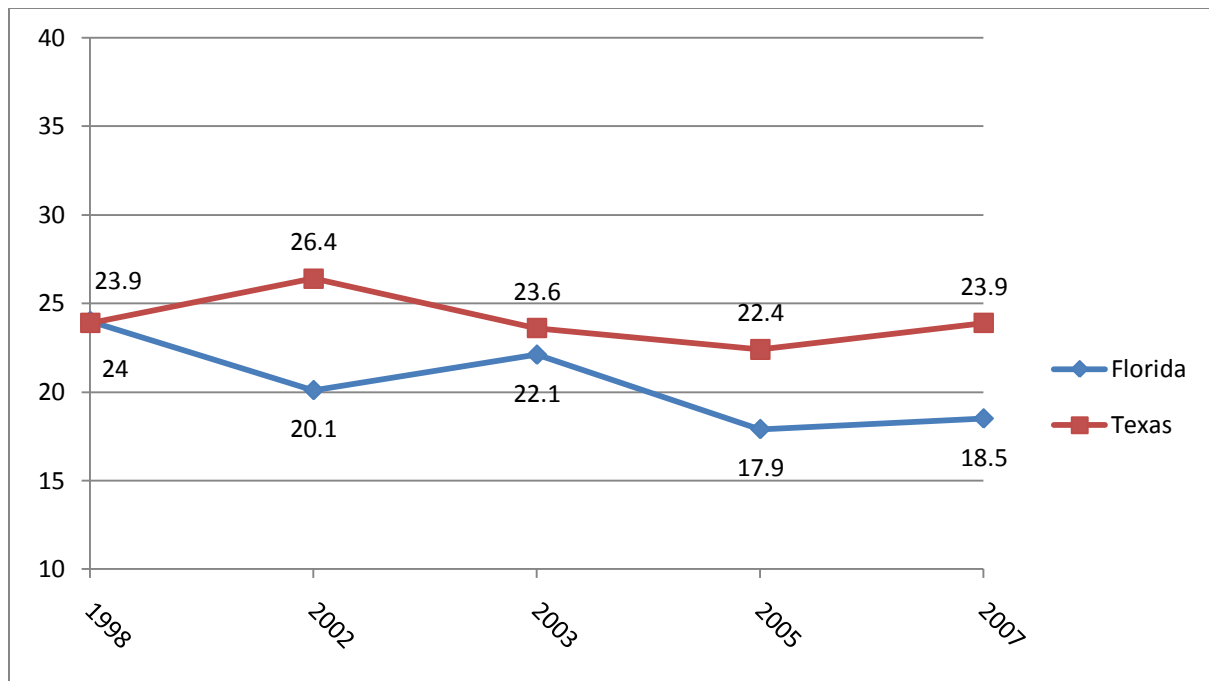
\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

The achievement gap between 8<sup>th</sup> grade students who are eligible and ineligible for the National School Lunch Program is relatively stable over time, compared to this gap between 4<sup>th</sup> grade students. While the gap has generally hovered around 20 points in both states for the past nine years, the size of the gap in Florida has fluctuated a great deal more than the gap in Texas. As illustrated in Figure 6, this economic achievement gap in Texas has also increased and decreased throughout the past nine years.



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Figure 6: Tracking the Economic Achievement Gaps over Time: 8th Grade Reading in Florida and Texas

Both states experienced a sharp increase in the size of this achievement gap, though in different years: 2003 in Florida and 2002 in Texas. After this increase, both states managed to reverse the trend in the following years. By 2007, low-income 8<sup>th</sup> graders in Texas scored 23.9 points behind wealthier students; this gap was the same size in 1998. From 1998 to 2007, Texas' gap went from 23.9 to 23.9; witnessing various shifts in the size of the gap in the years in between. In 1998, Florida's gap was 24 points on the NAEP; by 2007, this gap was 18.5 points. This constitutes almost a six point narrowing of the achievement gap in Florida, compared to no change in the size of the achievement gap in Texas. While both states did encounter small shifts

in the size of the achievement gap, only Florida managed to sustain a narrowing of this gap over the entire time period. With more years of testing, it will soon be evident if Florida can maintain this downward trend in the size of the achievement gap, although the progress so far is a positive step in the right direction. What is clear now, though, is that this downward trend in the size of the achievement gap was present before the shift in Florida's education governance structure.

In comparison of the economic achievement gap trends in 4<sup>th</sup> and 8<sup>th</sup> grade, several factors are immediately evident. Florida's achievement gap trends at both grade levels are somewhat parallel: featuring a decline in 2002, an increase in 2003, another sharp decline in 2005, and a small rise in 2007. In Texas, on the other hand, the 4<sup>th</sup> and 8<sup>th</sup> grade achievement gap patterns are very distinctive. From 1998, the 4<sup>th</sup> grade gap in Texas plummeted in 2002, rose slightly in both 2003 and 2005, only to shrink a little in 2007. In comparison to the 4<sup>th</sup> grade, Texas' 8<sup>th</sup> grade gap followed the complete opposite path: a slight rise in 2002, narrowing in 2003 and 2005, and another small increase in 2007. The fact that Florida's achievement gaps have undergone such similar growth patterns may provide support for hypothesis one. The similarities between the trends in Florida's 4<sup>th</sup> and 8<sup>th</sup> grade gaps are noteworthy, but the possible reasons behind this likeness are innumerable. Each year of testing, a new group of 4<sup>th</sup> and 8<sup>th</sup> grade students are selected. Therefore, any abrupt alteration in these trends may be a result of the divergent performance of that year's selected group of students. Additionally, the narrowing of this achievement gap began before Florida's implementation of a seamless education system.

Below, I analyze the racial achievement gaps on the NAEP Reading assessments in 4<sup>th</sup> and 8<sup>th</sup> grade from 1998-2007. After calculating the size and statistical significance of the achievement gaps, I illustrate these disparities over time in a graphic format. In doing so, I

compare the average scores of White students to those of African-American and Hispanic students to determine the White-Black and White-Hispanic gaps and track them over time.

*NAEP White-Black Achievement Gaps*

Below, I compare the average scores of White students to those of African-American students to determine the White-Black gaps in each grade and track them over time. I analyze the White-Black achievement gaps on the NAEP Reading assessments in 4<sup>th</sup> and 8<sup>th</sup> grade from 1998-2007 in Florida and Texas. After calculating the size and statistical significance of the gaps, I demonstrate these disparities over time in a graphic format.

Table 8: Florida 4th Grade Reading Scale Scores, White-Black Gap

	White	Black	W-B Gap
1998	217.2	186.0	31.2***
2002	226.0	196.4	29.6***
2003	229.1	197.7	31.3***
2005	228.2	202.7	25.6***
2007	232.3	207.9	24.5***

\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Table 9: Texas 4th Grade Reading Scale Scores, White-Black Gap

	White	Black	W-B Gap
1998	239.9	190.6	39.4***
2002	232.5	202.2	30.3***
2003	227.4	202.3	25.1***
2005	231.7	206.1	25.6***
2007	232.4	207.0	25.4***

\*  $p \leq .05$  statistically significant

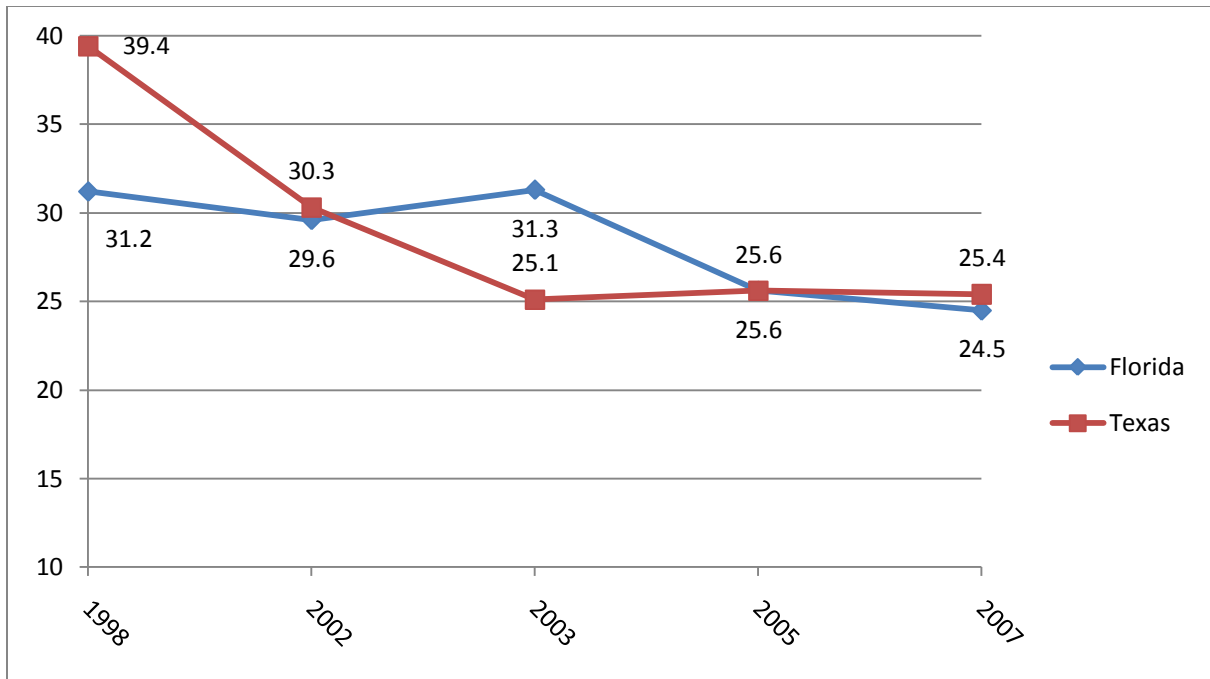
\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

In Tables 8 and 9, I follow the 4<sup>th</sup> grade White-Black achievement gap in Florida and Texas from 1998 to 2007. It is evident that these gaps are among the largest and most significant educational disparities that students face today. Figure 7 helps to illustrate the progress that both states have made in narrowing the White-Black achievement gap in 4<sup>th</sup> grade reading. The critical numbers in this analysis, however, are found in Tables 8 and 9. These test scores accentuate the specific distinctions between Florida and Texas, in terms of changes in the size of this achievement gap.





Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Figure 7: Tracking the White-Black Achievement Gap over Time: 4th Grade Reading in Florida and Texas

As seen above, Florida and Texas have both raised the level of achievement for their African-American 4<sup>th</sup> grade students. Texas, however, has failed to maintain or improve the level of achievement for their White students, which helps explain the state's dramatic decrease in the size of the gap. Between 1998 and 2007, African-American students in Texas raised their average score by 16.5 points: from 190.6 to 207. In Florida, African-American students raised their average score from 186 to 207.9: an increase of 21.9 points. However, during this time, Texas shrunk the 4<sup>th</sup> grade White-Black gap by 14 points; Florida reduced this gap by slightly less than seven points. This large decline in the Texas gap is due to the serious

underachievement of the White students under comparison. Texas was able to shrink this gap because their White students in 2007 performed seven and a half points lower than their 1998 White counterparts. In Florida, on the other hand, both demographic student groups raised their average scores from 1998 to 2007; White students experienced a 15 point increase, from 217.2 to 232.3. Therefore, the narrowing of the achievement gap in Texas is partly due to the negative performance trends for those White students. The reduction of the achievement gap in Florida, on the other hand, was due to the improved scores of African-American students, even while their White classmates also raised their scores.

It is clear that there is still a great deal of improvement to be made, as the White-Black achievement gap is still substantial in both Florida and Texas. This racial achievement gap between White and African-American students is evident as early as 4<sup>th</sup> grade. How, then, does the size of this White-Black achievement gap compare for 8<sup>th</sup> grade students? In tables 10 and 11 below, I analyze this racial achievement gap in Florida and Texas for students in 8<sup>th</sup> grade.

Table 10: Florida 8th Grade Reading Scale Scores, White-Black Gap

	White	Black	W-B Gap
1998	263.9	235.9	28.0***
2002	269.0	244.4	24.6***
2003	268.4	239.2	29.2***
2005	264.6	238.2	26.4***
2007	267.9	243.8	24.1***

\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Table 11: Texas 8th Grade Reading Scale Scores, White-Black Gap

	White	Black	W-B Gap
1998	271.4	245.9	25.5***
2002	276.4	246.6	29.8***
2003	271.9	246.5	25.4***
2005	270.4	246.1	24.3***
2007	274.8	248.7	26.1***

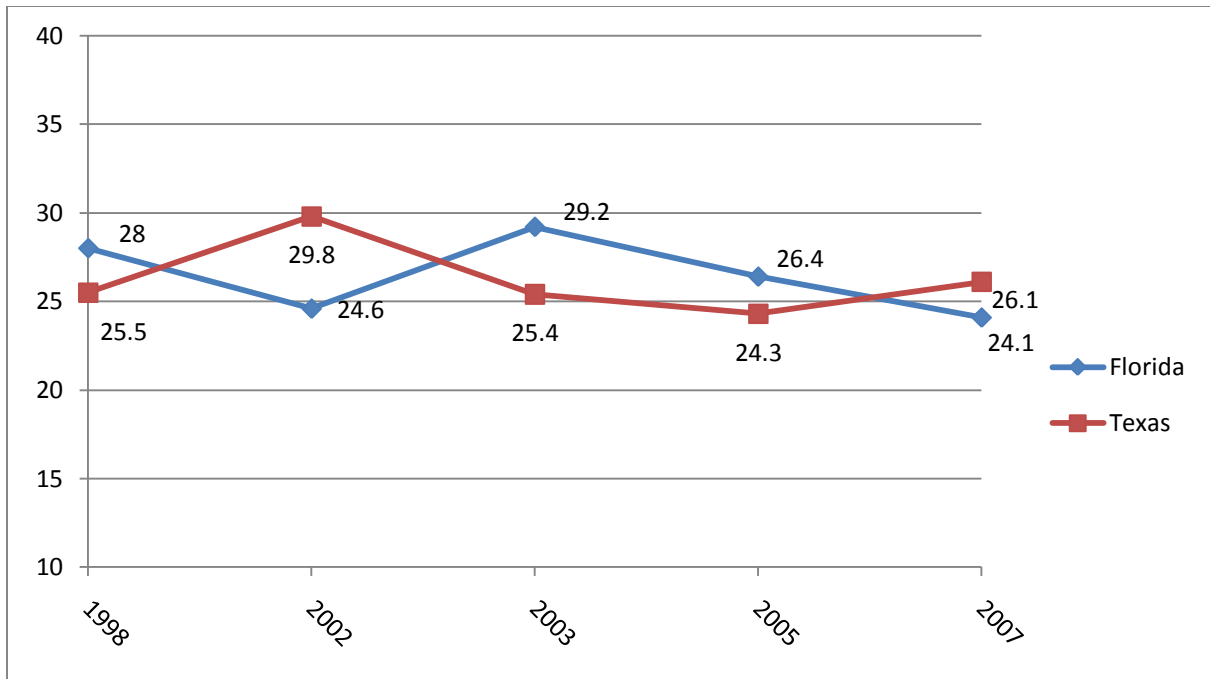
\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

As seen above, tables 10 and 11 provide a picture of the 8<sup>th</sup> grade White-Black gap in Florida and Texas. The average score for each student group in each state has increased from 1998 to 2007, indicating that any change in the size of the gap must consider the raised level of achievement for both White and Hispanic students. In both states, the White students in 2007 performed about three points better than their 1998 counterparts. Florida was able to make more progress in closing this gap because of the sharp increase in performance of their African-American 8<sup>th</sup> grade students.



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Figure 8: Tracking the White-Black Achievement Gap over Time: 8th Grade Reading in Florida and Texas

Between 1998 and 2007, Florida decreased this White-Black achievement gap by nearly four points and the gap in Texas increased by more than one half of a point. As shown above, in Figure 8, Texas had three years of consistently narrowing the White-Black achievement gap. In 2007, however, this gap increased to 26.1 points: about one-half point larger than the size of the gap in 1998. The jump in Texas' score gap in 2007 may be a single occurrence, since the overall trend illustrates a narrowing of this gap since its high in 2002. Since Florida's sharp increase in 2003, the size of the achievement gap has decreased to its lowest point in the past nine years.

In 1998, the 4<sup>th</sup> grade White-Black achievement gaps in both states were fairly larger than their 8<sup>th</sup> grade counterparts. By 2007, however, the gaps at both grade levels were within one point of each other. While the size of the 8<sup>th</sup> grade gap is shrinking, the 4<sup>th</sup> grade White-Black achievement gap is narrowing at a much faster pace. The patterns of change in Florida's 4<sup>th</sup> and 8<sup>th</sup> grade White-Black achievement gaps are strikingly similar. From 1998 to 2002, the gaps contracted. In 2003, these gaps grew, just to shrink again in 2005 and 2007. While the size of these changes may not be equal at the two grade levels, the trends are certainly alike and help to support hypothesis one.

During the same time period, changes in the 4<sup>th</sup> and 8<sup>th</sup> grade White-Black achievement gaps in Texas were inconsistent. From 1998 to 2002, the Texas 4<sup>th</sup> grade gap shrunk considerably, while the 8<sup>th</sup> grade gap increased. In 2003, the only year in which these two trends coincided, both gaps narrowed by about four points. Following this decrease in 2003, the 4<sup>th</sup> grade gap widened slightly in 2005 and then narrowed slightly in 2007. The reverse is true of Texas' 8<sup>th</sup> grade gap, which decreased in 2005 and increased in 2007. While the similarities between Florida's 4<sup>th</sup> and 8<sup>th</sup> grade White-Black achievement gap trends are remarkable, these parallels are even more unique when compared to the divergent trends in Texas.

### *NAEP White-Hispanic Achievement Gaps*

In both states, the size of the White-Hispanic gap is smaller than the White-Black achievement gap. But, with the ever-growing population of Hispanic individuals in Florida and Texas, raising the academic performance of these students is a vital factor in the future of each state. In Tables 12 and 13, I track the size and significance of the White-Hispanic gaps on 4<sup>th</sup> grade NAEP Reading tests from 1998 to 2007.<sup>12</sup> In Figure 9, I illustrate the pattern of change in these White-Hispanic achievement gaps.

Table 12: Florida 4th Grade Reading Scale Scores, White-Hispanic Gap

	White	Hispanic	W-H Gap
1998	217.2	197.5	19.7***
2002	226.0	206.8	19.2**
2003	229.1	210.8	18.3***
2005	228.2	215.3	12.9***
2007	232.3	218.3	14.0***

\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

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<sup>12</sup> Due to the absence of comparable data before 2002, the NAEP Mathematics subject tests were not used. The selection of reading tests may have an unequal bearing on Hispanic students, for whom English may not be a first language or the primary language spoken in the home.

Table 13: Texas 4th Grade Reading Scale Scores, White-Hispanic Gap

	White	Hispanic	W-H Gap
1998	239.9	200.3	29.7***
2002	232.5	208.4	24.0***
2003	227.4	205.3	22.1***
2005	231.7	209.7	22.0***
2007	232.4	211.9	20.5***

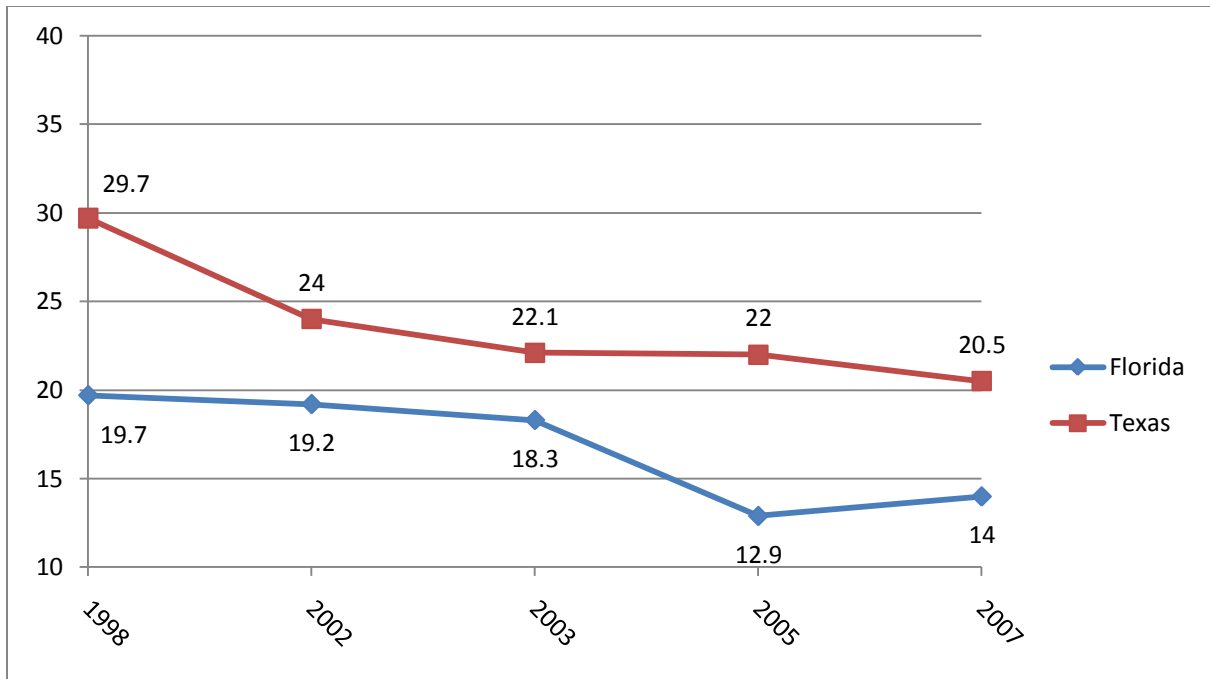
\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

The size of the 4<sup>th</sup> grade White-Hispanic achievement gaps have steadily decreased in both Florida and Texas since 1998. Reducing this academic disparity is especially important for these states due to the growing proportion of Hispanic individuals in the population. The different paces of these changes, though, help to distinguish between patterns in the two states. These trends in the 4<sup>th</sup> grade White-Hispanic achievement gaps in Florida and Texas are demonstrated in Figure 9, below.



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Figure 9: Tracking the White-Hispanic Achievement Gap over Time: 4th Grade Reading in Florida and Texas

These White-Hispanic achievement gaps between 4<sup>th</sup> grade students have shrunk over time due to the accelerated performance of Hispanic students in both Florida and Texas. Only Florida, though, raised the achievement of their White students simultaneously. In Florida, White and Hispanic students raised the level of achievement, but the minority students did so at a faster pace; thereby, reducing the achievement gap by nearly six points from 1998 to 2007. In Texas, however, the decline in the achievement gap was due to two factors: the increase in score for Hispanic students and the decrease in score for White students. Between 1998 and 2007, Hispanic students in Texas raised their average score by more than 11.5 points: from 200.3 to



211.9. Also during this time, the average score of White students in Texas decreased by seven and a half points. These two features led to a nine point reduction in the size of the Texas 4<sup>th</sup> grade White-Hispanic gap from 1998 to 2007. Unfortunately, by the time students reach 8<sup>th</sup> grade, these gaps are still present. In Tables 14 and 15, I track the trends of this 8<sup>th</sup> grade White-Hispanic achievement gap from 1998 to 2007. Figure 10 depicts these long-term patterns in this achievement gap in Florida and Texas.

Table 14: Florida 8th Grade Reading Scale Scores, White-Hispanic Gap

	White	Hispanic	W-H Gap
1998	263.9	247.2	16.7*
2002	269.0	251.7	17.3***
2003	268.4	251.1	17.3***
2005	264.6	251.7	12.9***
2007	267.9	255.9	12.0***

\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Table 15: Texas 8th Grade Reading Scale Scores, White-Hispanic Gap

	White	Hispanic	W-H Gap
1998	271.4	249.7	21.7***
2002	276.4	250.5	25.9***
2003	271.9	247.4	24.5***
2005	270.4	248.1	22.3***
2007	274.8	250.9	23.9***

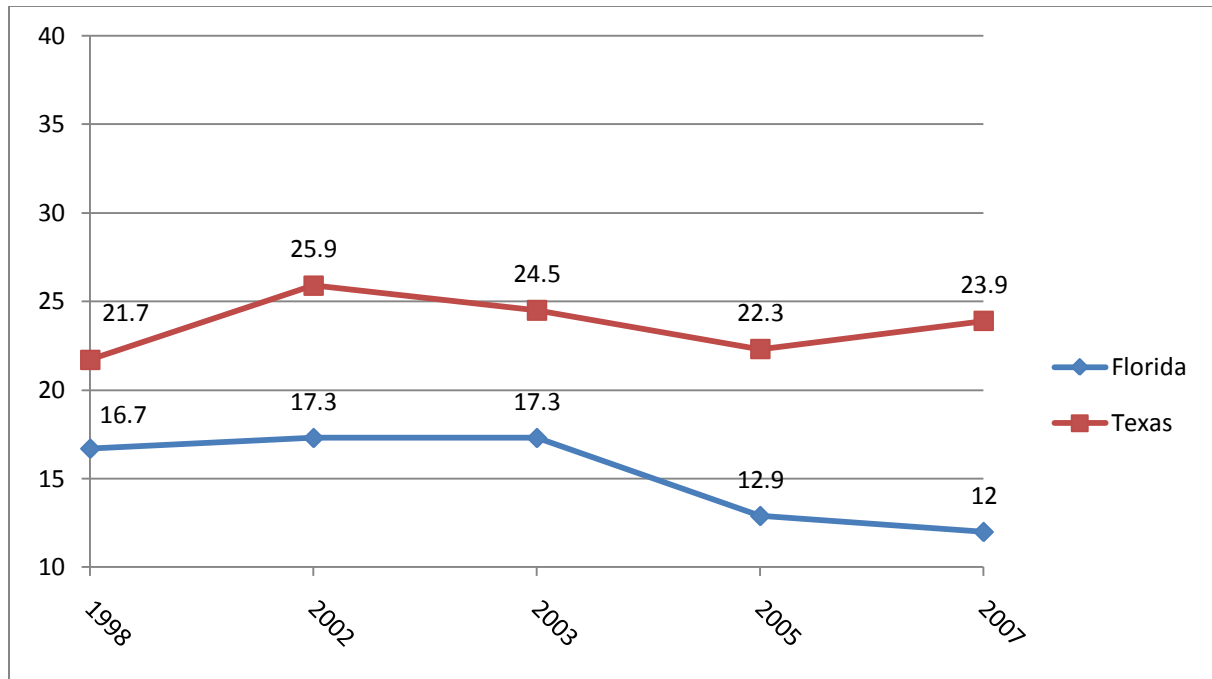
\*  $p \leq .05$  statistically significant

\*\*  $p \leq 0.01$  very statistically significant

\*\*\*  $p \leq 0.005$  extremely statistically significant

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

As seen above, both states improved student scores for Whites and Hispanics since 1998. Since both states are improving minority scores, the distinction between the trends in the two states is due to the rate of change: Florida's Hispanic students raised their performance by almost nine points from 1998 to 2007; in comparison, Hispanic students in Texas raised their average score by more than one point. Concurrently, White students in Florida raised their average score by four points and White students in Texas improved their performance by about three and a half points. It is clear from these figures that Florida's gap has shrunk due to the rapid improvement in the average score of Hispanic students in the 8<sup>th</sup> grade, even while White students improved their performance.



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998, 2002, 2003, 2005 and 2007 Reading Assessments.

Figure 10: Tracking the White-Hispanic Achievement Gap over Time: 8th Grade Reading in Florida and Texas

As evident in the patterns of the White-Hispanic 8<sup>th</sup> grade achievement gap from 1998 to 2007, it is clear that Florida is making serious progress in raising the academic achievement of its minority students. Additionally, this same gap between Florida's 4<sup>th</sup> grade students has followed the same progression: generally decreasing, with an abrupt reduction of the gap in 2005. The variations in the 8<sup>th</sup> grade White-Hispanic gap in Texas, on the other hand, have been inconsistent. While Texas helped to raise the average scores of both White and Hispanic students, the score gap between these student groups has grown more than two points since 1998: from 21.7 to 23.9.

Tracking the White-Hispanic achievement gap in both 4<sup>th</sup> and 8<sup>th</sup> grade highlights the differing trends in Florida and Texas. Florida's 4<sup>th</sup> grade gap steadily narrowed each year of testing, with the exception of a small widening from 2005 to 2007. Unlike the similarities between grade levels for the other achievement gaps in Florida, the 8<sup>th</sup> grade White-Hispanic gap has distinctly different patterns of change from the gap in 4<sup>th</sup> grade. From 1998 to 2002, this gap increased and then remained at that higher level in 2003. In 2005 and 2007, however, Florida's 8<sup>th</sup> grade White-Hispanic gap narrowed to become the smallest of all achievement gaps under study: 12 points. The 4<sup>th</sup> grade gap in Texas has steadily narrowed every year since 1998, the only gap under study to have done so. This achievement gap in Texas' 8<sup>th</sup> grade, however, has experienced a more irregular pattern of change. From 1998 to 2002, the White-Hispanic gap increased. In both 2003 and 2005, this 8<sup>th</sup> grade gap shrunk, only to widen again in 2007. Due to the inconsistencies over time, these statewide trends in the White-Hispanic achievement gap do not provide support for hypothesis one.

NAEP Reading assessment trends in Florida and Texas do not yet offer any evidence that the implementation of a seamless education system has helped to reduce the disparities in achievement between minority and White students, and low-income and wealthier students. In order to distinguish between these trends, I detail which of the specific achievement gaps have narrowed, widened, or remained the same from 1998 to 2007. Very few of these achievement gaps widened or remained the same size during this time, generally due to the low starting scores of low-income and minority students on the 1998 test. The 8<sup>th</sup> grade gap between those students eligible and ineligible for the National School Lunch Program in Texas managed to remain the same in 1998 and 2007.

On the other hand, the 8<sup>th</sup> grade White-Black achievement gap in Texas grew slightly during this time. This is also true for Texas' 8<sup>th</sup> grade White-Hispanic achievement gap, which widened slightly since 1998. The 4<sup>th</sup> grade gap between students eligible and ineligible for the National School Lunch Program has narrowed in both Florida and Texas since 1998. This same gap between 8<sup>th</sup> grade students, however, only narrowed in the state of Florida. Since 1998, the White-Black achievement gap for 4<sup>th</sup> grade students has shrunk in Florida and Texas. In the 8<sup>th</sup> grade, though, the states had differing trends in the White-Black achievement gaps; only Florida was able to reduce the size of this achievement gap from 1998 to 2007. Both Florida and Texas were successful in reducing the size of the 4<sup>th</sup> grade White-Hispanic gap throughout this time. Conversely, only Florida narrowed the 8<sup>th</sup> grade White-Hispanic achievement gap since 1998.

After tracking these achievement gaps in both 4<sup>th</sup> and 8<sup>th</sup> grade, patterns begin to emerge. Firstly, the state of Florida has reduced the size of every achievement gap under study since 1998. Secondly, while Texas has narrowed the 4<sup>th</sup> grade gaps during this time, the 8<sup>th</sup> grade gaps appear to have widened or stayed the same size.<sup>13</sup> An increase in average scores for all Florida students is a positive step forward, but minority students must raise their scores at a faster rate than White students if we ever hope to close the achievement gap. Although Florida's PreK-20 seamless education system did not help to close the NAEP achievement gaps since 1998, these student groups raised their test scores. Therefore, the state has made advancement towards the goal articulated by the Legislature, to "strengthen of foundation skills" for students of every race (Florida's next generation PreK-20 education strategic plan, 2008).

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<sup>13</sup> With more data, research should look into the distinctions between the gaps in 4<sup>th</sup> and 8<sup>th</sup> grade in Texas.

## Hypothesis Two

Hypothesis 2: With the implementation of the PreK-20 education system in Florida, the gap between minority and non-minority students in the number of Advanced Placement exams with passing scores will have narrowed more than those same gaps have in Texas, where a PreK-20 system has not been implemented.

To investigate hypothesis two, I utilize twelve years of public school data from the College Board's Advanced Placement (AP) Program, from 1997 to 2008. In order to determine the AP achievement gap trends, I compute the number of exams with passing scores taken by students from each demographic group as a percentage of all exams with passing scores.<sup>14</sup> For White students, this is calculated as: Exams passed by White students  $\div$  Total exams passed. I then calculate the percentage of students in each demographic group who earned a passing score on the AP exam and compare this to the passing rate of other student groups. The percentage of White students who earned a passing score on an AP exam is computed as: White students passing  $\div$  Total White students. For this analysis, I compute the White-Black and White-Hispanic achievement gaps separately. These computations help illustrate the AP gap in two ways; firstly, these calculations demonstrate the changes in the proportion of minority students to all students who earn a passing grade. Also, they help to highlight the differences between the passing rates of minority students and White students. I look to the number of exams with passing scores, not the number of students, because an individual can take more than one AP exam in a given year. Therefore, while this is not a cohort study, students may take more than

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<sup>14</sup> I look to the number of exams, not the number of students, because an individual can take more than one AP exam in a given year.

one exam in a given year and the same students may take multiple exams in different years. In order to shed some light on the patterns of participation for student groups, Appendix C provides the total number of AP exams taken by each student group from 1997 to 2008.<sup>15</sup>

AP exam grades are reported on a scale as follows: 5- extremely well qualified, 4- well qualified, 3- qualified, 2- possibly qualified, 1- no recommendation. A passing grade on an end-of-year AP exam is established by earning a score of 3, 4, or 5. Students who earn exam grades of 3 or above are generally considered to be qualified to receive college credit and/or placement into advanced courses. However, the decision to award college credit for an AP course is determined by each university. The AP Program works to ensure the reliability of exam scores over time through a statistical technique called “equating.” As the AP program explains, “equating relates an exam from one year to an AP exam from another year, so that performance on the two exams can be compared. This is accomplished by looking at how well AP students performed on a set of multiple-choice questions that is common to both exams. These particular multiple-choice questions cover the curriculum content and represent a broad range of difficulty; they can therefore provide information about the ability level of the current group of students and indicate the current exam's level of difficulty.” (From composite score to AP grade, 2009) The process of equating AP exam scores provides comparable data over time without the requirement of any additional statistical steps.

The categories of race/ethnicity into which students place themselves, as outlined by the AP Program, have not changed substantially throughout the eleven years under study.<sup>16</sup> From

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<sup>15</sup> As the AP Program expands to include those students who did not previously participate in the advanced courses, it is likely that these students will not perform as well on the end-of-year exams as those students who have previously taken an AP course or exam. This theoretical learning curve, however, should hold true for students of any race or ethnicity.

1997 to 2000, the categories of race/ethnicity include: American Indian/Alaskan, Asian/Asian-American, Black/African-American, Chicano/Mexican-American, Puerto Rican, Other Hispanic, White, Other, and Not Stated. For these years, I combine the groups Chicano/Mexican-American, Puerto Rican, and Other Hispanic to create the “Hispanic” group. From 2001 to 2005, these three categories were renamed to include the word “Latino.”<sup>17</sup> From 2006 to 2008, the typology of these groups read: Mexican-American, Puerto Rican, and Other Hispanic. These changes in the categorical designations should have no effect on the responses of students.<sup>18</sup>

As seen below, Tables 16 and 17 track the proportion of exams passed by students from each demographic group as a percentage of all exams with passing scores. These two tables outline the percentage of passing exams from White, African-American, and Hispanic students, so as to compare the proportion of student exams with passing grades from each student group. In Tables 16 and 17, the proportions for these groups will not sum to 100% because these are only three of several race/ethnicity categories available for selection. For these two tables, a unique relationship exists: as the proportion of passing students from one student group increases, the portion of passing students from every other student group decreases. Therefore, in order to narrow the achievement gap, the proportion of exams passed by White students must decrease while the proportion of exams passed by African-American and Hispanic students must increase.

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<sup>16</sup> The only categories that have changed during this time are those of Hispanic students. All other race/ethnicity groupings did not undergo any major name changes during this time.

<sup>17</sup> The categories were called Latino: Chicano/Mexican-American, Latino: Puerto Rican, and Latino: Other.

<sup>18</sup> It would be interesting for future research to look into the various trends in AP success for the different Hispanic groups.



Table 16: White, Black, and Hispanic Student AP Exams with Passing Scores as a Percentage of All Passing Scores: Florida from 1997-2008

	White	Black	Hispanic
1997	62.8	4.1	16.9
1998	62.3	3.7	16.8
1999	61.3	4.0	17.3
2000	64.8	4.1	17.6
2001	63.9	4.2	18.4
2002	63.0	4.6	19.0
2003	62.5	4.5	19.9
2004	61.5	4.6	20.8
2005	60.7	4.6	20.9
2006	57.5	4.5	21.4
2007	59.2	4.9	21.2
2008	59.1	5.0	21.4

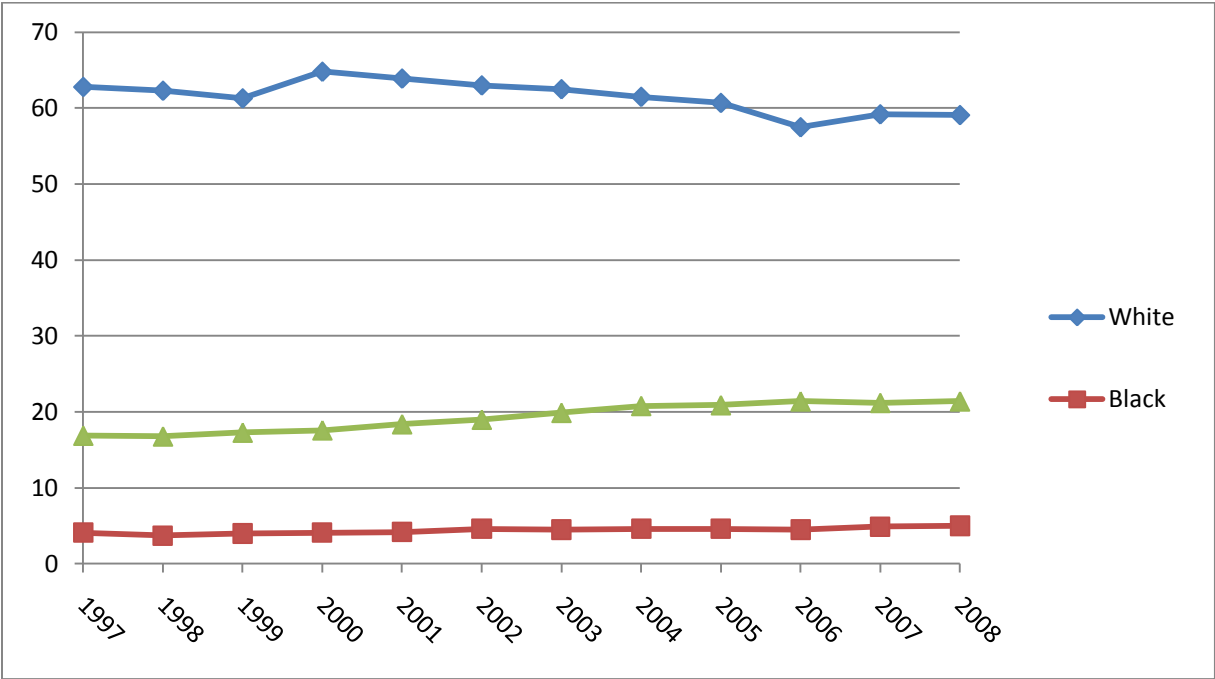
Source: College Board, Inc.

Table 17: White, Black, and Hispanic Student AP Exams with Passing Scores as a Percentage of All Passing Scores: Texas from 1997-2008

	White	Black	Hispanic
1997	60.3	2.0	15.1
1998	59.5	2.0	16.3
1999	56.7	2.2	17.0
2000	60.8	2.5	18.7
2001	59.2	2.3	19.7
2002	59.8	2.5	18.8
2003	58.6	2.6	20.1
2004	57.3	2.7	20.9
2005	56.6	2.7	21.1
2006	53.2	2.6	22.2
2007	55.6	3.0	20.7
2008	54.6	3.1	21.5

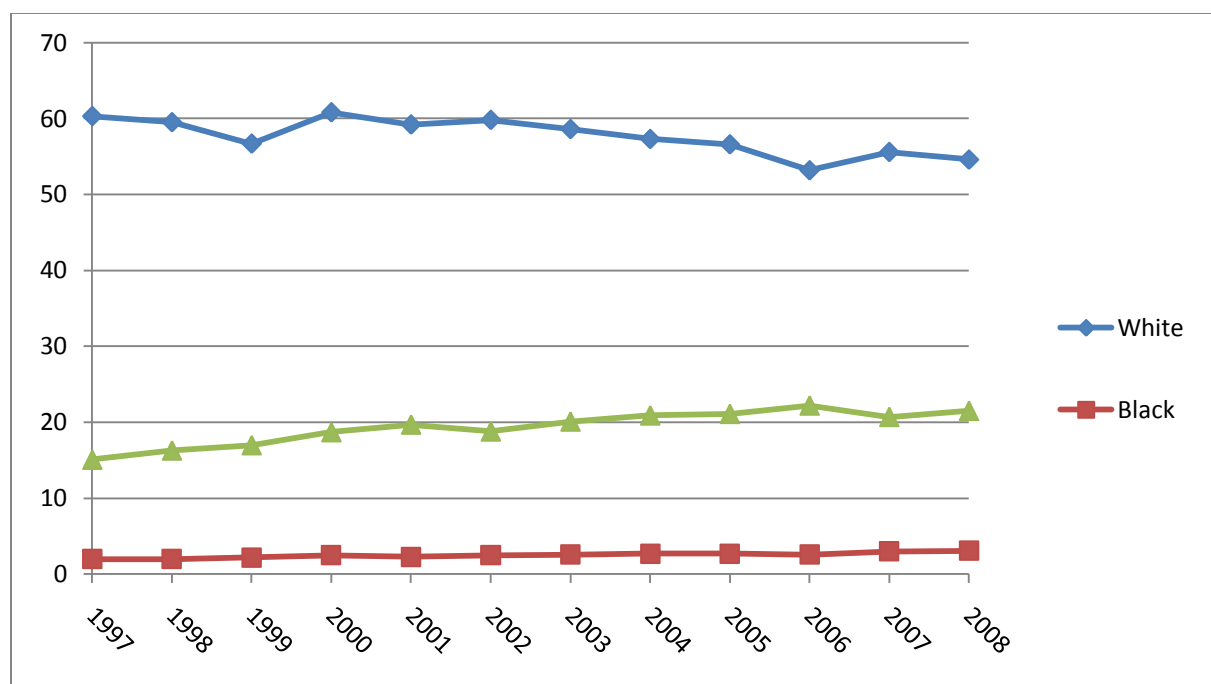
Source: College Board, Inc.

Tables 16 and 17 demonstrate the growing proportion of minority students who earn a passing score in Florida and Texas. In both states, the percentage of passing exams taken by minority students has steadily increased since 1997. This positive progress is true for both African-American and Hispanic students in Florida and Texas. The similar statewide trends in the proportion of exams passed by these student groups are demonstrated in Figures 11 and 12.



Source: College Board, Inc.

Figure 11: White, Black, and Hispanic Students with Passing Scores as a Percentage of All Passing Students on AP Exams: Florida from 1997-2008



Source: College Board, Inc.

Figure 12: White, Black, and Hispanic Students with Passing Scores as a Percentage of All Passing Students on AP Exams: Texas from 1997-2008

As Figure 11 shows, Florida’s proportion of passing students from minority groups grew. The fraction of exams passed by African-American students rose by nearly one percentage point, to reach five percent. The share of passing scores from Hispanic students increased by four and a half percentage points: from 16.9 to 21.4. The proportion of White passing students has decreased by less than four points since 1997, which indicates that the relative number of passing exams taken by students from other demographic groups has also lessened. The trends in Texas are extremely similar to those in Florida, as demonstrated in Figure 12. Since 1997, the proportion of passing exams from African-American students grew by more than one percentage point to slightly more than three percent in 2008. The proportion of passing exams taken by

Hispanic students rose from 15.1 to 21.5, a difference of a little less than six and a half percentage points. Additionally, the proportion of passing exams from White students in Texas fell by less than six points. Just as in Florida, this Texas data indicates that the proportion of passing exams from other student groups not accounted for in this analysis also decreased. As seen above, in Figure 12, tracking the proportion of passing exams from different student groups illustrates the long-term trends in their relative success.

#### *Advanced Placement White-Black Achievement Gaps*

In Tables 18 and 19, I analyze the AP exam passing rates for White and African-American students in Florida and Texas from 1997 to 2008. In example, the passing rate for White students is computed as:  $\text{White students passing} \div \text{Total White students}$ . These numbers are then used to calculate the White-Black gap by subtracting the passing rate of African-American students from the White passing rate. The patterns of this White-Black achievement gap are then illustrated in Figure 13, below.

Table 18: White-Black Gap in AP Exam Passing Rates: Florida from 1997-2008

	White	Black	W-B Gap
1997	55.1	29.2	25.9
1998	55.6	28.8	26.8
1999	57.4	32.0	25.4
2000	58.2	31.2	27.1
2001	55.6	28.3	27.3
2002	56.0	31.6	24.3
2003	52.2	27.2	25.0
2004	52.8	28.5	24.3
2005	50.1	26.3	23.8
2006	48.3	23.6	24.7
2007	48.6	22.6	26.0
2008	46.8	18.8	28.0

Source: College Board, Inc.

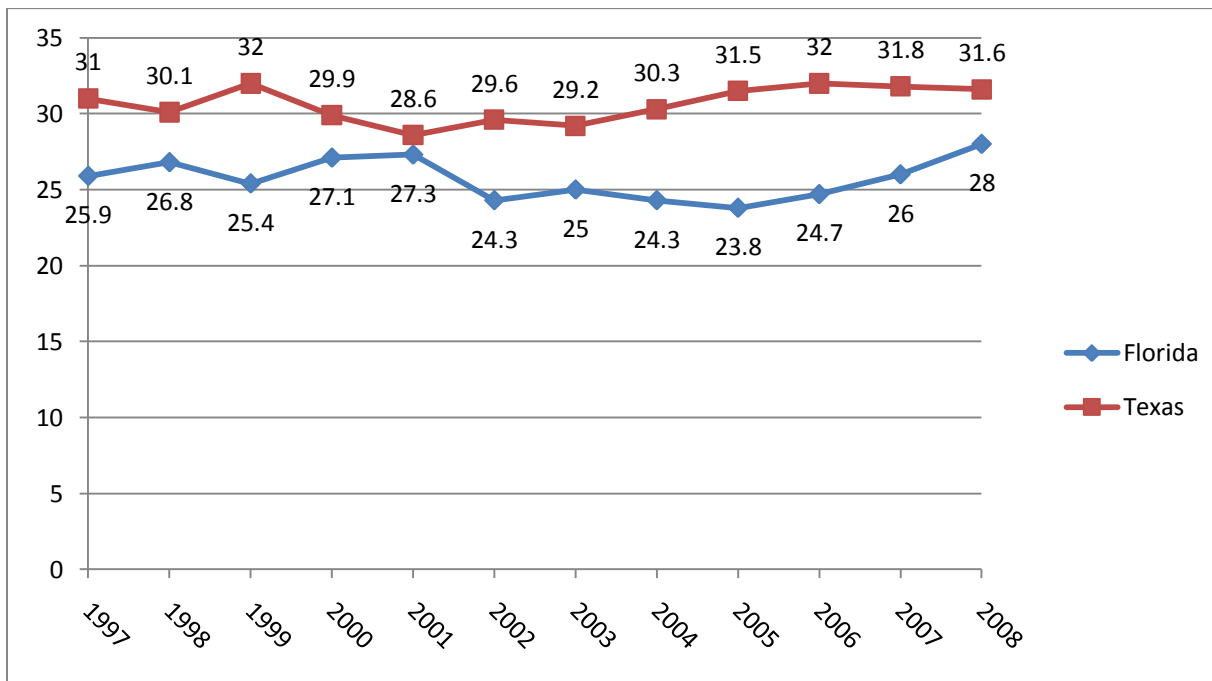
Table 19: White-Black Gap in AP Exam Passing Rates: Texas from 1997-2008

	White	Black	W-B Gap
1997	61.3	30.3	31.0
1998	59.2	29.1	30.1
1999	59.0	27.0	32.0
2000	57.8	28.0	29.9
2001	53.2	24.6	28.6
2002	56.7	27.1	29.6
2003	54.8	25.6	29.2
2004	54.4	24.1	30.3
2005	53.8	22.3	31.5
2006	53.7	21.8	32.0
2007	54.7	22.9	31.8
2008	53.1	21.4	31.6

Source: College Board, Inc.

From 1997 to 2008, both Florida and Texas experienced a drop in the AP passing rates for both White and African-American students, as Tables 18 and 19 establish. Additionally, the passing rate of African-American students has decreased more than those rates for White

students in both states. Therefore, as the size of the White-Black achievement gap increased in Florida and Texas, both states also experienced a decline in their AP exam passing rates for White and African-American students. These trends illustrate an unpleasant outcome: reduced performance from both student groups, but a steeper decline in the academic achievement of minority students. Figure 13, below, illustrates the changing size of this White-Black AP achievement gap.



Source: College Board, Inc.

Figure 13: White-Black Gap in AP Exam Passing Rates: Florida and Texas from 1997-2008

As Figure 13 illustrates above, the statewide patterns in the White-Black AP achievement gap since 1997 have been inconsistent in Florida and Texas. During this time, the passing rates of both White and African-American students declined in both states. From 1997, the passing rate of Florida's White students decreased by just over eight percentage points: from 55.1 to 46.8%. The passing rate of African-American students in Florida has shrunk by about ten and a half percentage points, dropping from 29.2 to 18.8%. These two features have led to more than a two point growth in Florida's White-Black achievement gap, which rose from 25.9 to 28. In Texas, the patterns in AP passing rates are very similar to those in Florida. Since 1997, the passing rate of Texas' White students decreased by more than eight percentage points: 61.3 to 53.1%. Also during this time, the passing rate of African-American students in Texas dropped from 30.3 to 21.4%, constituting a nearly nine percentage point difference. Due to these changes, the White-Black achievement gap in Texas grew by more than one half point: from 31 to 31.6. While the rates for each of these students groups decreased in both states since 1997, the drop in the passing rates of African-American students have outpaced those of White students. Therefore, Florida and Texas have experienced an increase in the disparity between White and African-American AP passing rates. While this trend is troublesome, the fact that the passing rate of every student group has decreased is even more disturbing.

*Advanced Placement White-Hispanic Achievement Gaps*

Keeping in mind the poor performance of White students in both states, I now analyze trends in the White-Hispanic Advanced Placement achievement gap in Florida and Texas. In Tables 20 and 21, I analyze the AP exam passing rates for White and Hispanic students in Florida and Texas from 1997 to 2008. The trends in this White-Hispanic achievement gap are then illustrated in Figure 14.

Table 20: White-Hispanic Gap in AP Exam Passing Rates: Florida from 1997-2008

	White	Hispanic	W-H Gap
1997	55.1	55.0	0.2
1998	55.6	54.6	1.0
1999	57.4	55.5	1.9
2000	58.2	57.1	1.1
2001	55.6	55.7	-0.1
2002	56.0	55.9	0.1
2003	52.2	50.9	1.3
2004	52.8	51.2	1.6
2005	50.1	47.7	2.4
2006	48.3	45.2	3.0
2007	48.6	44.5	4.1
2008	46.8	41.5	5.3

Source: College Board, Inc.

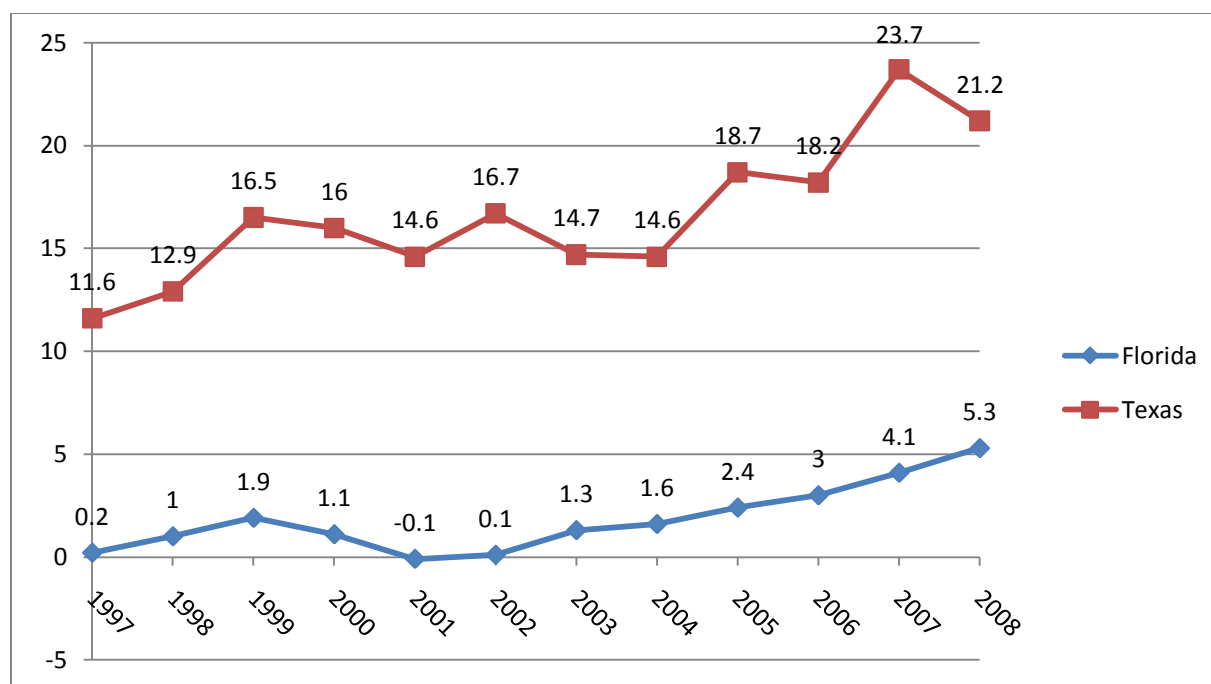


Table 21: White-Hispanic Gap in AP Exam Passing Rates: Texas from 1997-2008

	White	Hispanic	W-H Gap
1997	61.3	49.7	11.6
1998	59.2	46.3	12.9
1999	59.0	42.5	16.5
2000	57.8	41.8	16.0
2001	53.2	38.6	14.6
2002	56.7	40.0	16.7
2003	54.8	40.1	14.7
2004	54.4	39.7	14.6
2005	53.8	35.1	18.7
2006	53.7	35.5	18.2
2007	54.7	31.0	23.7
2008	53.1	31.9	21.2

Source: College Board, Inc.

Since 1997, both states experienced a drop in the AP passing rates for both White and Hispanic students. Also, in both Florida and Texas, the passing rates of Hispanic students have decreased more than those rates for White students. As Tables 20 and 21 establish, the size of the White-Hispanic gap has increased considerably in both Florida and Texas between 1997 and 2008. Just as with the White-Black achievement gap, these patterns are a result of the reduced performance from both student groups, but a larger decrease in the passing rates of Hispanic students. Figure 14, below, illustrates the shifts in the size of this White-Hispanic AP achievement gap.



Source: College Board, Inc.

Figure 14: White-Hispanic Gap in AP Exam Passing Rates: Florida and Texas from 1997-2008

As Figure 14 illustrates, the patterns in the White-Hispanic AP achievement gap since 1997 have been somewhat similar in Florida and Texas. After small increases through 1999, the gap in both states then reduced until 2002. After 2002, the White-Hispanic gap in Florida grew steadily every year. From 2002 to 2008, this gap in Texas both increased and decreased. The overall trends in Florida and Texas signal an increase in the size of the achievement gaps. Since 1997, the passing rate of Florida's White students decreased by just over eight percentage points: from 55.1 to 46.8%. Simultaneously, the Hispanic AP passing rate in Florida declined from 55 to 41.5%, constituting a loss of thirteen and a half percentage points. These two changes led to more than a five point increase in the size of Florida's White-Hispanic AP achievement gap. From 1997 to 2008, the passing rate of Texas' White students decreased from 61.3 to 53.1%, a

difference of more than eight percentage points. The AP passing rate of Hispanic students in Texas diminished by nearly eighteen percentage points: from 49.7 to 31.9%. The gap in AP passing rates between White and Hispanic students in Texas, consequently, grew by more than nine and a half points. From 1997 to 2008, both Florida and Texas experienced a rise in the size in the achievement gap between White and Hispanic AP passing rates.

Achievement gap trends in Florida and Texas do not provide evidence that the implementation of a seamless education system has helped to reduce the disparities between the AP passing rates of minority and White students. From 1997 to 2008, both states experienced a widening of the gap in AP passing rates between White and African-American students, as well as White and Hispanic students. These trends are due to the decline in passing rates for every single student group in Florida and Texas. Contradictorily, in both Florida and Texas, the proportion of exams with passing scores by African-American and Hispanic students has steadily risen since 1997. In Florida, no student group improved their level of “college and career readiness” and the widening trend of the achievement gap went unchanged following the shift to a seamless education system (Florida’s next generation PreK-20 education strategic plan, 2008).

### Hypothesis Three

Hypothesis 3: With the implementation of the PreK-20 education system in Florida, the gap between the proportion of minority and non-minority students who earn a graduate degree will have narrowed more than those same gaps have in Texas, where a PreK-20 system has not been implemented.

In order to analyze hypothesis three, I determine the proportion of graduate degrees awarded by public institutions in Florida and Texas to certain student groups. The demographic groups of students under study include: White, African-American, and Hispanic students from 1995 to 2007.<sup>19</sup> In order to determine the graduate degree gaps, I compute the number of degrees awarded to students from each demographic group as a percentage of all degrees awarded in that school year. For White students, this is calculated as: Degrees earned by White students ÷ Total degrees earned. In any given year, the proportions of these three groups will not sum to 100% because several other student groups were not included in this analysis. Also, the figures exhibit a zero-sum relationship: as the proportion of degrees earned by one group increases, the proportion of degrees earned by other student groups will decrease. To narrow the achievement gap, then, the share of degrees earned by White students must decrease while the share of degrees earned by minority students must increase.

This data is available through the Integrated Postsecondary Education Data System (IPEDS) website, under the National Center for Education Statistics of the U.S. Department of Education. The degree levels under study include: professional, master, and doctoral. For each

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<sup>19</sup> In the text, I indicate these school years by the ending year., when degrees are generally awarded (i.e.. the 2002-2003 school year is referred to as 2003) Additionally, the 1998-1999 school year is not included in the IPEDS data for degrees of any level.

of these degree levels, I compute the White-Black and White-Hispanic gaps separately and track changes in these gaps over time. I first analyze the White-Black gaps at all three degree levels in Florida and Texas. Then, I evaluate the White-Hispanic gaps at these three levels of study for both states. Although Florida's PreK-20 system was fully implemented by 2003, these graduate degrees can take anywhere from two to seven years to complete. As such, the information that is currently available may not provide enough recent data to track the changes in these gaps after the creation of Florida's seamless system. Additionally, the number of graduate degree granting institutions or programs may have expanded and contracted throughout this time. However, the figures reported below are percentages, so the comparability of this data is still maintained. In order to shed some light on the exact number of degrees awarded to each student group, Appendix D provides the total number of graduate degrees granted to each student group from 1995 to 2007.

### *Graduate Degree White-Black Achievement Gaps*

Below, I compute the gap in the percentage of degrees conferred to White and African-American students in Florida and Texas in each school year. The levels under study include: professional, master, and doctoral degrees. After depicting the degree gap in tabular form, I graph these trends over time.

Table 22: White-Black Gap in Percentage of Professional Degrees Granted: Florida 1995-2007

	White	Black	W-B Gap
1994-95	77.3	10.8	66.5
1995-96	74.7	11.6	63.1
1996-97	75.5	10.0	65.5
1997-98	73.5	13.1	60.4
1999-2000	71.3	10.8	60.5
2000-01	69.2	12.3	56.9
2001-02	69.2	11.9	57.3
2002-03	70.4	11.6	58.8
2003-04	66.5	13.6	52.9
2004-05	63.6	13.9	49.7
2005-06	63.1	13.7	49.4
2006-07	63.7	11.8	51.9

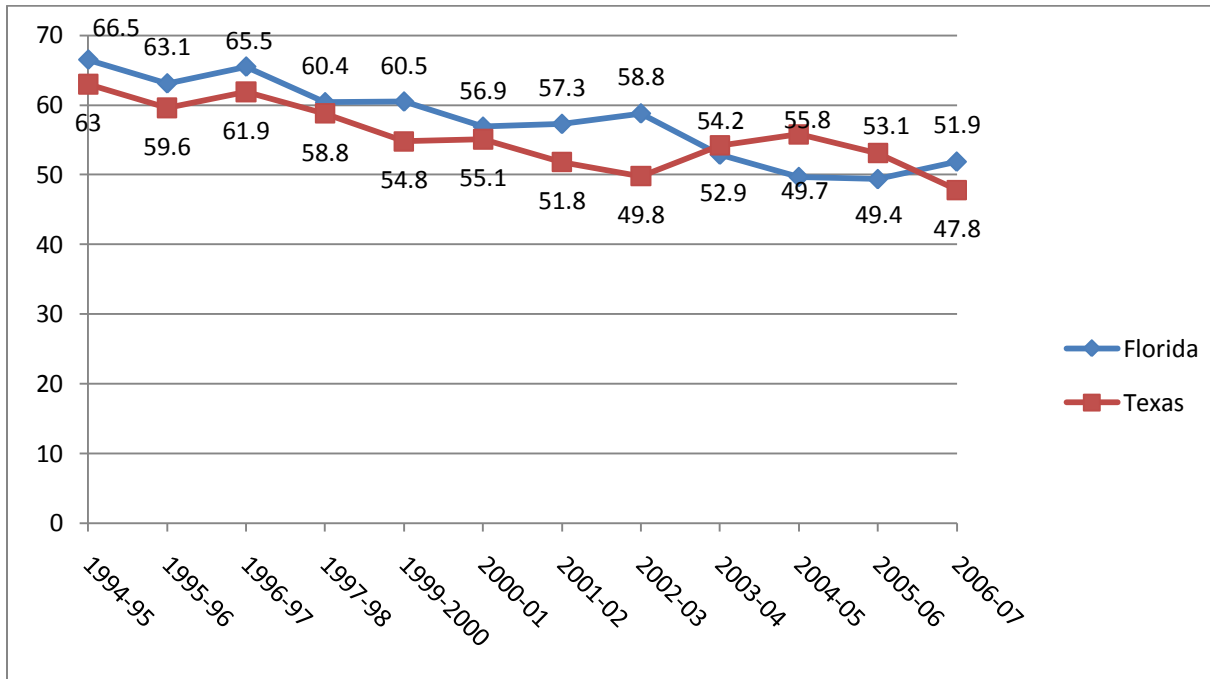
Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Table 23: White-Black Gap in Percentage of Professional Degrees Granted: Texas 1995-2007

	White	Black	W-B Gap
1994-95	70.7	7.7	63.0
1995-96	68.3	8.7	59.6
1996-97	69.7	7.8	61.9
1997-98	66.1	7.3	58.8
1999-2000	63.4	8.6	54.8
2000-01	61.9	6.8	55.1
2001-02	60.4	8.6	51.8
2002-03	59.5	9.7	49.8
2003-04	62.0	7.8	54.2
2004-05	63.2	7.4	55.8
2005-06	59.4	6.3	53.1
2006-07	56.5	8.7	47.8

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Texas Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

As seen above, Tables 22 and 23 track the proportion of professional degrees awarded to White and African-American students in each school year. In 2007, the amount of professional degrees granted to African-American students in Florida was only one percentage point higher than that number in 1995. In Texas, the proportion of degrees granted to African-American students also rose by one percentage point during this time. Additionally, the size of the White-Black gap in professional degrees narrowed in both Florida and Texas. These patterns are illustrated below, in Figure 15.



Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics.

Figure 15: White-Black Gap in Percentage of Professional Degrees Granted: Florida and Texas 1995-2007

In both states, the proportion of degrees awarded to African-American students has risen. Since 1995, the percentage of professional degrees awarded to White students in Florida decreased by 13.6 percentage points: from 77.3% to 63.7%. At the same time, the share of degrees awarded to African-American students in Florida rose from 10.8% to 11.8%, a difference of one percentage point. These two factors led to a decrease in the size of the White-Black professional degree gap in Florida by 14.6 percentage points. In Texas, the fraction of professional degrees awarded to White students in 2007 was 14.2 percentage points lower than that figure in 1995, dropping from 70.7% to 56.5%. Simultaneously, the share of degrees granted to African-Americans increased by one percentage point: from 7.7% to 8.7%; therefore, this Texas gap narrowed by 15.2 percentage points from 1995 to 2007. Although Florida's growth in the proportion of degrees awarded to African-American students was equal to the increase in Texas, the size of Florida's gap narrowed slightly less than the size of that gap in Texas. , Following Florida's restructuring, this gap in Florida shrunk for three consecutive years and this gap in Texas increased for two consecutive years. These short patterns may be evidence of divergent outcomes in the two states; or, with data from more school years, the trend may wash out. Below, I look at the White-Black master's degree gap to find evidence of any ongoing patterns that may exist.



Table 24: White-Black Gap in Percentage of Master's Degrees Granted: Florida 1995-2007

	White	Black	W-B Gap
1994-95	73.5	6.9	66.6
1995-96	71.5	7.5	64.0
1996-97	71.7	7.8	63.9
1997-98	70.8	8.8	62.0
1999-2000	66.6	9.6	57.0
2000-01	63.8	9.7	54.1
2001-02	63.1	10.0	53.1
2002-03	59.8	9.4	50.4
2003-04	59.4	10.2	49.2
2004-05	60.2	9.8	50.4
2005-06	61.6	9.3	52.3
2006-07	62.0	9.9	52.1

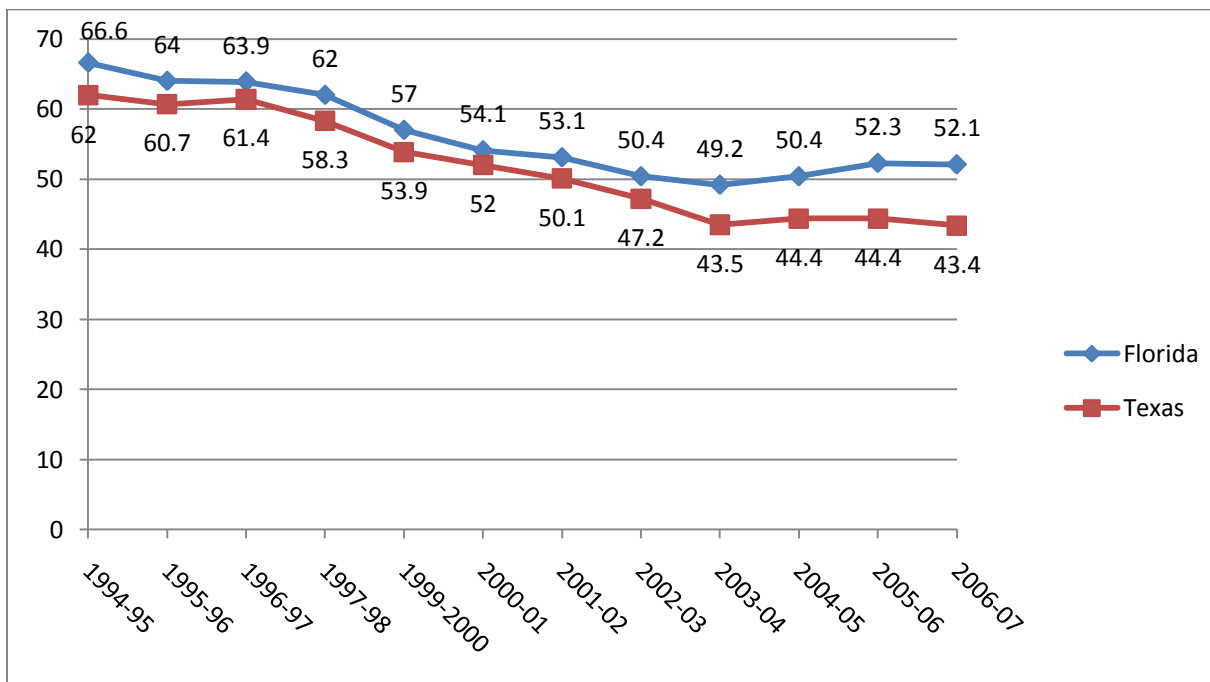
Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Table 25: White-Black Gap in Percentage of Master's Degrees Granted: Texas 1995-2007

	White	Black	W-B Gap
1994-95	66.7	4.7	62.0
1995-96	66.0	5.3	60.7
1996-97	67.5	6.1	61.4
1997-98	64.1	5.8	58.3
1999-2000	60.2	6.3	53.9
2000-01	58.4	6.4	52.0
2001-02	56.9	6.8	50.1
2002-03	54.3	7.1	47.2
2003-04	51.2	7.7	43.5
2004-05	52.5	8.1	44.4
2005-06	53.1	8.7	44.4
2006-07	52.6	9.2	43.4

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Texas Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Tables 24 and 25, above, provide the proportion of master’s degrees awarded to White and African-American students in Florida and Texas. These figures show a great deal of progress in the share of degrees awarded to African-American students in both states. In Florida, the fraction of degrees that African-American students earned in 2007 was three percentage points higher than their share of degrees in 1995; the proportion of degrees awarded to Texas’ African-American students was four and a half percentage points higher. Both states also experienced a decrease in the size of the White-Black gap in master’s degrees. Below, Figure 16 depicts the shrinking of this gap during these school years.



Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics.

Figure 16: White-Black Gap in Percentage of Master’s Degrees Granted: Florida and Texas 1995-2007

Since 1995, Florida has increased the share of master’s degrees granted to White students from 73.5% to 62%, a difference of 11.5 percentage points. Florida’s African-American students raised the proportion of degrees awarded by three percentage points: from 6.9% in 1995 to 9.9% in 2007. As Table 24 highlights, these two factors resulted in a narrowing of Florida’s gap by 14.5 percentage points. From 1995 to 2004, the White-Black master’s degree gap in Florida steadily narrowed. In Texas, White students increased the fraction of master’s degrees conferred by 14.1 percentage points: from 66.7 % in 1995 to 52.6% in 2007. African-American students in Texas also increased the number of degrees granted, from 4.7% to 9.2%: a difference of four and a half percentage points. This resulted in a large decrease in the size of this Texas gap by 18.6 percentage points. Figure 16 illustrates the fact that both states narrowed this achievement gap until 2005, when Florida and Texas experienced an increase in the size of this gap.

Table 26: White-Black Gap in Percentage of Doctoral Degrees Granted: Florida 1995-2007

	White	Black	W-B Gap
1994-95	62.6	6.1	56.5
1995-96	62.3	3.9	58.4
1996-97	62.2	5.0	57.2
1997-98	60.0	5.9	54.1
1999-2000	64.0	5.2	58.8
2000-01	66.8	6.4	60.4
2001-02	65.6	5.2	60.4
2002-03	63.4	5.9	57.5
2003-04	58.6	6.2	52.4
2004-05	54.9	6.6	48.3
2005-06	51.6	6.2	45.4
2006-07	52.9	6.3	46.6

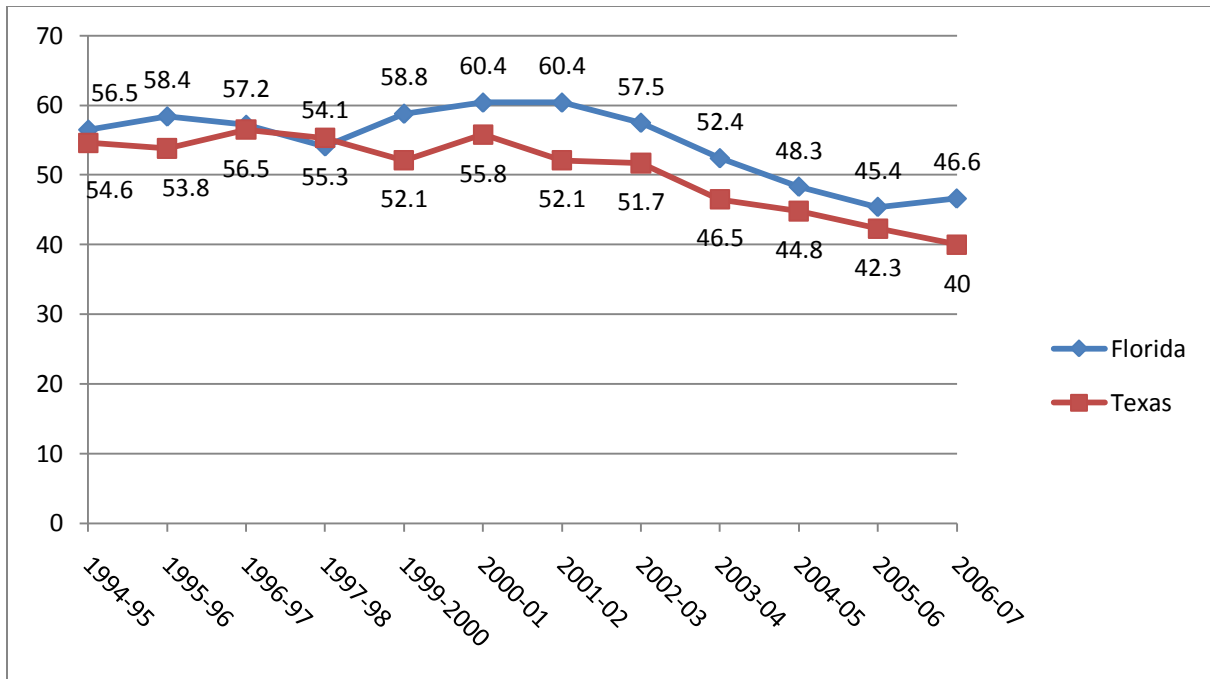
Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Table 27: White-Black Gap in Percentage of Doctoral Degrees Granted: Texas 1995-2007

	White	Black	W-B Gap
1994-95	57.8	3.2	54.6
1995-96	56.5	2.7	53.8
1996-97	59.4	2.9	56.5
1997-98	57.8	2.5	55.3
1999-2000	56.3	4.2	52.1
2000-01	59.6	3.8	55.8
2001-02	55.8	3.7	52.1
2002-03	55.3	3.6	51.7
2003-04	50.0	3.5	46.5
2004-05	48.5	3.7	44.8
2005-06	45.7	3.4	42.3
2006-07	44.4	4.4	40.0

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Texas Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

As Tables 26 and 27 demonstrate, the proportion of doctoral degrees awarded to White and African-American students in Florida and Texas has fluctuated since 1995. This data also shows the progress that both states have made in the expansion of doctoral degrees to African-American students. The proportion of degrees awarded to African-American students in Florida was only slightly higher in 2007 than 1995. Florida, however, experienced a significant decrease in the size of the White-Black gap in doctoral degrees. Texas also witnessed a narrowing of this gap, by a larger degree. Figure 17, below, depicts the evolution of this doctoral degree gap during these school years.



Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics.

Figure 17: White-Black Gap in Percentage of Doctoral Degrees Granted: Florida and Texas 1995-2007

Between 1995 and 2007, Florida decreased the fraction of doctoral degrees granted to White students by 9.7 percentage points: from 62.6% to 52.9%. Simultaneously, the share of degrees awarded to African-American students in Florida rose: from 6.1% to 6.3%. As Table 26 depicts, a large drop in the proportion of doctoral degrees awarded to White students led to a narrowing of Florida's gap, by 9.9 percentage points since 1995. In analysis of the proportion of doctoral degrees awarded to African-American students in Florida since 1995, a relatively stable picture emerges. In Texas, White students decreased the share of doctoral degrees conferred by 13.4 percentage points: from 57.8% in 1995 to 44.4% in 2007. African-American students in Texas increased the proportion of degrees granted, from 3.2% to 4.4%: a difference of more

than one percentage point. African-American students in Texas, though, exhibited a small upward trend in the share of degrees awarded. These two factors resulted in a decline in the size of this Texas gap by 14.6 percentage points. Florida and Texas have raised the fraction of doctoral degrees granted to African-American students. Since 2001, both states have witnessed a narrowing of the White-Black doctoral degree gap; this pattern was unchanged by the implementation of Florida's seamless PreK-20 system. I now look to the White-Hispanic degree gaps in Florida and Texas from 1995 to 2007.

### *Graduate Degree White-Hispanic Achievement Gaps*

Below, I compute the gap in the proportion of degrees conferred to White and Hispanic students in Florida and Texas in each school year. The levels under study include: professional, master, and doctoral degrees. After depicting the gap in tabular form, I then graph these trends over time.

Table 28: White-Hispanic Gap in Percentage of Professional Degrees Granted: Florida 1995-2007

	White	Hispanic	W-H Gap
1994-95	77.3	6.4	70.9
1995-96	74.7	7.7	67.0
1996-97	75.5	7.1	68.4
1997-98	73.5	5.9	67.6
1999-2000	71.3	9.9	61.4
2000-01	69.2	8.0	61.2
2001-02	69.2	9.6	59.6
2002-03	70.4	8.7	61.7
2003-04	66.5	8.9	57.6
2004-05	63.6	10.0	53.6
2005-06	63.1	10.7	52.4
2006-07	63.7	10.2	53.5

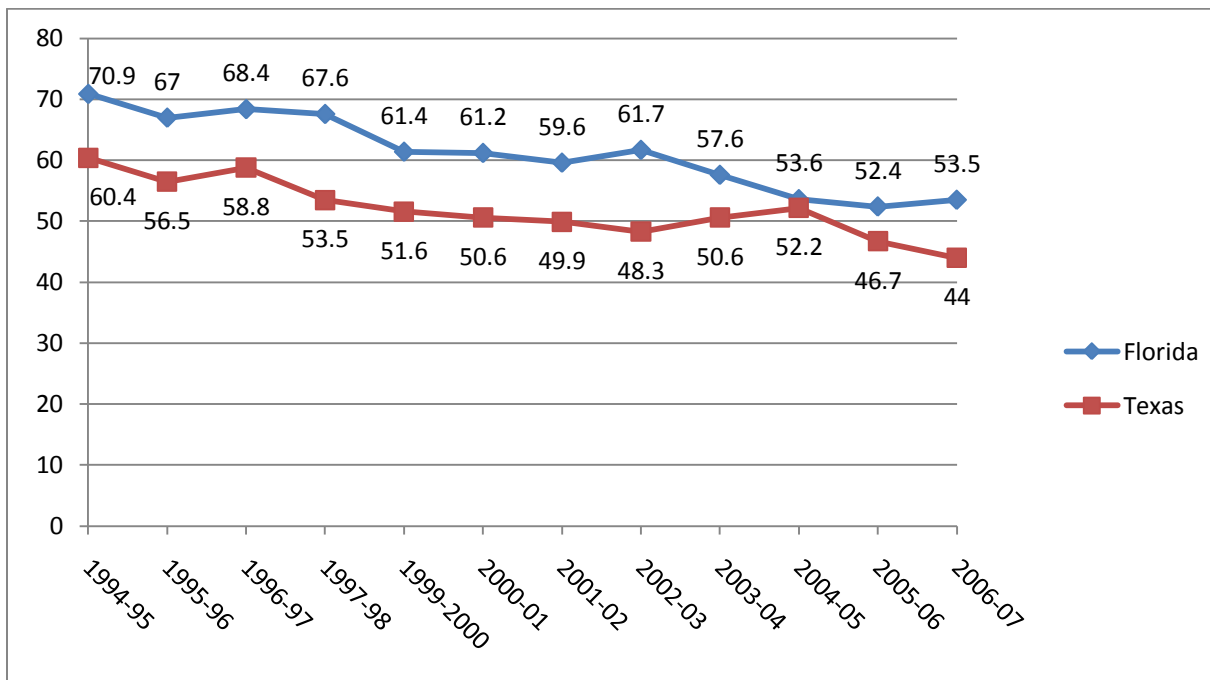
Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Table 29: White-Hispanic Gap in Percentage of Professional Degrees Granted: Texas 1995-2007

	White	Hispanic	W-H Gap
1994-95	70.7	10.3	60.4
1995-96	68.3	11.8	56.5
1996-97	69.7	10.9	58.8
1997-98	66.1	12.6	53.5
1999-2000	63.4	11.8	51.6
2000-01	61.9	11.3	50.6
2001-02	60.4	10.5	49.9
2002-03	59.5	11.2	48.3
2003-04	62.0	11.4	50.6
2004-05	63.2	11.0	52.2
2005-06	59.4	12.7	46.7
2006-07	56.5	12.5	44.0

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Texas Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

As Table 28 notes, the share of professional degrees awarded to Hispanic students in Florida in 2007 was nearly four percentage points higher than that figure in 1995. Texas also increased the proportion of degrees awarded to Hispanic students, by more than two percentage points. The data in Tables 28 and 29 display the advancement that both states have made in the expansion of professional degrees to Hispanic students. Since 1995, Florida and Texas have witnessed a narrowing of the White-Hispanic gap in professional degrees. Figure 18, below, depicts the patterns of these achievement gaps in the two states.



Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics.

Figure 18: White-Hispanic Gap in Percentage of Professional Degrees Granted: Florida and Texas 1995-2007



Since 1995, the proportion of degrees awarded to White students in Florida has decreased by 13.6 percentage points: from 77.3% to 63.7%. The share of degrees awarded to Florida's Hispanic students grew by nearly four percentage points: from 6.4% to 10.2%. With an increase in the proportion of professional degrees awarded to the state's Hispanic students, Florida's gap narrowed by 17.4 percentage points. The fraction of degrees conferred by Hispanic students in the state exhibit an overall upward trend in Florida. In Texas, the fraction of professional degrees awarded to White students decreased by 14.2 percentage points: from 70.7% in 1995 to 56.5% in 2007. Also, the share of degrees granted to Hispanic students in the state increased from 10.3% to 12.5%: a difference of more than two percentage points. These two factors led to a narrowing of Texas' White-Hispanic gap by 16.4 percentage points between 1995 and 2007. Both states expanded the proportion of professional degrees granted to Hispanic students during these years. As Figure 18 demonstrates, the narrowing trends in the White-Hispanic professional degree gaps were present long before the implementation of Florida's new education governance structure. In the tables below, I look at trends in the White-Hispanic master's degree gap in the two states.

Table 30: White-Hispanic Gap in Percentage of Master's Degrees Granted: Florida 1995-2007

	White	Hispanic	W-H Gap
1994-95	73.5	7.4	66.1
1995-96	71.5	8.5	63.0
1996-97	71.7	8.0	63.7
1997-98	70.8	8.8	62.0
1999-2000	66.6	10.4	56.2
2000-01	63.8	10.7	53.1
2001-02	63.1	11.3	51.8
2002-03	59.8	11.9	47.9
2003-04	59.4	11.3	48.1
2004-05	60.2	11.8	48.4
2005-06	61.6	11.5	50.1
2006-07	62.0	12.4	49.6

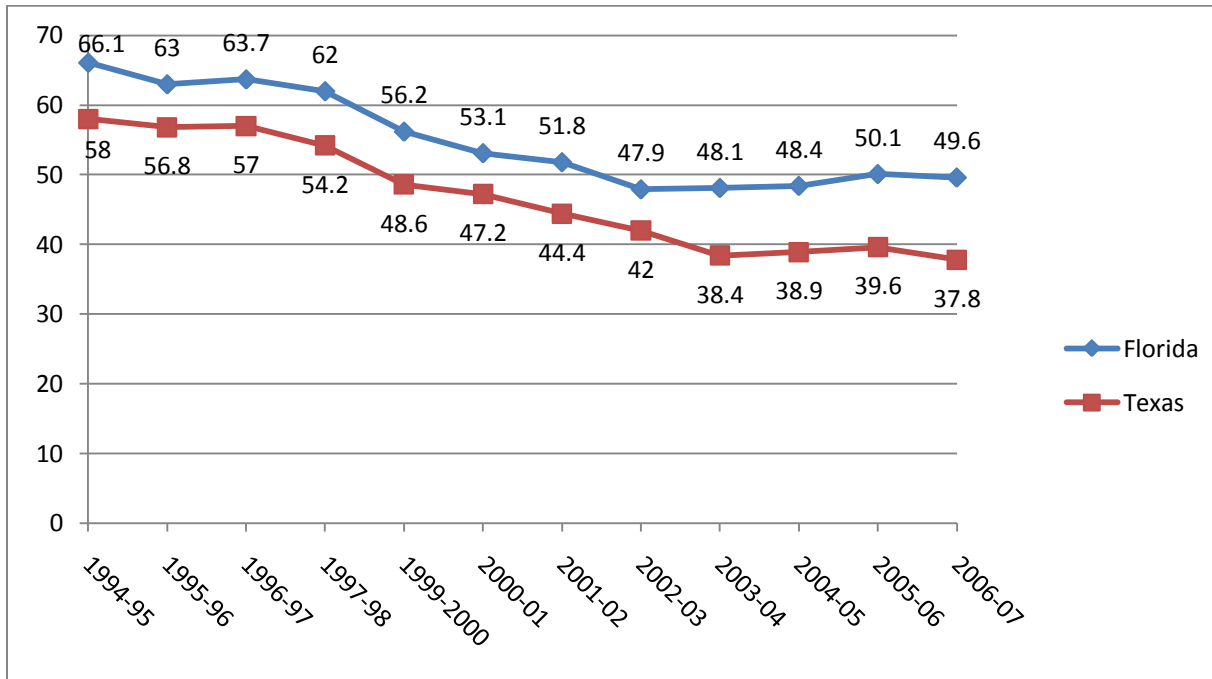
Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Table 31: White-Hispanic Gap in Percentage of Master's Degrees Granted: Texas 1995-2007

	White	Hispanic	W-H Gap
1994-95	66.7	8.7	58.0
1995-96	66.0	9.2	56.8
1996-97	67.5	10.5	57.0
1997-98	64.1	9.9	54.2
1999-2000	60.2	11.6	48.6
2000-01	58.4	11.2	47.2
2001-02	56.9	12.5	44.4
2002-03	54.3	12.3	42.0
2003-04	51.2	12.8	38.4
2004-05	52.5	13.6	38.9
2005-06	53.1	13.5	39.6
2006-07	52.6	14.8	37.8

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Texas Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Tables 30 and 31 detail the percentage of master’s degrees awarded to White and Hispanic students in Florida and Texas since 1995. This data illustrates the progress that both states have made in expanding access to master’s degrees for Hispanic students. Since 1995, these minority students, in both Florida and Texas, increased their share of master’s degrees. Florida, however, experienced an increase in the size of the White-Hispanic gap in master’s degrees. Additionally, both states narrowed the size of this gap during this time. Figure 19, below, depicts the evolution of this degree gap during these school years.



Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics.

Figure 19: White-Hispanic Gap in Percentage of Master’s Degrees Granted: Florida and Texas 1995-2007

In both Florida and Texas, the share of master's degrees awarded to Hispanic students has steadily risen over time. Since 1995, the proportion of degrees awarded to White students in Florida decreased by 11.5 percentage points: from 73.5% to 62%. At the same time, the fraction of degrees awarded to Hispanic students in Florida rose from 7.4% to 12.4%, a difference of five percentage points. These factors led to a narrowing of the White-Hispanic master's degree gap in Florida by 16.5 percentage points since 1995. From 1998 to 2004, Florida experienced a constant decrease in the size of this degree gap; in 2005 and 2006, though, the state witnessed a brief widening of the gap. Since 1995, the proportion of master's degrees awarded to White students in Texas decreased by 14.1 percentage points, from 66.7% to 52.6%. Simultaneously, the fraction of degrees granted to Hispanics increased by more than six percentage points: from 8.7% to 14.8%. This resulted in a narrowing of this Texas gap by 20.2 percentage points. In Texas, this White-Hispanic degree gap shrank consistently from 1998 to 2004; this is the exact same pattern underwent by the gap in Florida. Below, I study the patterns in the White-Hispanic doctoral degree gap in the two states.

Table 32: White-Hispanic Gap in Percentage of Doctoral Degrees Granted: Florida 1995-2007

	White	Hispanic	W-H Gap
1994-95	62.6	2.7	59.9
1995-96	62.3	4.0	58.3
1996-97	62.2	4.1	58.1
1997-98	60.0	4.4	55.6
1999-2000	64.0	4.7	59.3
2000-01	66.8	3.9	62.9
2001-02	65.6	4.7	60.9
2002-03	63.4	5.4	58.0
2003-04	58.6	4.5	54.1
2004-05	54.9	5.3	49.6
2005-06	51.6	5.6	46.0
2006-07	52.9	4.8	48.1

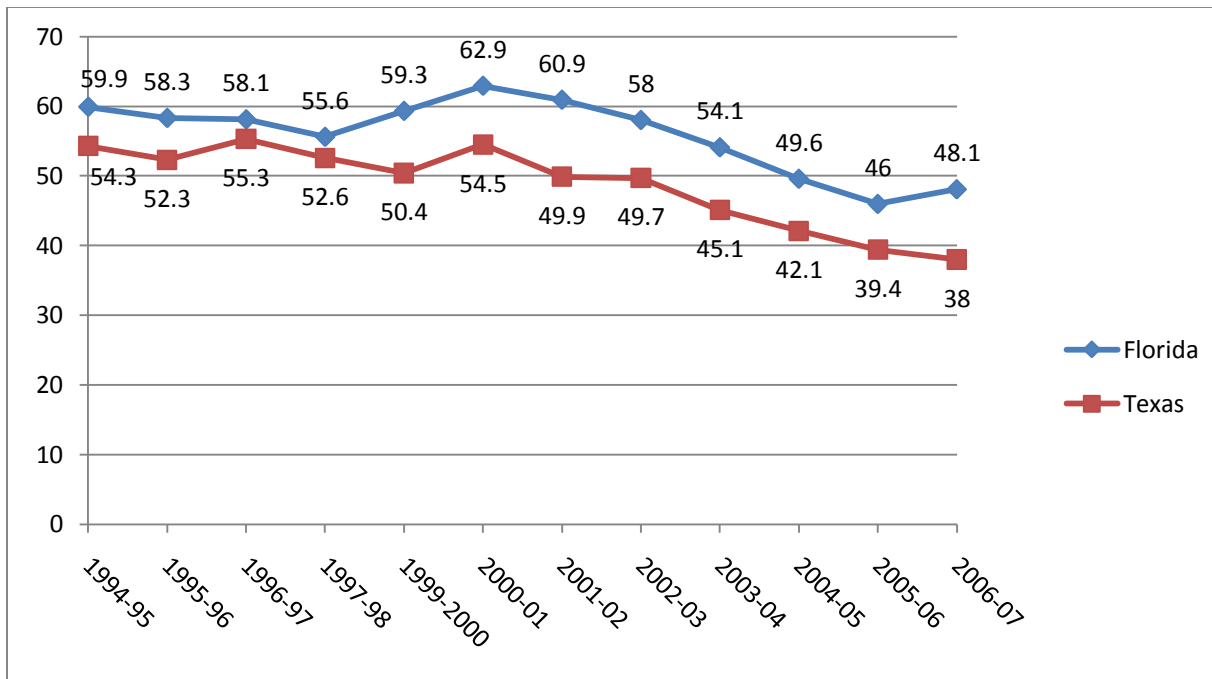
Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Table 33: White-Hispanic Gap in Percentage of Doctoral Degrees Granted: Texas 1995-2007

	White	Hispanic	W-H Gap
1994-95	57.8	3.5	54.3
1995-96	56.5	4.2	52.3
1996-97	59.4	4.1	55.3
1997-98	57.8	5.2	52.6
1999-2000	56.3	5.9	50.4
2000-01	59.6	5.1	54.5
2001-02	55.8	5.9	49.9
2002-03	55.3	5.6	49.7
2003-04	50.0	4.9	45.1
2004-05	48.5	6.4	42.1
2005-06	45.7	6.3	39.4
2006-07	44.4	6.4	38.0

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

As Tables 32 and 33 illustrate, the share of doctoral degrees awarded to Hispanic students in Florida and Texas has grown since 1995. Therefore, during this time, both states also experienced a narrowing of the White-Hispanic doctoral degree gap. Figure 20, below, depicts the changes in the gap over time.



Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics.

Figure 20: White-Hispanic Gap in Percentage of Doctoral Degrees Granted: Florida and Texas 1995-2007

Since 1995, the proportion of doctoral degrees earned by White students in Florida has decreased by nearly ten percentage points: from 62.6% to 52.9%. At the same time, Florida's Hispanic students increased this figure from 2.7% to 4.8%, a difference of more than two percentage points. These two trends led to a narrowing of the degree gap from 59.9% to 48.1%,

shrinking by 11.8 percentage points. The size of this doctoral degree gap in Florida decreased consistently each year, from 2002 to 2006. In Texas, the portion of doctoral degrees awarded to White students decreased by 13.4 percentage points, from 57.8% to 44.4%. Hispanics in the state, though, increased their share of degrees conferred by almost three percentage points, rising from 3.5% to 6.4%. This resulted in decrease in the size of this Texas gap, from 54.3% in 1998 to 38% in 2007, a difference of 16.3 percentage points; this gap narrowed consistently from 2002 to 2007. There is no evidence that Florida's new seamless education structure helped to narrow the doctoral degree gap between White and Hispanic students.

Trends in the graduate degree gaps do not provide evidence that the implementation of a seamless education system in Florida has helped to reduce the disparities between minority and non-minority students. Since 1995, the gaps between the proportion of professional, master, and doctoral degrees conferred to White and minority students have narrowed, but this pattern was present before the changes to Florida's education governance structure. Also, this may be due to the zero-sum nature of the figures chosen for analysis. During this time, Florida also increased the *number* of degrees awarded to White, African-American, and Hispanic students. While Florida witnessed an increase in the number of degrees awarded to every single student group, only minority students in Texas experienced a growth in the number *and* percentage of degrees earned.<sup>20</sup> Graduate school achievement gap trends do not support the hypothesis that the disparities between minority and non-minority students decreased following the implementation of Florida's PreK-20 seamless system in 2003. However, the state has made progress towards

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<sup>20</sup> Tables containing the number of degrees awarded each year are available in Appendix D.

the Legislature’s objective of “expanding opportunities for postsecondary degrees and certificates” (Florida’s next generation PreK-20 education strategic plan, 2008).



## CHAPTER FIVE: DISCUSSION

Florida's new seamless education system was established to provide academic coordination by use of an integrated continuum, from kindergarten through graduate school. By the express language of the statute, Florida's PreK-20 education system was designed to be a decentralized system, which would "allow its students to increase their proficiency by allowing them the opportunity to expand their knowledge and skills through rigorous and relevant learning opportunities" (Florida Statute XVI, Ch. 229 § 006, 2000). As outlined by Florida's Legislature, the five goals of this Prek-20 pipeline are to: strengthen foundation skills, improve college and career readiness, expand opportunities for postsecondary degrees and certificates, enhance the quality of teaching in the education system, and improve K-12 educational choice options. These objectives are measured by performance benchmarks, which gauge the state's progress towards these goals (Florida's next generation PreK-20 education strategic plan, 2008). By analyzing the size of the educational achievement gaps in Florida and Texas at varying levels of education, this paper evaluated whether the introduction of this system has served one of its most vital purposes: raising the level of academic achievement for low-income and minority students.

## Hypothesis One

NAEP Reading assessment trends in Florida and Texas do not support the argument that the implementation of a seamless education system has helped to reduce the disparities in achievement between students. An increase in average scores for all students is a positive step forward, but low-income and minority students must raise their scores at a faster rate than wealthier and White students in order to close the achievement gap. It is clear that raising the level of achievement for all students is only part of the solution: we must raise the achievement of underrepresented students at a faster pace than White students. The results show that the narrowing trends of the NAEP achievement gaps were present before the implementation of a seamless education system in Florida; thereby, the reduction in the size of these gaps cannot be attributed to the changes in Florida's education governance structure. Although Florida's PreK-20 seamless education system did not help to close the NAEP achievement gaps since 1998, these student groups raised their test scores. Therefore, Florida has made progress towards the objective outlined by the Legislature, to "strengthen of foundation skills for students" of every race (Florida's next generation PreK-20 education strategic plan, 2008).

## Hypothesis Two

Advanced Placement achievement gap trends in Florida and Texas do not provide evidence that the implementation of a PreK-20 education pipeline has helped to reduce the disparities between the passing rates of minority and White students. From 1997 to 2008, both states experienced a widening of the gap in AP passing rates between White and African-American students, as well as White and Hispanic students. These trends are due to the decline in passing rates for every student group in Florida and Texas. Contradictorily, in both Florida and Texas, the proportion of exams with passing scores by African-American and Hispanic students has steadily risen since 1997. In Florida, no student group improved their level of “college and career readiness,” a goal of the state’s new PreK-20 pipeline, and the overall widening trend of the AP achievement gap trends went unchanged following the shift to a seamless education system (Florida’s next generation PreK-20 education strategic plan, 2008).

## Hypothesis Three

Trends in the graduate degree gaps do not provide evidence that the implementation of a seamless education system in Florida has helped to reduce the disparities between minority and non-minority students. Since 1995, the gaps between the proportion of professional, master, and doctoral degrees conferred to White and minority students have narrowed, but this pattern was

present before the changes to Florida's education governance structure. Also, this may be due to the zero-sum nature of the figures chosen for analysis. During this time, Florida also increased the *number* of degrees awarded to White, African-American, and Hispanic students. While Florida witnessed an increase in the number of degrees awarded to every single student group, only minority students in Texas experienced a growth in the number *and* percentage of degrees earned.<sup>21</sup> Graduate school achievement gap trends do not support the hypothesis that the disparities between minority and non-minority students decreased following the implementation of Florida's seamless system in 2003. However, the state has made progress towards the Legislature's objective of "expanding opportunities for postsecondary degrees and certificates" (Florida's next generation PreK-20 education strategic plan, 2008).

### Summary of Findings

The results of hypothesis one show that the narrowing trends of the NAEP achievement gaps were present before the implementation of a seamless education system in Florida; thereby, the reduction in the size of these gaps cannot be attributed to the changes in Florida's education governance structure. On the other hand, Florida has made progress towards the objective outlined by the Legislature, to "strengthen of foundation skills for students" of every race (Florida's next generation PreK-20 education strategic plan, 2008). In hypothesis two, the widening trends in the size of the AP achievement gaps went unchanged following the shift to a

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<sup>21</sup> Tables containing the number of degrees awarded each year are available in Appendix D.

seamless education system in Florida. Additionally, no student group in the state improved their level of “college and career readiness,” a goal of the state’s new PreK-20 pipeline (Florida’s next generation PreK-20 education strategic plan, 2008). Lastly, in hypothesis three, the narrowing patterns in the size of the graduate degree gaps did not change following the introduction of Florida’s seamless system. However, the state has made progress towards the Legislature’s stated objective of “expanding opportunities for postsecondary degrees and certificates” (Florida’s next generation PreK-20 education strategic plan, 2008).

To assess the effectiveness Florida’s new education structure, the hypotheses evaluated three of the five main objectives of the PreK-20 education system: the strengthening of foundation skills, improvement of college and career readiness, and the expansion of opportunities for postsecondary degrees and certificates. I can now answer the following question: Has the introduction of a PreK-20 seamless system in Florida reduced these educational achievement gaps between students, compared to Texas, which has not instituted a seamless system? No; Although Florida has raised the level of achievement for White, African-American, and Hispanic students in the past ten years, minority students still lag behind their White counterparts in NAEP scores, AP passing rates, and the number of graduate degrees conferred. These findings are the beginning of a serious evaluation into the effectiveness of an education pipeline in reducing the achievement gaps between students. Future research should look into the effectiveness of the various types of education governance structures throughout the nation. By creating a typology and comparing these systems, research can provide guidance for future education policy.

APPENDIX A: LIST OF INSTITUTIONS USED IN HYPOTHESIS THREE

Postsecondary Institutions in Hypothesis Three: Public, 4-year or above Institutions in Florida

Florida Agricultural and Mechanical University	University of West Florida
Florida Atlantic University	University of Central Florida
Florida Gulf Coast University	University of Florida
Florida International University	University of North Florida
Florida State University	University of South Florida
Gooding Institute of Nurse Anesthesia	

Postsecondary Institutions in Hypothesis Three: Public, 4-year or above Institutions in Texas

Angelo State University	University of Texas at Arlington
Lamar University	University of Texas at Austin
Midwestern State University	University of Texas at Brownsville
Prairie View A & M University	University of Texas at Dallas
Sam Houston State University	University of Texas at El Paso
Stephen F Austin State University	University of Texas at San Antonio
Sul Ross State	University of Texas at Tyler
Tarleton State University	University of Texas Health Science Center- Houston
Texas A & M International University	University of Texas Health Science Center- San Antonio
Texas A & M University	University of Texas Medical Branch
Texas A & M University- Galveston	University of Texas of the Permian Basin

Texas A & M University- Commerce	University of Texas-Pan American
Texas A & M University-Corpus Christi	University of Houston
Texas A & M University-Kingsville	University of Houston-Clear Lake
Texas A & M University-Texarkana	University of Houston-Downtown
Texas A&M Health Science Center	University of Houston-Victoria
Texas Southern University	University of North Texas
Texas State University-San Marcos	University of North Texas Health Science Center
Texas Tech University	University of Texas Southwestern Medical Center-Dallas
Texas Tech University Health Sciences Center	West Texas A & M University
Texas Woman's University	



APPENDIX B: STANDARD ERROR TABLES AND P-VALUES FOR HYPOTHESIS ONE

Florida 4<sup>th</sup> Grade Reading Scale Scores, by National School Lunch Program Eligibility

	Program Ineligible	Standard Error	Program Eligible	Standard Error	P- Value
1998	219.8	(1.72)	190.4	(1.95)	0.0085
2002	227.1	(1.56)	204.5	(1.67)	0.0080
2003	231.1	(1.27)	204.7	(1.50)	0.0052
2005	230.4	(1.26)	209.5	(1.09)	0.0055
2007	234.0	(0.94)	212.8	(0.87)	0.0027

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

Texas 4<sup>th</sup> Grade Reading Scale Scores, by National School Lunch Program Eligibility

	Program Ineligible	Standard Error	Program Eligible	Standard Error	P- Value
1998	229.7	(1.94)	198.7	(1.99)	0.0077
2002	227.9	(1.92)	209.5	(2.03)	0.0192
2003	226.5	(1.69)	205.0	(1.09)	0.0082
2005	231.7	(0.89)	207.8	(0.97)	0.0025
2007	232.3	(1.08)	208.6	(1.02)	0.0034

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

Florida 8<sup>th</sup> Grade Reading Scale Scores, by National School Lunch Program Eligibility

	Program Eligible	Standard Error	Ineligible	Standard Error	P- Value
1998	240.7	(2.23)	264.7	(1.31)	0.0088
2002	249.2	(1.77)	269.2	(1.65)	0.0102
2003	245.2	(1.74)	267.3	(1.27)	0.0073
2005	245.8	(1.51)	263.7	(1.09)	0.0075
2007	249.1	(1.29)	267.6	(1.32)	0.0063

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

Texas 8<sup>th</sup> Grade Reading Scale Scores, by National School Lunch Program Eligibility

	Program Eligible	Standard Error	Ineligible	Standard Error	P- Value
1998	246.5	(1.83)	270.3	(1.44)	0.0085
2002	248.4	(1.56)	274.9	(1.6)	0.0055
2003	245.7	(1.43)	269.3	(1.22)	0.0051
2005	246.6	(0.72)	268.9	(0.97)	0.0028
2007	249.4	(0.92)	273.2	(1.12)	0.0037

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

Florida 4<sup>th</sup> Grade Reading Scale Scores, White-Black Gap

	White	Standard Error	Black	Standard Error	P- Value
1998	217.2	(1.57)	186.0	(2.31)	0.0002
2002	226.0	(1.58)	196.4	(2.25)	0.0001
2003	229.1	(1.26)	197.7	(1.90)	0.0001
2005	228.2	(1.4)	202.7	(1.62)	0.0001
2007	232.3	(1.02)	207.9	(1.48)	0.0001

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

#### Texas 4<sup>th</sup> Grade Reading Scale Scores, White-Black Gap

	White	Standard Error	Black	Standard Error	P- Value
1998	239.9	(1.85)	190.6	(2.96)	0.0001
2002	232.5	(1.80)	202.2	(2.51)	0.0001
2003	227.4	(1.60)	202.3	(1.92)	0.0005
2005	231.7	(1.00)	206.1	(1.65)	0.0002
2007	232.4	(1.08)	207.0	(1.61)	0.0002

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

#### Florida 8<sup>th</sup> Grade Reading Scale Scores, White-Black Gap

	White	Standard Error	Black	Standard Error	P- Value
1998	263.9	(1.22)	235.9	(2.28)	0.0003
2002	269.0	(1.41)	244.4	(2.27)	0.0001
2003	268.4	(1.38)	239.2	(2.13)	0.0001
2005	264.6	(1.25)	238.2	(1.71)	0.0001
2007	267.9	(1.46)	243.8	(1.69)	0.0001

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

#### Texas 8<sup>th</sup> Grade Reading Scale Scores, White-Black Gap

	White	Standard Error	Black	Standard Error	P- Value
1998	271.4	(1.58)	245.9	(2.71)	0.0010
2002	276.4	(1.75)	246.6	(2.85)	0.0008
2003	271.9	(1.33)	246.5	(2.16)	0.0006
2005	270.4	(1.06)	246.1	(1.71)	0.0003
2007	274.8	(1.29)	248.7	(1.82)	0.0003

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

#### Florida 4<sup>th</sup> Grade Reading Scale Scores, White-Hispanic Gap

	White	Standard Error	Hispanic	Standard Error	P- Value
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1998	217.2	(1.57)	197.5	(4.61)	0.0101
2002	226.0	(1.58)	206.8	(2.45)	0.0012
2003	229.1	(1.26)	210.8	(2.16)	0.0006
2005	228.2	(1.4)	215.3	(1.61)	0.0016
2007	232.3	(1.02)	218.3	(1.23)	0.0002

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

#### Texas 4<sup>th</sup> Grade Reading Scale Scores, White-Hispanic Gap

	White	Standard Error	Hispanic	Standard Error	P- Value
1998	239.9	(1.85)	200.3	(2.10)	0.0001
2002	232.5	(1.80)	208.4	(2.01)	0.0002
2003	227.4	(1.60)	205.3	(1.29)	0.0002
2005	231.7	(1.00)	209.7	(1.15)	0.0001
2007	232.4	(1.08)	211.9	(1.17)	0.0002

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

#### Florida 8<sup>th</sup> Grade Reading Scale Scores, White-Hispanic Gap

	White	Standard Error	Hispanic	Standard Error	P- Value
1998	263.9	(1.22)	247.2	(5.09)	0.0373
2002	269.0	(1.41)	251.7	(2.97)	0.0013
2003	268.4	(1.38)	251.1	(2.34)	0.0015
2005	264.6	(1.25)	251.7	(1.91)	0.0016
2007	267.9	(1.46)	255.9	(1.83)	0.0026

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

#### Texas 8<sup>th</sup> Grade Reading Scale Scores, White-Hispanic Gap

	White	Standard Error	Hispanic	Standard Error	P- Value
1998	271.4	(1.58)	249.7	(2.07)	0.0020
2002	276.4	(1.75)	250.5	(1.40)	0.0002
2003	271.9	(1.33)	247.4	(1.30)	0.0001
2005	270.4	(1.06)	248.1	(0.88)	0.0001
2007	274.8	(1.29)	250.9	(0.92)	0.0001

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) Data Explorer.

APPENDIX C: NUMBER OF ADVANCED PLACEMENT EXAMS TAKEN IN FLORIDA  
AND TEXAS, BY RACE/ETHNICITY

Total Number of AP Exams, by Race/Ethnicity: Florida from 1997-2008

	White	Black	Hispanic
1997	30973	3819	8342
1998	32250	3669	8847
1999	35059	4122	10241
2000	40757	4793	11277
2001	45651	5831	13106
2002	54190	7009	16373
2003	65126	9011	21255
2004	71107	9781	24799
2005	80041	11518	29055
2006	88117	14077	35015
2007	101448	18055	39786
2008	111577	23421	45473

Source: College Board, Inc.

Total Number of AP Exams, by Race/Ethnicity: Texas from 1997-2008

	White	Black	Hispanic
1997	32586	2227	10069
1998	37961	2619	13295
1999	44488	3556	17693
2000	54633	4608	23205
2001	61680	5244	28345
2002	72626	6227	32397
2003	82432	7842	38657
2004	89110	9577	44508
2005	94447	10901	53958
2006	97356	11781	61546
2007	107467	13894	70561
2008	117642	16328	77021

Source: College Board, Inc.

APPENDIX D: NUMBER OF GRADUATE DEGREES AWARDED IN FLORIDA AND  
TEXAS, BY RACE/ETHNICITY

Total Number of Professional Degrees, by Race/Ethnicity: Florida 1995-2007

	White	Black	Hispanic
1994-95	728	102	60
1995-96	748	116	77
1996-97	782	104	74
1997-98	829	148	67
1999-2000	882	134	123
2000-01	861	153	99
2001-02	924	159	128
2002-03	971	160	120
2003-04	911	186	122
2004-05	1004	220	158
2005-06	1055	230	179
2006-07	1166	216	186

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Total Number of Professional Degrees, by Race/Ethnicity: Texas 1995-2007

	White	Black	Hispanic
1994-95	1881	205	275
1995-96	1843	235	317
1996-97	1988	221	311
1997-98	1838	204	349
1999-2000	1825	247	341
2000-01	1885	207	343
2001-02	1884	267	328
2002-03	1814	297	340
2003-04	1898	238	350
2004-05	2087	245	362
2005-06	1883	200	401
2006-07	1830	283	405

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Texas Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.



Total Number of Master's Degrees, by Race/Ethnicity: Florida 1995-2007

	White	Black	Hispanic
1994-95	6212	580	622
1995-96	6167	646	732
1996-97	6420	695	715
1997-98	6790	847	840
1999-2000	6529	940	1019
2000-01	6714	1025	1131
2001-02	7150	1131	1283
2002-03	7138	1120	1419
2003-04	7616	1300	1441
2004-05	7897	1284	1543
2005-06	7819	1186	1466
2006-07	8409	1335	1683

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Total Number of Master's Degrees, by Race/Ethnicity: Texas 1995-2007

	White	Black	Hispanic
1994-95	11401	794	1485
1995-96	11275	901	1569
1996-97	11163	1011	1732
1997-98	11432	1031	1764
1999-2000	11098	1165	2142
2000-01	10973	1209	2098
2001-02	10952	1314	2398
2002-03	11395	1483	2573
2003-04	12080	1808	3013
2004-05	13297	2050	3431
2005-06	13443	2206	3424
2006-07	13213	2298	3706

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Texas Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Total Number of Doctoral Degrees, by Race/Ethnicity: Florida 1995-2007

	White	Black	Hispanic
1994-95	602	59	26
1995-96	659	41	42
1996-97	648	52	43
1997-98	672	66	49
1999-2000	713	58	52
2000-01	816	78	48
2001-02	833	66	60
2002-03	834	77	71
2003-04	854	90	65
2004-05	834	100	81
2005-06	835	100	91
2006-07	966	114	87

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Florida Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

Total Number of Doctoral Degrees, by Race/Ethnicity: Texas 1995-2007

	White	Black	Hispanic
1994-95	1360	76	82
1995-96	1381	65	102
1996-97	1447	71	99
1997-98	1416	60	126
1999-2000	1264	95	133
2000-01	1399	89	119
2001-02	1247	82	131
2002-03	1215	79	123
2003-04	1173	82	115
2004-05	1218	94	162
2005-06	1247	93	173
2006-07	1356	133	196

Source: Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics. Texas Trend Report for: Awards/Degrees conferred by award level and race/ethnicity.

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