SCHOOL RACIAL COMPOSITION AND ACADEMIC PERFORMANCE

OF AFRICAN AMERICAN STUDENTS IN AN URBAN SCHOOL DISTRICT

A Dissertation

by

ANDREE O. OSAGIE

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2007

Major Subject: Educational Administration

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Approved by:

Co-Chairs of Committee,	Linda Skrla
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ABSTRACT

School Racial Composition and Academic Performance of African American Students in

an Urban School District. (December 2007)

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Co-Chairs of Advisory Committee: Dr. Linda Skrla
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The purpose of this study was to investigate the differences in the academic performance of economically disadvantaged African-American students attending schools with distinct racial composition in selected inner-city Texas high schools based on the information available in the Academic Excellence Indicator System (AEIS) database. The degree to which certain schools' racial compositions may impact the achievement of economically disadvantaged African-American students was explored.

The study was conducted in order examine the academic performance of economically disadvantaged African-American student groups in three large, comprehensive high schools with distinct *ratios* of school racial compositions. The analyses of student performance data in these three educational settings over three years offers insight into whether school racial composition affects the academic achievement of economically disadvantaged African-American students.

A quantitative, two factor factorial (with repeat on the last factor) design was used to answer the questions posed. A mixed-model analysis of variance (ANOVA) was employed to analyze school and student level differences between the percentage of minority students in a school and the academic outcomes. Specifically, the reading and

mathematics TAKS scores of economically disadvantaged African-American students from three high schools with distinct ratios of school racial composition were compared and analyzed. The final sample included 428 African-American students. The first school had a racial composition of 80/20, with African-Americans being the minority. The second school had a balanced racial composition (defined as "30/30/30"), and the third school's racial composition was 30/70, with African-Americans being the majority.

The most important finding in this study is that the differences in the reading and math performance of economically disadvantage African-American high school students attending schools with different racial composition are statistically significant. The researcher observed an increase in the average academic performance of African-American students as the concentration of minority students in the schools was reduced. Although the effect of school racial composition was minimal, the findings indicate that (even after controlling the effects of schools and students' demographic factors by holding these variables constant) reading and math TAKS scores were consistently higher in the 80/20 school than in the 30/30/30 school, followed by the 30/70 school.

DEDICATION

This dissertation is dedicated to my entire family. I am extremely grateful to my wife, Mona, and the unwavering support she offered me during this eventful journey. Your love and compassion are unmatched, and the completion of this dissertation could not have happened without your complete encouragement. We did it! Mona, I dedicate this work to you.

I also dedicate this work to my daughters, Kemi and Kelsea. You both have sacrificed a great deal in order for me to accomplish this task. Your hugs and kisses have been such an emotional support that has helped fuel me to the end of this research. You are so special to me, and I hope and pray that you have seen that hard work and dedication can get you anything you set your mind on. You both are my great source of inspiration.

I also dedicate this work to my parents, Andrew and Abigail Osemwengie. Your guidance and parenting molded me into setting high standards for myself and working hard to achieve the unachievable. I want you to know that your support and prayers during this endeavor is greatly appreciated. In addition, I would like to acknowledge my siblings Patrick and Deborah Osemwengie. This endeavor would not have been possible without your love, and support. They have touched my life in a significant way and I only hope that I can influence their lives as much as they have influenced my life.

Finally, I would like to give all honor and adoration to the Almighty God. The Lord Jehovah Jirah - the provider of all good things; I thank you for the grace that you have bestowed on me to complete this work successfully.

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I would like to thank the faculty and staff of the department of Educational Administration and Human Resources Development at Texas A&M University for their love and kindness throughout my four years in the program. They welcomed and supported me from the onset of my program. I am grateful to the University and the department for helping me to become a scholar. A special thanks to Ms. Joyce Nelson and Clarice Fulton, my advisors, for helping me stay on track and guiding me to the point of success.

I would like to acknowledge and thank my former supervisor, Ms. Carol Harper, for providing me the time-off from work to attend my graduate classes. Her understanding and support helped to sustain me through the two years of doctoral program coursework. Ms. Harper, you are a blessing in disguise and this dissertation is in your honor.

Finally, I give thanks and honor to God who has led me to this point in my life. He had a plan and I followed.

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CHAPTER I

INTRODUCTION

The decision in the case of *Brown v. Board of Education* (1954) is known to be

one of the most significant court decisions in the history of the United States and

specifically in the educational system. The decision in *Brown* created the pathway for

the equitable treatment of all citizens and laid the milestone for the civil rights

movement. Prior to *Brown*, many aspects of U.S. society were completely segregated by

race and the public school system was no exception, with separate school facilities and

educational curricular programs for White and non-White students. Segregated schools

resulted in inferior education for Black students in poor educational facilities. The

Brown court cases of the early 1950s championed a series of successful court challenges

and school desegregation mandates. These changes produced significant positive

changes in American society including better schools for African-American students and

other minority students, improved academic achievement for all students, and increased

upward social mobility for the non-White population (Gadsden, Smith, & Jordan, 1996).

Over fifty years after *Brown*, it appears that some of the promise of *Brown* has

not been fulfilled, especially for minority students in inner-city schools. With the

impending end of legally mandated school desegregation efforts and termination of over

500 school desegregation decrees, United States public schools, especially in the

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This dissertation follows the style of *Educational Administration Quarterly*.

inner-city areas, have entered a post-desegregation era commonly referred to by scholars in the field as "resegregation" (Orfield, Monfort, & Aaron., 1999).

In this dissertation, the researcher investigates the differences that exist in the academic achievement of economically disadvantaged African-American students that attend schools with different racial compositions. This dissertation begins with the outline of the events leading to the landmark *Brown v. Board of Education* decision in 1954. The efforts of the civil rights movement and various court decisions that forced the implementation of the *Brown* decision are also discussed. Finally, the introduction of special magnet programs to integrate the public school environment and the gradual return to segregation in most inner-city public schools is explored. The researcher focuses on how this return to segregated schools may affect the academic achievement of African-American students and how the achievement may vary in schools with different ratios of school racial/ethnic composition. Specifically, the researcher questions the importance of segregation and desegregation in the effort to increase the academic achievement of African-American students as well as in the challenge to close the achievement gap that continues to widen between White and African-American students.

Historical Perspective of Desegregation of Public Schools in the United States

Years before the *Brown* decision, the United States was completely segregated by race and the educational system was an institution defined by social inequality. Several laws (de jure segregation) and social norms (de facto segregation) prevented people of different races from interacting with each other. This was especially true for

Whites and non-Whites. Although minority races were required to live in a system that separated them from Whites, they were still supposed to have equal rights and protection under the law. This system was commonly known as "separate but equal" (Brown, 2001).

In many facets of society, the separation of Whites and non-Whites led to inferior treatment for the minority races. This unequal treatment eventually resulted in numerous court challenges and societal unrest between the races. Initially most of the court challenges were handled within the state courts; however, the most prominent cases quickly escalated to the federal courts and eventually landed in the United States Supreme Court.

The initial court decisions upheld the "separate but equal" doctrine and permeated segregation in the country. *Plessy v. Ferguson* (1896) upheld a Louisiana statute that mandated separate but equal accommodation in railway trains for Blacks and Whites. *Cummings v. Board of Education* (1899) declared that a White school board could decide to close down a Black school in order to use the money for a White school (Brown, 2001). The victory that overturned "separate but equal" began to surface when the courts began to take the position that "separate schools were not equal" and segregation did not provide Black students with the same educational opportunities as those available to White students. The first waves of victory came in 1950 in the case of *McLaurin v. Oklahoma State Regents*, when the attorneys for *McLaurin* successfully argued that segregation created an adverse psychological detriment for Blacks and resulted in a denial of equal educational opportunities (Knappman, 2001).

Using the same arguments, the NAACP proceeded to request an injunction that would prevent the segregation of Topeka's public schools. The Topeka Board of Education's defense was that segregation in Topeka and elsewhere reflected many aspects of life, thus preparing Black children for the segregation they would ultimately face during adulthood. The board referenced other African-Americans such as Fredrick Douglass, Booker T. Washington, and George Washington Carver who rose to greatness despite segregation. The NAACP countered with the argument that Black schools were inferior to White schools due to the poor physical conditions of the schools and the limited public resources provided to them (Knappman, 2001). The court felt compelled to rule in favor of the *Board of Education*; the *Brown* plaintiffs and the NAACP then appealed to the Supreme Court (Blanchett, Mumford, & Beachum, 2005; Knappman, 2001).

In *Brown v. Board of Education* (1954), the Supreme Court agreed that state-sanctioned segregation in public education was inherently unequal. Excerpts from the *Brown* decision, reported by Blanchett et al. (2005) in *Urban School Failure and Disproportionality in a Post-Brown Era,* declared that: On May 17, 1954, Chief Justice Earl Warren read the decision of the unanimous court:

We come then to the question presented: Does segregation of children in public schools solely on the basis of race, even though the physical facilities and other "tangible" factors may be equal, deprive the children of the minority group of equal educational opportunities? We believe that it does… We conclude that in the field of public education the doctrine of "separate but equal" has no place. Separate educational facilities are inherently unequal. Therefore, we hold that the plaintiffs and other similarly situated for whom the actions have been brought are, by reason of the segregation complained of, deprived of the equal protection of the laws guaranteed by the fourteenth amendment (Brown v. Board of Education, 1954 p.49).

The Supreme Court struck down the "separate but equal" doctrine of *Plessy v. Ferguson* for public education after 60 years of legalized segregation. At the same time, this ruling mandated the desegregation of schools across America "with all deliberate speed" (*Brown v. Board of Education*, 1954 as cited in Cater, 1995).

This landmark Supreme Court decision has been hailed as one of the most important court decisions in the history of the United States' education system. The ruling established that segregated schools denied African-American students their constitutional rights as guaranteed by the 14th amendment by limiting their access to material opportunities afforded to White students and by creating a detrimental socio-emotional atmosphere for African-American children. This important decision ushered in a sweeping transformation in the education system by pronouncing that state laws that required the racial segregation of public schools were unconstitutional. The decision was intended to be the foundation for the eradication of governmentally enforced separation of White and Black students in the United States educational system due to the separate but unequal treatment of Black students (Knappman, 2001).

Unfortunately, the court's implementation order did not require quick action. A decade passed with little change in the racially dual educational system. The court ruling did not stipulate the implementation of specific desegregation plans or a timetable in which the desegregation plans needed to be realized (Blanchett et al., 2005). For many years after the *Brown* decision, it was uncertain how and when the required school desegregation would be accomplished. As late as 1964, only 0.48 percent of African-

American elementary and secondary school students in the South (excluding Texas and Tennessee) attended schools with Whites (Joondeph, 1996).

The passing of the Elementary and Secondary Education Act of 1965 helped create the first noticeable dent in the desegregation efforts by making billions of dollars available to public school districts for desegregation efforts (Blanchett et al., 2005). A series of rulings by the Supreme Court in the 1960s and early 1970s (e.g., *Green v. School Board of New Kent County* 1968) set stringent standards for desegregation and required plans that would work effectively and promptly abolish all vestiges of the dual systems. They specifically authorized transportation (busing) of students to the extent necessary for effective desegregation (*Green v. School Board of New Kent County, 1968*; *Swann v. Charlotte-Mecklenburg, 1971)*. They also extended the scope of the *Brown* decision to include public school districts in northern and western states that used administrative actions rather than explicit dual-system law to create and sustain racial segregation (*Keyes v. Denver 1973)*.

The court-ordered desegregation mandate imposed upon school districts received massive resistance from White parents; they immediately began to withdraw their children from desegregated public school districts and enroll them in private schools (Lord & Cataula, 1976). This created a certain level of "White flight" from desegregated districts. Various factors affected the rate of "White flight," but the most noticeable was the idea of involuntary busing for integration. Desegregated school districts experienced a greater loss of White students when White students were reassigned to "Black schools" as opposed to when Black students were reassigned to White schools (Lord, 1975; Lord

& Cataula, 1976; Russell & Ross, 1979). Regardless of gains or losses in enrollments of White students in desegregated school districts, the *Brown* decision achieved its aim of desegregating the schools during the late 1960s and early 1970s.

For a brief period, all three branches of the federal government, many units of state and local governments, and civil rights groups were actively monitoring the required desegregation efforts. Between the mid-1970s and 1991, the Supreme Court was at an impasse on the desegregation policy and left the law unchanged. Based on the legal standard during that time, it was easier for a civil rights organization to win a lawsuit if it had the resources to do the necessary research on the history of school operations in any given school district (Orfield, 2001). The Supreme Court, which achieved unanimity in *Brown* and all school cases through the 1960s and 1970s, has subsequently displayed a more divided and erratic course. Since 1989, the federal executive branch has been hostile to busing as a means of school integration. The Reagan Administration brought a shift in the position of the Justice Department. It advocated a strong opposition to desegregation litigation and opposed even the continuation of existing desegregation plans (Meese, 1992). In an effort to cancel existing desegregation orders that had been productive for only a few years, the Reagan Administration developed various theories suggesting that desegregation had failed and was not producing any significant result, especially in student achievement. This policy was highly advocated by the Justice Department in the federal courts during the mid-1980s (Amaker, 1988; Orfield, 2001; Frankenberg, Lee, & Orfield, 2003).

The surprising ruling in *Oklahoma City v. Dowell* (1991) substantially shifted the position of the Supreme Court on desegregation cases, making it easier for school districts to be declared "unitary" and freed from any court supervision on previous desegregation mandates. It moved from the court's position in 1968 that school districts must end systems of separate, racially defined schools and become a "unitary" system where all schools were part of a common interracial system and all had fair treatment (Orfield, 2001). The Supreme Court also announced that once a school district is declared "unitary," school districts were free to define their desegregation plan so long as the actions were not intentionally discriminatory. This new interpretation of "unitary" by the court prompted many school districts to return to the court to end their obligation to any implementation plan for desegregation legally (Orfield, 2001; Frankenberg et al., 2003). Scholars in the area of desegregation believe that *Missouri v. Jenkins* (1995) marked the end of court enforced desegregation (Stave, 1995; Joondeph, 1996; Orfield, 2001; Frankenberg et al., 2003). According to Joondeph (1996) as reported in Brown (2001), the ruling in *Missouri v. Jenkins* revealed a change in the courts' approach to desegregation cases:

> No longer does the court presume that, where desegregation remedies have been less than totally effective, school districts must take further measures to ensure the eradication of all vestiges of de jure system. Rather, the court starts from the implicit premise that, where a school district has implemented its desegregation plan in good faith, the district court should return control over the school district to local official as soon as practicable, even if current conditions in the school district indicates the vestiges of past discrimination may remain.

School Choice Programs

Many school districts around the country replaced their court-ordered desegregation plans with school choice programs. The original intent of the program was to create an avenue for desegregation through choice and to reduce the "White flight" from urban cities. However, the program created an avenue for White parents who did not want to enroll their children in large minority schools to attend specialized schools. These choice options were significant for middle-class families who could not afford to reside in affluent neighborhoods with well-financed, predominately White schools, nor afford the tuition of private schools (Glenn, 1998). The most prevalent of these types of schools include magnet schools, vouchers, and privatization of public education.

Due to the nature of the selective academic program offered by magnet schools, they receive more funding from the federal government than traditional schools. Between 1985 and 1997, the Federal School Assistance Program spent $739 million in school districts promoting magnet schools (Narayan, 1999). Due to the availability of funds, magnet schools and other specialized schools are able to offer a nontraditional curriculum, incorporate thematic learning, and proffer technologies that are governed by the school districts and local school boards (Metz, 1986). The number of magnet schools around the country continues to increase and the number of students enrolled in magnet schools has tripled in the past decade (Steel & Levine, 1994). However, the ethnic makeup of the population in these magnet schools is questionable. Magnet schools have served as a school of choice for White citizens who opposed forced busing (Dejnozka & Kapel, 1991). The creators of magnet schools assumed the program would lure middle-

class White parents back into inner-city schools by providing them with the assurance of an innovative and focused curriculum, thus reducing White flight and producing more integration. However, was that the actual result? Steele (1992) studied data from six hundred schools across the nation and found that adding magnet schools to voluntary desegregation plans does not seem to produce more interracial exposure. In fact, depending on the structure of the program, magnet schools could even increase the level of "White flight."

Resegregation of Public Schools in the United States

With the termination of legally mandated school desegregation efforts as well as over five hundred school desegregation decrees and the return of neighborhood schools, the United States public schools, especially in the inner-city areas, have entered a post-desegregation era commonly referred to by scholars in the field as "resegregation" (Orfield et al., 1999; Orfield, 2001). Various researchers have reported an increase in resegregation of minority students in inner-city schools at both the local and national level (Orfield, 2001, Frankenberg et al., 2003). For more than a decade, segregation in the public schools has been noticeable, especially for Black students. Scholars from the Civil Rights Project at Harvard University have reported extensively on the isolation of Black students in Southern districts (Orfield et al., 1999, Orfield, 2001, Frankenberg et al., 2003), and a national social trend that seems to foretell a sharp increase in resegregation (Taeuber, Smock, &Taeuber, 1990). Moreover, segregation appears to be worse for Hispanic students than for African-American students. Following the national

trend, in 1964, only 0.48% of African-American elementary and secondary school students in the south (excluding Texas and Tennessee) attended schools with Whites (Joondeph, 1996). In 1968, 77% of African-American students were in racially segregated schools and by 1984, 64% of African-American and 70.5% of Hispanic students were in mostly minority schools (Hoschild, 1984). In fact, by 1986, almost a third of Hispanic students were in schools with more than 90% minority enrollment (Haycock & Duany, 1991).

Demography is an important factor when explaining the rising segregation of minority students, for especially Hispanics. In the last decade, Hispanics have increased in population from 22.4 million to 32.4 million, a growth of more than 45% (Statistical Abstract of the United States, 2001). The largest increase in the Hispanic population can be attributed to increased birth rates and immigration. Between 1990 and 1997, the number of immigrant families from the Hispanic population grew by 47%. By 2000, one of every five children and youth (20.1% or 14.6 million) was the child of an immigrant (Hernandez, 1998). The change in the population is also reflected in enrollment in the public schools. In fact, the United States Census Bureau projected in 2002 that in three decades (by 2040) the number of immigrant minority children and youth might constitute more than half of all the children and youth in the United States. These changes in demographics are currently changing the face of the student population in our public school system.

The data in Table 1 shows the change in public school enrollment since 1968 for the three largest racial groups: White, Black, and Hispanic students. Black and Hispanic

students now make up more than a third of the total student population in the public

schools as compared to 1968, when only one in five students were non-White. High birth

rates and increased immigration have resulted in an increase in Hispanic student

enrollment, which now supersedes the enrollment of Black students in public school by

about 8 million students. White public school enrollment has dropped by almost 6

million since 1968, to about 29 million in 2001 (NCES common core data, 2001-2002).

TABLE 1
Public School Enrollment Changes, 1968-2001 (in Millions)

	1968	1991	2001	Changes from 1968-2001 (% Change)	Changes in Past Decade (% change)
Whites	34.7	25.4	28.1	-6.1(-18%)	+3.2(13%)
Blacks	6.3	6.0	8.1	1.8 (29%)	+2.1(35%)
Hispanics	2.0	4.7	8.1	6.1 (305%)	+ 3.4(72%)

Source: 2001-2002 NCES Common Core of Data as reported in Orfield & Lee, C. (2004*).*

The drastic change in population demographics has also contributed to the

increase in public school resegregation. The Hispanic population that has demonstrated

the fastest growth in student population over the past two to three decades has also led to

an interesting housing pattern. Researchers have found that Hispanics are settling in

unprecedented number in highly segregated, deeply impoverished urban settings (Orfield

& Yun, 1999). Due to the return of neighborhood schooling, a great number of Blacks

and Hispanics are now attending heavily segregated neighborhood schools. Orfield and

Yun found in their research that students of Latino origin attend the most highly

segregated schools of any group in the United States today (Orfield & Yun, 1999,

Frankenberg et al., 2003).

Black segregation is highest in urban city school districts due to the low proportion

of White students who are enrolled in these districts. One of the most consistent trends

of the last decade is a reversal of the desegregation of Black students, especially in the

Southern states. In fact, court-ordered desegregation of Black students in Southern states

resulted in the South becoming the most integrated region of the country between 1960

and 1973 (Frankenberg et al., 2003).

The data in Table 2 shows the trend of Black students in majority White schools.

Desegregation of Black students continued to increase in the South until the late 1980s,

possibly reflecting the gradual decline in the residential segregation level (Jabubs, 1986).

Over the next eighteen years, the desegregation rate increased by more than fourteen

fold. However, as the desegregation plan became dismantled across the south due to the

Supreme Court decisions in the mid-1990s (eliminating the court-enforced desegregation

plan and allowing the return to segregated neighborhood schools), the proportion of

Black students in majority White schools has decreased by 13 percentage points

(Orfield, 2001). The data presented focused mainly on the Southern region of the

country, because that region was the most segregated region prior to *Brown* and before

the civil rights revolution from 1964 to 1972. Studies continue to show an increase in

segregation in every region of the country with the Northeast, Midwest, and West

consistently having two thirds of their Black students attending predominantly minority

schools (Orfield & Yun, 1999). The Northeast especially remains the region with the

highest percentage of Blacks attending predominantly minority schools, with almost four

out of every five black students attending minority schools (Jabubs, 1986).

TABLE 2
Change in Black Segregation in the South, 1954-2003

Year	Percent of Black Students in Majority White Schools
1954	0.001
1960	0.1
1964	2.3
1967	13.9
1968	23.4
1970	33.1
1972	36.4
1976	37.6
1980	37.1
1986	42.9
1988	43.5
1991	39.2
1994	36.6
1996	34.7
1998	32.7
2000	31
2003	24

Source: Southern Education Reporting Service in Reed Sarratt, The Ordeal of Desegregation (New York: Harper & Row, 1966): 362; HEW Press Release, May 27, 1968; OCR data tapes; 1992-1993, 1994-1995, 1996-1997, 1998-1999, 2000-2001, 2002-2003 NCES Common Core Data.

To proclaim that schools in the United States have made no progress since *Brown* is

simply not true. Before *Brown* virtually all Black students in the southern and Border

States were in completely segregated schools. Today, researchers have shown that the

vast majority are not, in spite of a decade of increasing segregation (Orfield & Lee,

2004). In other words, we may be resegregating if the current state of inner-city public schools is compared to the urban schools at the height of the desegregation era, but we are nowhere close to the total segregation of the schools prior to the civil rights movement. However, because the aim of *Brown* and the civil rights movement was to eliminate the complete segregation of Black and White students in public schools and to increase the educational attainment of Black students, the current trend of Black students segregating in inner-city schools coupled with the achievement gap between white and non-white is striking.

Earlier literature on school desegregation demonstrates the importance of school desegregation for students' achievement outcomes; however, there has been no consensus among scholars for a successful school plan or process by which desegregation may lead to an increase in the academic achievement of minority students. The attempt to conceptualize the term "desegregated" is problematic. Could schools with ratios of White/non-White students population of 80:20, 60:40, 55:45 or 30:70 all be considered desegregated? Another problem with desegregation is the operationalization of the concept. It is not surprising that most of the recent studies on desegregation have shifted from whether or not White or non-White students attend the school to the proportion of White or non-White students attending the school.

Statement of the Problem

Many researchers have shown trends of gains in achievement outcomes for minority students educated in desegregated settings (Hallinan, 1998; Jencks & Phillips,

1998; Farkas, Grobe, Sheehan, & Shuan, 1990; Featherstone, Cundick, & Jenson, 1992; Jenkins, 2003). There is a great body of literature on the importance of school desegregation on students' achievement outcomes; however, there has been no shared consensus among scholars on what constitutes a desegregated school or process through which desegregation is meant to lead to an increase in the academic achievement of minority students. Earlier research results in the areas of school desegregation have been difficult to conceptualize and impracticable because there has been no consistency in the racial composition of the schools involved in the desegregation studies. Hence, there is still great ambiguity on what *ratio* of school racial composition constitutes a truly desegregated school or school system and if a truly desegregated school is associated with the academic achievement of students.

The struggle to close the academic achievement gap between White and non-White students continues to attract the attention of researchers who want to study the performance of minority students in a desegregated educational setting. However, there is still an immense void in the available research literature concerning how the ratio of schools' racial composition affects the academic attainment of minority students. School racial composition is not the sole factor influencing academic attainment of minority students. Some other important factors associated with school racial composition that can affect the academic achievement of minority students are school location, neighborhood demographics, special programs offered in schools, and a teacher's gender, race, qualification, length of experience, and expectation levels for his/her

students. An understanding of all these independent dynamics and the link between race, school racial composition, and student achievement requires further investigation.

Purpose of the Study

The purpose of this study is to investigate the differences in the academic performance of economically disadvantaged African-American students attending schools with distinct racial composition in selected inner-city Texas high schools based on the information available in the Academic Excellence Indicator System (AEIS) database. The degree to which certain schools' racial compositions have on achievement of economically disadvantaged African-American students was explored.

The study focuses on examining the academic performance of economically disadvantaged African-American student groups in three large, comprehensive high schools with distinct ratios of school racial compositions. The analyses of the student performance data in these three different educational settings over three school years will offer some insight into whether the differences in the academic attainment of economically disadvantaged African-American students in these three schools are statistically significant.

Significance of the Study

Many questions remain as to whether the effort to completely desegregate America's public school reached the intended goal of providing quality education to minority students and close the achievement gap between White and non-White

students. Researchers have found that African-American students made significant achievement gains when moved from a segregated school setting to a desegregated school (Jencks & Phillips, 1998; Orfield, 1993, Frankenberg et al., 2003; Entwisle & Alexander, 1992, 1994). With the dismantling of many court-ordered desegregation plans and the reversal to neighborhood schools, the primary force promoting the integration of public school is demographic change (Frankenberg et al., 2003; Orfield 1993; Orfield & Yun, 1999). More minority children (especially Hispanic) are raised in lower-income families than White children are, and they are often confined to living in a segregated neighborhood and attending segregated inner-city schools (Fix, Zimmerman, & Passell, 2001; Portes & Bach, 1985).

Researchers have reported a steady growth rate of segregated schools since the early 1990s. In 1993, Orfield reported that the proportion of black students in schools with more than half minority students rose from 1986 to 1991 to a level that had existed before the Supreme Court's first busing decision (*Green v. School Board of New Kent County*, *1968*). The rise in segregation in inner city schools is attributed to the changes in desegregation polices and in housing demographics. Consequently, the gap in academic achievement among the races continues to widen. There is a large race-based gap in school performance and academic achievement. Minority students (mostly African-American and Hispanic students) exhibit lower levels of academic achievement than their white counterparts do (Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, & York, 1966; Jencks & Phillips, 1998; Kao, 1995; Kaufman, 1992; Rigsby et al., 1997). The question of how to close, or at least address this race gap in educational

outcomes, remains prominent in the minds of researchers and educators. Based on findings of this study, the researcher will contribute to the on-going quest of how to improve the educational achievement of African-American students.

The significance of this study is multi-faceted. First, despite the overwhelming amounts of research literature on achievement gains of African-American students that move from segregated to desegregated school settings, the literature lacks extensive quantitative analyses on the ratio of school racial composition that may be beneficial to the academic achievement of African-American students. The findings of this study will provide an in-depth analysis on how African-American students perform in three different schools with different ratios of school racial composition. In the first category of school racial composition, African-American students will be the minority in the student population (less than 20% of entire student population). In the second category of school racial composition, African-American students will be the majority in the student population (more than 50% of entire student population). In the third category of school racial composition, African-American students will be a third of the student population (about 30% of entire student population).

Second, prior researchers utilized norm-referenced assessments to account for the performance of African-American students. Historically, African-American students have been known to perform poorly on norm-referenced tests when compared to their White counterparts. The differences in academic performance have been attributed to culturally biased curriculum and assessment. The researchers of previous studies failed to account for national-level data of the different curriculum and types of instructional

programs used in various states. In this study, the researcher focuses on the schools in the State of Texas (specifically Houston) and utilizes students' performance on the TAKS assessment, which is a criterion-referenced assessment that is aligned to the TAKS curriculum taught in the State of Texas. Criterion-referenced tests (CRTs) are intended to measure how well a person has learned a specific body of knowledge and skills, unlike norm-referenced tests (NRTs) which are made to compare test takers to each other across the nation. Analyzing the data from the TAKS will allow the researcher to gauge the academic gains of African-American students on standards that they have been taught.

The results of this research may have important implications for research, public policy, and educational practice. The results of this research will contribute to the current required knowledge base on how to reduce the race-based achievement gap that is currently increasing between White and non-White students.

Operational Definitions

This study is to be reviewed within the context of the following definitions of operational terminology.

Academic Excellence Indicator System (AEIS): This statewide system database compiles specific information regarding the broad operations and achievements. The database contains the Public Education Information Management system (PEIMS) data and TAKS student performance data.

Accountability Rating:

- Exemplary – For a campus or district to receive a rating of exemplary, at least "90.0 percent of all students" and students in each group meeting minimum size requirement must pass each section of the TAKS.

- Recognized - For a campus or district to receive a rating of recognized, at least "80.0 percent of all students" and students in each group meeting minimum size requirement must pass each section of the TAKS.

- Acceptable - For a campus or district to receive a rating of acceptable, at least "50.0 percent of all students" and students in each group meeting minimum size requirement must pass each section of the TAKS.

Adequate Yearly Progress (AYP): AYP is defined as the annual increase in percentages of students who score at the proficient level and above on state tests that are set at the state level and met at the school level.

Campus Comparison Group: This disaggregated database groups campuses from across the state of Texas with similar Characteristics that include enrollment percentage of students that can be identified as either economically disadvantage, Hispanic, African American or White. In addition, mobility ratings and percentages of limited English proficient (LEP) students are used to associate Texas state campuses together for comparative and performance analysis purposes.

Core academic areas: Specific attention will be given to student performance of whole population and sub-populations in the academic core areas of English Language Arts, reading, mathematics, science, and social studies.

Economically Disadvantaged: In Texas, a students can be identified as economically disadvantaged by an independent school district if they are eligible for free or reduced-price lunch, meet requirements for Title II of the Job Partnership Act (JTPA), receive food stamp benefits, or qualify for other public assistance. In addition, if the student is under the parental or custodial care of a family with an annual income at or below the official federal poverty level, regardless of public assistance, he or she can be identified as economically disadvantaged.

Impact: Impact is defined as forcing the impression of one thing on another, or having a significant or major effect on something other than itself. In this study, the impact of school racial composition and gender on academic achievement will be explored.

Public Education Information Management System (PEIMS): PEIMS is a statewide data management system for public education information used by the State of Texas. For the purposes of this study, the major categories of data reported by the PEIMS report include students' demographic and program participation data, student attendance, course completion data, retention, graduation rates, and dropout information.

Student Performance: Student performance is defined as school campus, grade level, and subgroup population data as reported by Texas Education Agency (TEA) annual administration of the Texas Assessment of knowledge and Skills (TAKS).

Texas Assessment of Knowledge and Skills (TAKS): TAKS is a completely revised standardized testing program implemented during the academic year of 2002-2003 across all public campuses in the State of Texas. The Texas Assessment of

Knowledge of Skills (TAKS) includes a more advanced alignment with the Texas

Essential Knowledge and Skills (TEKS) than any prior assessment format. TAKS has

been developed to better reflect good instructional practice and more accurately measure

student learning.

Texas Education Agency: The Texas Education Agency (TEA) is comprised of

the commissioner of education and agency staff. The TEA and the State Board of

Education (SBOE) guide and monitor activities and programs related to public education

in Texas. The SBOE consists of 15 elected members representing different regions in the

state. One member is appointed chair by the governor. Under the leadership of the

commissioner of education, the TEA administers the statewide assessment program,

maintains a data collection system on public schools for a variety of purposes, and

operates research and information programs among other numerous duties. The TEA

operational costs are supported by both state and federal funds.

Summary

In this introductory chapter, the researcher narrates the historical prospective of

the segregation that existed in the in United States (especially the educational system)

prior to the successful court challenges of *Brown v. Board of Education.* This court case

championed a series of school desegregation mandates that eventually produced

significant positive changes in the United States, including better schools for African-

American students and other minority students. The later part of this chapter explains the

state of public schools since the legal termination of mandated school desegregation

efforts and the return of neighborhood schools, including the gradually backward movement of inner-city schools toward segregation.

With many researchers showing trends of positive academic outcomes for minority students educated in desegregated settings, the current problem is centered around the void that still exists in the literature due to a lack of shared consensus among scholars on what constitutes a desegregated school and if a truly desegregated school significantly influence student achievement. Hence, there is still great ambiguity on what distinct ratio of school racial composition constitutes a truly desegregated school and if a desegregated school is truly associated with the academic achievement of students. The purpose of the study was to examine the academic performance of economically disadvantaged African-American student groups in three large comprehensive high schools with different ratios of school racial compositions. As the gap in academic achievement among the races continues to widen, these types of studies are significant because it provides valuable information on whether desegregation efforts matter, and if it does, at what racial composition is desegregation most beneficial to the academic achievement of African-American students.

In the subsequent chapters, Chapter II is a review of the literature in the area of school racial composition and students' differential educational outcomes. In this chapter, the researcher also outlines the theories that explain the differences in racial group attainment and introduces the "social structure and personality" theory, a theoretical framework used to guide this dissertation. Chapter III explains the methodology used to address the research questions. Chapter IV presents the findings of

this study and Chapter V presents the limitations and conclusions and addresses the

implications of this study to both practice and future research.

CHAPTER II

LITERATURE REVIEW

Introduction

In this chapter, the researcher reviews the accrued scholarship explaining African-American students' differential educational outcomes, both broadly and specifically, in segregated school settings. In the review, several approaches to the understanding of how race differences may explain differences in students' outcomes are examined. This chapter is divided into two sections. The first section is dedicated to the review of research literature on how differences in racial composition of schools affect academic achievement outcomes of students. The second section focuses on the theories that explain the differences in racial group attainment and specifically the theory used to guide this dissertation. The chapter begins with a discussion of the difference between the two main research constructs, student race and school racial composition.

School Racial Composition and Student Race

In order to examine the relationship between the notion of school racial composition and student race, it is important to first define these variables separately. Student race pertains to the race of the individual student regardless of the race of other students in the school. School racial composition pertains to the aggregate of the individual students' races in the entire school. In most cases, researchers focus on how students in one racial group compare to students in another racial group, such as the

differences in the achievement of Black and White students or Hispanic dropout rate (Kaufman, 1992; Rumberger, 1983, 1987; Bankston & Caldas, 2002). On the other hand, when school racial composition is the variable of interest, researchers focus on how schools with a certain racial composition compare to schools with other racial composition; the outcome of the entire school is of interest. Examples of researchers who have examined school desegregation or school effectiveness include Anderson (1982), Mahard & Crain (1983), Pallas (1988), and Wortman & Bryant (1985).

The difference between school racial composition and student race encompasses the two bodies of research mentioned above. The academic performance of a student is not solely dependant on his or her individual racial or ethnic classification, but is partly associated with the student's attendance in a school with a distinct racial composition. In fact, it is arguable that the school racial composition can influence the academic outcome of students. Thus, the difference between these three important variables is the focus of this dissertation.

School Racial Composition and Race Group Gap in Student Outcomes

The whole premise of *Brown* and the civil rights revolution was not based solely on getting Black students into White schools, but rather, to make sure that equal opportunities were provided to Black students wherever they were attending school. In fact, many Black parents considered Black schools, and the teachers and administrators who staffed them, to be highly capable of teaching students of any race and especially competent to teach and educate African-Americans students (Blanchett et al., 2005).

However, it was obvious that separate was indeed unequal, and the unequal educational opportunity created a major disparity between the levels of academic achievements of Black and White students.

Since the successful desegregation of public schools in the United States, the nation has spent a tremendous amount of resources on various programs (school choice, vouchers, busing, etc.) to promote equitable education for all students and to integrate students from different racial backgrounds. Earlier researchers on school desegregation reported the importance of desegregation on student outcome, especially for non-White students (Rumberger, 1983, 1987; Mahard & Crain, 1983; Wortman & Bryant, 1985; Brown, 2001). Most researchers reported that desegregated schools positively affect the academic achievement of African-American students, especially in reading and mathematics, and that the achievement of White students does not seem to have decreased because of desegregation (Krol, 1984; Mahard & Crain, 1983; Wortman & Bryant, 1985). In addition, these researchers found that the benefits of desegregation for African-Americans vary by age and grade level. There is an increase in the achievement attainment level of African-American students from the first to seventh grade, but a decrease in the achievement attainment level from grade eight on (Krol, 1984; Wortman & Bryant, 1985).

In recent years, various researchers have reported an increase in the segregation of minority students (African-American and Hispanic Students) in urban city public schools (Orfield, 2001; Frankenberg et al., 2003). Despite our nations' schools and classrooms being more racially diverse than the periods prior to the *Brown* decision and

the civil rights revolution, this increasing rate of segregated schools continues to cause a serious achievement gap between majority and minority students (Jencks & Phillips, 2003). A review of research findings indicated that between 1988 and 2002 the gap between African-American and White students increased tremendously (Jencks & Phillips, 1998, 2003). African-American students have historically scored lower than Americans of European descent on standardized measures of achievement (Trent, 1998; Jencks & Phillips, 2003), but their low performance has been attributed to many other factors including curriculum development and achievement tests that are culturally and racially biased (Jencks & Phillips, 1998).

Specifically with the issue of segregation, researchers' findings reveal trends of modest gains in achievement for African-American students who move from segregated to desegregated schools or to schools where White students are the majority (Rumberger, 1983, 1987; Kaufman 1992; Hallinan, 1988, 1998). Schofield (1995) found short-term positive effects of desegregation on African-American student's achievement levels but no long-term effects. Moreover, these short-term effects are limited to the improvement of reading scores, while math scores usually remain unaffected. Schofield (1995) also concluded that the educational outcomes of White students are impervious to change in the racial composition of the schools. Bankston and Caldas (2002) noted similar patterns in achievement outcomes but they urged caution in their conclusion due to the relatively small sample size of their study and the difficulty of finding statistically significant effect sizes. However, Bankston and Caldas (1996) reported lower academic performance for both White and African-American students in high minority schools, as

opposed to those in schools that have a lower concentration of African-Americans. Using the data from the Louisiana public school system, Bankston and Caldas (1996) concluded that the degree of minority concentration has a powerful negative influence on achievement results and the influence is not limited to socioeconomic status (SES).

Hoxby (2000) corroborated the findings of Bankston and Caldas (1996) using achievement data from Texas students. Even after controlling for prior achievement, Hoxby (2000) added that African-American and Hispanic students were entering high schools with lower levels of achievement than their White counterparts were. These differences account for an achievement gap that begins in the earlier grades and increases throughout their schooling career (Coleman et al., 1966; Entwisle & Alexander, 1992, 1994). By the time African-American students reach high school, they are far behind their non-minority peers in academic levels. Although the achievement gap has narrowed from the levels reported in the 1970s prior to the aggressive civil rights movements and desegregation efforts, a significant achievement gap still exists between Black and White students (Jencks & Phillips, 1998).

Some other researchers have reported inconsistent findings in their research on the effects of segregation. Summers and Wolfe (1977) reported that student achievement increases when the student population is balanced racially, while Gamoran (1987) found no race effect on student achievement. Opposite of the hypothesized effect, Bryk and Driscoll (1998) concluded that student achievement increased when the number of African-American students increased. On the other hand, Brown (2001) reported that the

overall student achievement increased as the number of African-American students in the schools decreased.

With the strong correlation that exists between race and concentrated poverty/social-class differential in the United States (Roscigno, 1998; Orfield, Eaton, & Jones, 1997; Orfield & Yun, 1999), the effect of school racial composition on academic achievement is encapsulated in the school SES (Roscigno, 1998). Schools with predominately-White student populations are more likely to be higher-class schools, while those enrolling more minority students tend to be lower class schools (Bankston & Caldas, 1996, 2002; Lippman, Burns, & McArthur, 1996). Students below the poverty line score lower on achievement tests than their more affluent peers (Featherstone et al., 1992) and the best demographic indicator of students' success on achievement tests is the student socioeconomic status (SES) (Blair, Blair, & Madamba, 1999; Burbridge, 1991).

The 1966 Coleman et al. report was the first in a series of researchers' findings that revealed the differences in the achievement of White, Black, Asian, and Hispanic students was strongly influenced by parental education, income, and occupational status (family SES). In their review of Coleman's results, Jencks and Mayer (1990) also concluded that once individual SES is controlled, school-level SES has limited influence on White students' achievements. However, the estimated school-level SES effects were larger for African-American students. Over the years, other researchers have used essentially the same research methodology to substantiate the positive correlations between the average school SES and individual student achievement (Wilms, 1986; Link

& Mulligan, 1991; Lippman et al., 1996). If there is evidence to suggest a strong correlation between race and concentrated poverty/social-class (Orfield et al., 1997; Orfield & Yun, 1999; Roscigno, 1998), then it may be safe to suggest that schools with a predominately African-American student population have a higher tendency for being a low SES school. This can have detrimental effects on achievement of African-American students that attend such schools.

Other Measures of Outcome Differences

Differences in student achievement levels are not just demonstrated among students of different racial groups and socioeconomic status. Researchers have also reported that gender differences contribute to differences in student achievement levels and success in some academic areas. Researchers find that males tend to have better academic outcomes in mathematics and science than females do (Rumberger, 1987; Blair et al., 1999). Male students also tend to have more positive attitudes and motivation toward school than their female counterparts do (Simpson & Oliver, 1985). On the other hand, female students have shown higher reading scores in each age group than male students show (Campbell, Hombo, & Mazzeo, 1999).

Some other important factors that researchers have found to be associated with school racial composition in affecting the academic achievement of minority students include school location, special programs offered in schools, and the teacher's gender, race, qualification, and length of experience, including expectation levels for his/her students (Chubb & Moe, 1990; Alexander, Entwisle, & Thompson, 1987; Isreal, 1992;

Ames, 1992). Researchers have suggested a better academic result in upper-middle class

schools due to the teachers and administrators deep-rooted norms and values that give

emphasis to constructive academic outcomes (Chubb & Moe, 1990; Bryk, Lee, &

Holland, 1993). Minority students in desegregated school environments are also exposed

to higher levels of educational opportunities and expectations from teachers and

administrators. A recent study of educational attainment indicated that student

participation in special programs (such as Gifted and Talented, Advanced Placement,

and Vanguard Programs) has a positive effect on the number of years of school

completed, college academic performance (Dodd, Fitzpatrick, & Jennings, 2002; Geiser

& Santelices, 2004; Klopfenstein and Thomas, 2006), and specifically college

completion (Adelman, 1999, 2006; Dougherty, Mellor, & Jian, 2006).

Peer influence is another factor that offers a strong explanation of how school

racial composition may affect the educational attainment of students. According to

scholars in the field, students in upper-middle class schools tend to develop friendships

with goal-oriented peers that have families that nurture their educational ambitions

(Fejgin, 1995; Isreal, 1992; Patchen, 1982). Moreover, high-achieving peers may

improve educational expectations causing peer groups to strive for high academic

success. Therefore, schools with students of high SES provide the network for students

to build relationships with high-quality peers (Alexander, Entwisle, & Thompson, 1987;

Isreal, 1992). On the other hand, students in high-poverty schools may lack such peer-to-

peer models of success. These students have a higher tendency to be associated with

peers that do not have the high academic expectations of themselves or from their families.

Students' perceptions of the school context and the racial composition of the school are also important variables that have been shown to have effects on students' academic outcome. Students tend to make meaning from their experiences in an academic setting, leading to an association between student-teacher relationships, student feelings of belonging to a school, behavior, academic motivation, and success (Ames, 1992; Roeser, Midley, & Urdan, 1996). Students need to feel a sense of safety, mutual respect, love, and high expectation. In schools that are catering and nurturing to the social and psychological needs of students, the students tend to work harder to uphold the level of expectations. Researchers have reported that students have a greater sense of belonging when they attend schools with more students of their own race (Ames, 1992; Finn & Voelkl, 1993). Steele (1992) reported that non-White college students in predominate White schools developed a sense of inferiority that was detrimental to these students' self-esteems, self-concepts, and motivations. It is obvious that in such a negative school environment, a decline in student motivation, moral, and performance is inevitable. Finn and Voelkl (1993) found that the degree of school racial integration (student/teacher body) is positively correlated to the students' perception of feeling welcomed and supported in the school. According to Schofield and Sager (1983), African-American students demonstrate better social group relationships when they attend schools with 20% or more African-Americans.

A collection of school characteristics accounts for the perception that students have about their school as a whole. These characteristics are associated with positive or negative school outcomes. When researchers focus on school characteristics, these factors have been labeled as characteristics of "school climate." Some of the earlier "climate" studies were conducted by Halpin and Croft (1962, 1963) and Halpin (1966). For them, school climate could be thought of as the "personality" of the school. It is the sum of any number of variables thought to be related to overall student achievement and can be described by the perception of the members of the school. While these variables include such factors as school size and student body characteristics, the metaphor of "personality" suggests that school climate is more appropriately defined by the relationship between the various actors in the school and the way in which these relationships influence the atmosphere in the school (Spence, 2003).

The body of research on social relationship and students' perception about their school environment is very informative and more inclusive than the research that focuses only on the racial composition of students. However, social relation research does not offer a full explanation for other characteristics that may account for positive student outcome in schools. When accounting for students' perceptions and social relations in school, other factors such as public, private, or parochial, and socioeconomic status need to be factored into account for the perception that a student may have about a school (Roeser, Midley, & Urdan, 1996). Researchers that focus on social relations and perceptions tend to imply that student perceptions of belonging or alienation in school accounts for higher motivation, grades, and educational expectation, which in turn

predicts higher academic outcome; however, this relationship is not tested empirically. Due to the lack of empirical testing of the interaction between race, school racial composition, social relations, and academic outcomes, there is a great weakness to this body of research. In addition, the research on the construct of school climate needs to be viewed critically for several reasons. First, they are very difficult to measure and manipulate; second, they may be as much a feature of the perceiver as of the school itself. Hence, it is more credible to define the school characteristics in question instead of embedding multiple characteristics under the construct of school climate.

In this dissertation, the school characteristics of interest are subdivided into two main categories: school composition and school structure. School structure includes school location, size, grade-level, public or private, etc. School composition includes characteristics such as demographics, SES, academic programs (advanced or remedial classes), and dropout rates. In most studies, the characteristics of school composition and structure are often noted as factors that influence student academic achievement. A summary review of the literatures specific to these two characteristics (school composition and structure) reveals that school location (inner city), percentage of poor children, or school SES are found to affect student performance (Lee & Bryk, 1989; Orfield & Yun, 1999; Jencks & Phillips, 1998). Other academic factors that affect student performance include the proportion of students in the academic track, percent in remedial classes, average achievement of the high school, and the percentage of dropouts (Zigarelli, 1996).

Theories on Racial Differences in Educational Outcomes

Over the years, a number of researchers have suggested many theories to explain the differences that exist in the academic achievement between minority (African-American and Hispanic) students and their White counterparts. Although racial gap in achievement can exist for various reasons, most theories focus on schools, students, and environment as the main causes of the failure and achievement differences. In this section of the literature review, the researcher will provide a review of three major categories of theories that attempt to explain this issue of race-based academic differences. At the end of this section, the researcher suggests the theory that will guide this dissertation and create the theoretical framework for the research.

Cultural Deficit and Mismatch Theories

These theories accentuate the cultural deficiencies that students bring with them to school. Encapsulated under the umbrellas "culture of poverty" theory, Lewis (1969) contends that cultural patterns and values among the poor inhibit their participation in social, political, and economic institutions. Deficit theory posits that minority students lack the necessary competences for dealing with academic challenges (Hernandez, 1998). Mismatch theorists posit that minorities fail to achieve because their cultural traits are incompatible with those of the dominant culture in the United States (Hernandez, 1998). Like other race-based theories, both theories assign the faults of academic and social failure to the minority groups themselves because of the deficits that exist within their culture and how it varies from the mainstream society.

According to Wilson (1987), children who grow up with the deficits associated with the "culture of poverty" will face enormous barriers of socioeconomic mobility. This scholar argues that concentrated poverty in America's inner cities creates a context in which there are no positive adult role models, therefore limiting the youth's motivation to stay in school. The lack of good employment opportunities in these environments further diminishes the connection between education, work, and productive living in the minds of inner city youths. However, this researcher believes that poverty and structure differences along racial and ethnic lines continue to be created more by economic conditions external to the family than by race-based cultural patterns (Wilson, 1987, 1996). Sue and Padilla (1986) suggest that the only solution to addressing some of the deficits in an educational setting is to change schools in order to better accommodate and ameliorate the mismatch by assisting minority students to learn the skills necessary to participate in mainstream society.

Oppositional Cultural Theory

Social psychological theorists posit that minority students do not achieve because of their psychological awareness of social issues. Stemming from the works of Ogbu (1974, 1986, 1991), the notion is that minority students develop an oppositional identity relative to White students because of the long history of discrimination and unequal treatment. The "oppositional cultural theory" emphasizes that this identity causes minority groups to be suspicious of anything that comes from the dominant White society.

Minorities do not see the relationship between their efforts and rewards that are available to them in the society, thus causing them to cease trying to achieve (Ogbu, 1986). In fact, Fordham and Ogbu (1986) reported that minorities regard certain forms of behaviors, activities, symbols, and ways of life as not appropriate to them because the characteristics are associated with White Americans. In other words, to behave in a certain manner is considered as falling in the White framework or "acting White." Fordham and Ogbu (1986) identified some behaviors that are characterized as "acting White." These include speaking Standard English, spending much time in the library studying, and working hard to get or getting good grades in school etc. Willig et al. (1983) explained that school is seen as a potential place of failure. Rather than risk a possible decline in self-esteem that would result from failure, students may cease to achieve. This line of thinking is quite disturbing because it may explain the differences in academic and career achievement between most minorities and Whites.

Despite the social psychological and culture of poverty theories, certain theories that focus on school-level variables (namely school effects) have been used to hypothesize why schools in poor communities are extraordinarily successful in spite of all the negative odds. This research perspective indicates a significant relationship between school-level variables and student achievement (Lee, Winfield, & Wilson 1991). This research finding has led researchers to continue to investigate characteristics of the schools in conjunction with family, cultural, and school psychological characteristics that the students bring to school. The school plays an important role in student educational outcomes. Theories and research that argue that minority students

are sensitive to their treatment in school (school structure and process) have gained ground in explaining differences in student outcomes. This line of research focused on factors external to the students, such as school process, environment, and structure and how these factors make a difference in student achievement. This external emphasis includes focusing on racial composition, differential student treatments, and school-level variables that can be manipulated to improve the achievement of minority students. The interplay of these external variables is the focus of this dissertation and this researcher explains it through the theory of social structure and individual personality (House, 1977).

Theoretical Framework

Researchers have suggested a link between school racial composition and its association to student outcome. However, there has not been any guidance regarding the origin of this influence. A theoretical framework that can be used to conceptualize this relationship between school racial composition and student academic outcome is the theory of "social structure and personality" (House, 1977). This theorist posits that social structure affects individual outcomes (House 1977, 1981, 1995). Schools are forms of social structures and a major characteristic of this structure is the racial composition of the students that attend the school. The individual outcomes are attributes that result from the existence within the social structure. In this dissertation, the individual outcome of interest is the academic outcome of students in mathematics and English Language within the structures of three high schools with distinct school racial compositions.

The paradigm of social structure and individual personality originates from the social science field of sociology and has its roots in the works of the founders of that discipline, such as Karl Marx, Max Weber, Emile Durkheim, and Georg Simmel. The paradigm is based on certain principles that have been outlined by several sociologists (House, 1977, 1981, 1995, and Kohn, 1989). This theory is based on three main constructs: social structure, intervening variables, and individual attributes that influence outcomes (House, 1977, 1981). House (1981) suggested that three key principles (components, proximity, and psychological) are embedded in the three constructs guiding this theory, and that these principles help with the understanding of how macro-social structures and the variables they influence affect individual outcome. The component principle requires the understanding of the nature of the social structure in question and the effects on the person. The component of interest in this study is school structure, specifically the racial composition of a school. The proximity principle calls for the understanding of the proximal conditions or stimuli through which structural positions influence the individual. The psychological principle requires the understanding of the psychology of individual attributes in order to test when, how, and to what extent the macro/micro- social phenomena and stimuli they produce affect individual personality and behavior (House, 1977).

Within this framework, the researcher intends to examine how school structure (racial composition) and the stimuli it influences affects individual student outcome (mathematics and English language scores) by focusing on the three guiding principles of this theory: the component, the proximity, and the psychological principles.

Summary

In this chapter, the researcher reviews the accrued literature explaining African-American students' differential educational outcomes, both broadly and specifically in segregated school settings. This chapter is divided into two sections. The first section is dedicated to the review of research literature on how differences in racial composition of schools affect academic achievement outcomes of students. The first set of literature reviewed supported the positive benefits of desegregation; the researchers on school desegregation reported the importance of school desegregation on student outcome especially for non-White students (examples of such studies include Rumberger,1983;1987; Mahard & Crain, 1983; Wortman & Bryant, 1985; Brown, 2001, Kaufman 1992; Hallinan, 1998; Jencks & Phillips, 1998). The second set of literature reviewed found a negative effect and in some cases, no significant effect of school desegregation on academic achievement of African-American students (example of such studies include- Summers & Wolfe, 1977; Gamoran 1987; Bryk & Driscoll, 1998). The first section ends with a review of how SES and other factors can account for the academic difference that exists between students of different races.

The second section focused on the theories that explain the differences in racial group attainment, specifically the theory used to guide this dissertation. Three major categories of theories were reviewed (cultural deficit theory, mismatch theory, and social psychological theory), with each of these theories having its own argument on why African-American students have lower academic performance than their White

counterparts do. Finally, the theory of "social structure and personality" was introduced

as the theoretical framework used to guide this dissertation.

CHAPTER III

METHODS AND PROCEDURES

Introduction

In this chapter, the researcher describes the methodology and procedures used to examine the differences in the academic performance of economically disadvantaged African-American students in three comprehensive high schools with different *ratios* of racial composition. In line with this, the following research questions were posed:

1) Do African-American students perform significantly different on the reading achievement scores in schools with distinct racial composition?

   a) Do African-Americans in racially mixed schools perform significantly better in reading across grade levels than African-Americans in racially segregated schools?

   b) Do African-Americans in racially mixed schools where they are the minority perform significantly better in reading across grade levels than African-Americans in racially mixed schools where they are not the minority?

2) Do African-American students perform significantly different on the math achievement scores in schools with distinct racial composition?

   a) Do African-Americans in racially mixed schools perform significantly better in math across grade levels than African-Americans in racially segregated schools?

   b) Do African-Americans in racially mixed schools where they are the minority

perform significantly better in math across grade levels than African-

Americans in racially mixed schools where they are not the minority?

In this chapter, the researcher presents the specific procedures employed to

answer the questions posed.

The Research Setting

Research Design

In this study, a quantitative two factor factorial (with repeat on the last factor)

design was used to answer the questions posed. A mixed-model analysis of variance

(ANOVA) was employed to analyze school and student level differences between the

percentage of minority students in a school and the academic outcomes. Specifically, the

reading and mathematics achievement scores of economically disadvantaged African-

American students from three different high schools with distinct ratios of school racial

composition were compared and analyzed. Prior to initiating the repeated measures

ANOVA, the researcher analyzed the correlation between the reading and the

mathematics scores to determine if the level of correlation would permit the researcher

to run two separate repeated measures ANOVA (one for Reading achievement and one

for Math achievement). Correlational design is a statistical method used to provide a

numerical expression between or among variables. Correlation refers to the extent to

which two variables are related across a group of subjects (Pryczak, 1995). Regardless of

its size, a correlation coefficient never provides information about whether an observed

relationship reflects a simple cause-effect relationship or some more complex state of

affairs (Witte, 1980). Correlation does not substantiate causation. In a casual relationship, one variable is found to cause a change in the other; that is, one variable is found to affect the other (Pyrczak, 1995).

Participants

The participants of this study were economically disadvantaged African-American students enrolled in three different comprehensive high schools within the Houston Independent School District (HISD). The Houston Independent School District is the largest public school system in Texas and the seventh largest in the United States. HISD teachers educate approximately 209,000 students within the greater Houston metropolitan area. The district serves a diverse student population, which is 58 percent Hispanic, 30 percent African-American, 9 percent White, and 3 percent Asian/Pacific Islander. Approximately 82 percent of HISD students participate in free or reduced-price meal programs. HISD serves more than 58,000 limited-English-proficient students who, combined, speak more than 90 different native languages. HISD operates 295 campuses (198 elementary, 47 middle, and 39 high schools) and educational programs within a 301-square-mile area.

The TAKS scores and other demographic information for the economically disadvantaged African-American students enrolled in three high schools (Bellaire, Lamar, and Madison High Schools) were used for this study. These three high schools all offer the standard state required high school courses and programs leading to a high school diploma. In addition, each of these three high schools also has specific magnet programs. The magnet programs offer students choices from among a number of

specialized educational programs. Each provides strong academic studies and a specialty

enrichment program. Specialties are varied enough to meet the needs, interests, and

talents of students.

The participants' data used in this study represented 400 African-American

students from Madison High School, 250 African-American students from Lamar High

School, and 150 African-American students from Bellaire High School. All the

participants' data used in this study was masked and not reported.

Power Analysis

Prior researchers that have looked at the relationship between racial composition

and academic achievement (Caldas & Bankston, 1997) have indicated that the

relationship between both variables is moderate. Given this trend and given that the

standard deviations reported in the TAKS Technical Digest (2003-2004) range from 150

to 230 (with the mean ranging from 2100 to 2200), the difference between the groups

should be about 150. Thus, phi will equal 7.31. With six groups and at least 75 subjects

per condition, the probability of having a Type II error is .00 (non-central F Distribution

table, Tiku, 1967 as cited in Howell, 1992); thus, power will equal 1.

Procedure

Three high schools with varying racial compositions were selected for the study.

In selecting the three schools, it was necessary to keep constant (across schools) the

variables that are correlated to both school and academic achievement. The following

variables were kept constant:

- School rating: Only schools with an Acceptable Accountability rating were

selected for the study.

- School location: Only schools in comparable locations were selected for the study.

- School system: Only schools within the same school system or district and governed by similar policies and procedures were selected for the study.

- School administration: Only schools that maintained a same school leadership (principal) throughout the research period were selected for the study.

- Academic Program: Only schools with similar standard high school programs and accessibility to special magnet programs were included in the study.

- Socioeconomic status of subjects: Only African-American students that qualified for the free and reduced lunch program were included in the study

- Feeder Schools: Only high schools with direct feeder elementary, and middle schools with seamless and continue educational transition were included in the study.

Data Sources

The data collected for the purposes of this study were derived from the Academic Excellence Indicator System and from the Houston Independent School District (HISD) data bank. This AEIS database constitutes two large bodies of information that are identified as the Texas Assessment of Knowledge and Skills (TAKS) and the Public Education Information Management System (PEIMS). The TAKS is a statewide-administered assessment of student performance in certain academic areas given in

selected grade levels across the entire state. The PEIMS database reports on student

demographics, special program participation data, and student attendance.

The criterion variables in this study were students' reading and mathematics

achievement scores, as measured by the Texas Assessment Knowledge and Skills

(TAKS). The researcher used the TAKS scores for the ninth through eleventh grades for

the 2003-2004, 2004-2005, and 2005-2006 school years. TAKS reading and math

achievement scores were collected from the Houston Independent School District

(HISD) data bank. Other demographic and school-related information were collected

from the Academic Excellence Indicator System (AEIS) database of the Texas

Education Agency (TEA). All data were be compiled together for the purpose of

analysis.

Instrumentation-Reliability and Validity of Dependent Measure

Reliability

Reliability refers to the consistency of a measure (Anastasi, 1988). TAKS

reliability was based on internal consistency measures; in particular, the Kuder-

Richardson 20 formula (KR-20) for tests involving dichotomously scored (multiple-

choice) items was used. The TAKS provided observed scores that served as a proxy for

the direct measurement of the underlying achievement levels, and the scores contain

some amount of error. The test reliability quantified this error. Most internal consistency

reliabilities were in the high .80s to the low .90s range.

Validity

Validity is the process of collecting evidence to support inferences made from the scoring results of an assessment. In the case of the TAKS exam, test results were used to make inferences about students' knowledge and understanding of the Texas Essential Knowledge and Skills (TEKS). The TAKS is a standard-referenced assessment and is based on the content it assesses. Test validity was, therefore, content based and tied directly to statewide curriculum. Content validity of the TAKS tests is constantly being re-evaluated. Input from educators, test developers, and test experts are used to revise items. In addition, committees have been meeting annually since 2001-2002 to edit TAKS items for bias and review data from field-testing.

Content validity describes whether the test objectives adequately represented what students should be able to do and whether the items, which are based on test objectives, measured intended responses. Construct validity is the extent to which a test could be said to measure a theoretical construct. In the case of the TAKS, the construct tested was the academic content required by the statewide curriculum. With curriculum-based achievement tests, both types of validity were intertwined. The construct validity was grounded in the content validity of the test. For instance, the performance data correlation study findings (Technical Digest, 2004-2005), comparing 9th grade performance in the English 1 course and the 9th Grade TAKS reading test indicate that 77% passed both tests while 5% failed both tests. Only a small percentage (10%) passed 9th Grade TAKS reading but did not pass the English 1 course. A smaller percentage (8%) passed the English 1 course but failed the 9th Grade TAKS reading test.

Operational Definition of Variables

   Racial Composition. Three schools that vary according to racial composition were chosen for the study. The first school has approximately an 80/20 ratio, with African-Americans being the minority. The second school has approximately a 30/30/30 ratio, with African-Americans consisting of a third of the school population. The third school has approximately a 70/30 ratio, with African-Americans being the majority.

   Academic Achievement. Academic achievement was measured using the Texas Assessment of Knowledge and Skills (TAKS) test. Reading and mathematics achievement scores from the 9th to the 11th grade were used.

Data Analysis

Statistical Analysis

   The examination of student performance at these three high schools in the Houston Independent School District, as reported in the district's test database and by the Academic Excellence Indicator System database, was conducted under the accepted quantitative measures identified by Gall, Gall, & Borg (2003). The analysis was performed on the collected data using the Statistical Package for the Social Sciences (SPSS) Standard Version 10.0.1(2001) computer software program. This software is a comprehensive statistical package that provided statistical analysis and graphic representation.

Research Hypotheses

   The following hypotheses guided the research emphases of this study:

H1a   African-Americans in racially mixed schools will have higher reading scores in grades 9, 10, and 11 than African-Americans in racially segregated schools.

H1b   African-Americans in racially mixed schools where they are the minority will have higher reading scores in grades 9, 10, and 11 than African-Americans in racially mixed schools where they are not the minority.

H2a   African-Americans in racially mixed schools will have higher math scores in grades 9, 10, and 11 than African-Americans in racially segregated schools.

H2b   African-Americans in racially mixed schools where they are the minority will have higher math scores in grades 9, 10, and 11 than African-Americans in racially mixed schools where they are not the minority.

In order to test whether students in schools with different racial composition demonstrate differences the reading achievement scores in grades 9, 10, and11 (H1), a two factor factorial (with repeats on the last factor) mixed-model analysis of variance (ANOVA) was conducted on the data.

In order to test whether schools with different racial composition demonstrate differences the math achievement scores in grades 9, 10, and11 (H2), a two factor factorial (with repeats on the last factor) mixed-model analysis of variance (ANOVA) was conducted on the data.

Treatment of Missing Data or Attrition. Data sets like those retrieved from the

AEIS and PEIMS will usually contain missing values. Data for those who drop out of school at the 10th and 11th grades or students that have missing test data were treated by the "listwise deletion" method. The researcher used this method to treat missing data by simply omitting cases that do not have data on all variables in the variables list of the current analysis. The "listwise deletion" tends to be the default method for treating missing data in the SPSS statistical analysis computer software that is used for this research study.

Summary

In this chapter, the researcher outlined the methodology and procedures that were used to analyze the extent of the statistical relationship between the school racial composition and academic achievement of economically disadvantaged African-American students in those schools as measured by the reading and mathematics scores on the TAKS. Participants in the study were students in three comprehensive high schools with each school having distinct ratios of school racial composition. Results of the reading and mathematics TAKS scores represented the performance summaries of 990 students in grades nine through eleven. Data included confidential demographic and school-related information taken from the Houston Independent School District (HISD) data bank and Academic Excellence Indicator System (AEIS) database. SPSS (2001) statistical analysis computer software was used to test the level significance of the differences that exist between the variables. Results of the investigation are reported in Chapter IV.

CHAPTER IV

RESULTS

Introduction

This study utilized a two factor factorial (with repeats on the last factor) design, mixed-model analysis of variance (ANOVA) to analyze the performance of economically disadvantaged African-American students on the Texas Assessment of Knowledge and Skills (TAKS) in three high schools with distinct ratios of school racial composition. The TAKS scores for ninth through eleventh grades for the 2003-2004, 2004-2005, and 2005-2006 school years in Reading (ELA) and Math were used as the measure of student performance. The same students were measured cross all three years of the study. The researcher examined the differences in the academic performance of economically disadvantaged African-American students attending three high schools with different racial compositions. In line with this, the following main research question was posed:

Are there significant school campus and grade-level differences in the Math and Reading TAKS scores of economically disadvantaged African American students attending schools with different racial compositions?

Research Hypotheses

The following hypothesis guided the research emphases of this study:

There will be significant school campus and grade-level differences in the Math and Reading TAKS scores of economically disadvantaged African American students attending schools with different racial compositions.

Data Analysis

The final sample included 428 African-American students from three schools. The first school had a racial composition was 80/20, with African-Americans being the minority. The second school had a racial composition that was balanced (defined as "30/30/30"), and the third school's racial composition was 30/70, with African-Americans being the majority.

All three schools had TAKS result files that contained missing data. Because "listwise deletion" was used for the missing values, a smaller sample size was used. The researcher used this method to treat missing data by simply omitting cases which do not have data on all variables in the variables list of the current analysis (i.e., deleting the observations that had missing data for at least one of the years). This choice was made because the sample size was still adequate even after this deletion. The sample size was in-line with the recommended sample size, which suggests that the tests were powerful enough. The subsequent sections in this chapter are the analysis and results for research questions starting with the descriptive statistics.

Analysis and Results for Research Questions One and Two

Are there school campus and grade-level differences in the Math and Reading

TAKS scores of economically disadvantaged African American students attending

schools with different racial compositions?

Table 3 is the descriptive statistics table for the TAKS Reading scores in years 2004, 2005 and 2006 (corresponding to grades 9th, 10th and 11th), segmented by school. As shown by this table, average Reading scores were consistently higher in the 80/20 school (Mean = 2216.96 in 9th grade, 2203.13 in 10th grade and 2284.33 in 11th grade). The 30/30/30 school (Mean = 2207.83 in 9th grade, 2184.19 in 10th grade and 2225.33 in 11th grade) was next, followed by the 30/70 school (Mean = 2159.25 in 9th grade, 2146.70 in 10th grade and 2214.18 in 11th grade). These findings suggest that the high school students attending the 80/20 school had higher reading scores than their counterparts enrolled in the 30/30/30 and 30/70 schools. In addition, these findings provide some support for the hypothesis that racial composition of the school has an impact on the Reading achievement of African-American high school students across different grade levels.

TABLE 3
Descriptive Statistics for TAKS Reading Scores

Grade	Campus	Mean	Std. Deviation	N
9th	80/20	2216.96	119.38	66
	30/30/30	2207.83	119.40	162
	30/70	2159.25	100.36	200
	Total	2186.54	113.59	428
10th	80/20	2203.13	115.24	66
	30/30/30	2184.19	87.35	162
	30/70	2146.70	83.01	200
	Total	2169.59	92.79	428
11th	80/20	2284.33	150.04	66
	30/30/30	2225.33	92.98	162
	30/70	2214.18	109.84	200
	Total	2229.22	113.53	428

Figure 1 presents the trend of Reading achievement scores across grade levels, for the three different schools. In all three schools, average Reading achievement fell in 10th grade and then increased (beyond its 9th grade level) in 11th grade. The lines never cross, which would imply that the 80/20 school was the best in terms of Reading performance across all three grades, followed by the 30/30/30 school, and then by the 30/70 school.

Reading TAKS Mean Scores
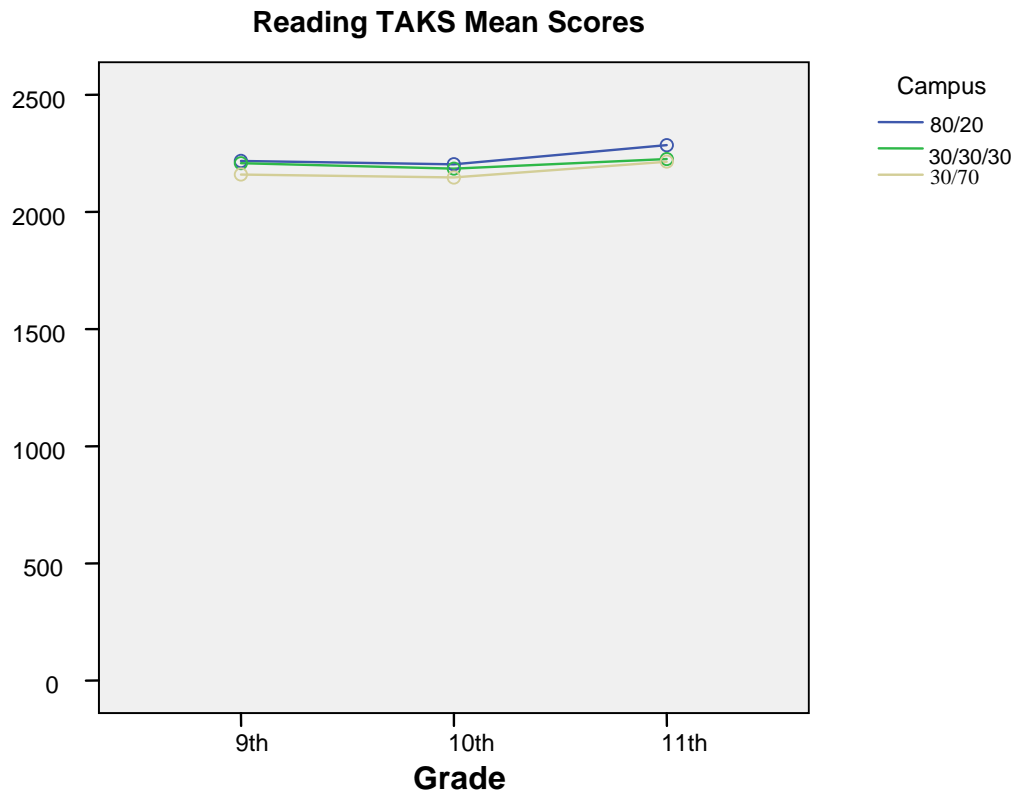
Figure 1. Trend of TAKS Reading Achievement Scores Segmented by School

Table 4 is the descriptive statistics table on the TAKS Math scores in years 2004, 2005, and 2006 (corresponding to grades 9th, 10th and 11th), segmented by school. As can be gleaned from this table, the pattern of consistently better performance is repeated in the 80/20 school, followed by the 30/30/30 school and then the 30/70 school. This ranking was consistent across all three studied grades. Therefore, these findings also provide some support for the hypothesis that racial composition of the school has an

impact on the Math achievement of African-American high school students across grade levels.

TABLE 4
Descriptive Statistics for TAKS Math Scores

Grade	Campus	Mean	Std. Deviation	N
9th	80/20	2177.30	228.58	62
	30/30/30	2118.96	187.31	164
	30/70	2053.63	153.35	202
	Total	2096.58	184.22	428
10th	80/20	2137.17	170.56	62
	30/30/30	2091.17	131.20	164
	30/70	2055.12	122.65	202
	Total	2080.82	136.47	428
11th	80/20	2217.88	155.88	62
	30/30/30	2173.29	153.97	164
	30/70	2166.60	132.26	202
	Total	2176.60	145.10	428

Figure 2 presents the trend of Math achievement scores across grade levels, for the three different schools. As can be gleaned from this figure, a very similar pattern as for Reading performance was observed. These findings would appear to support the hypothesis that academic achievement is inversely correlated with the proportion of African-American students in the school.

Math TAKS Mean Scores
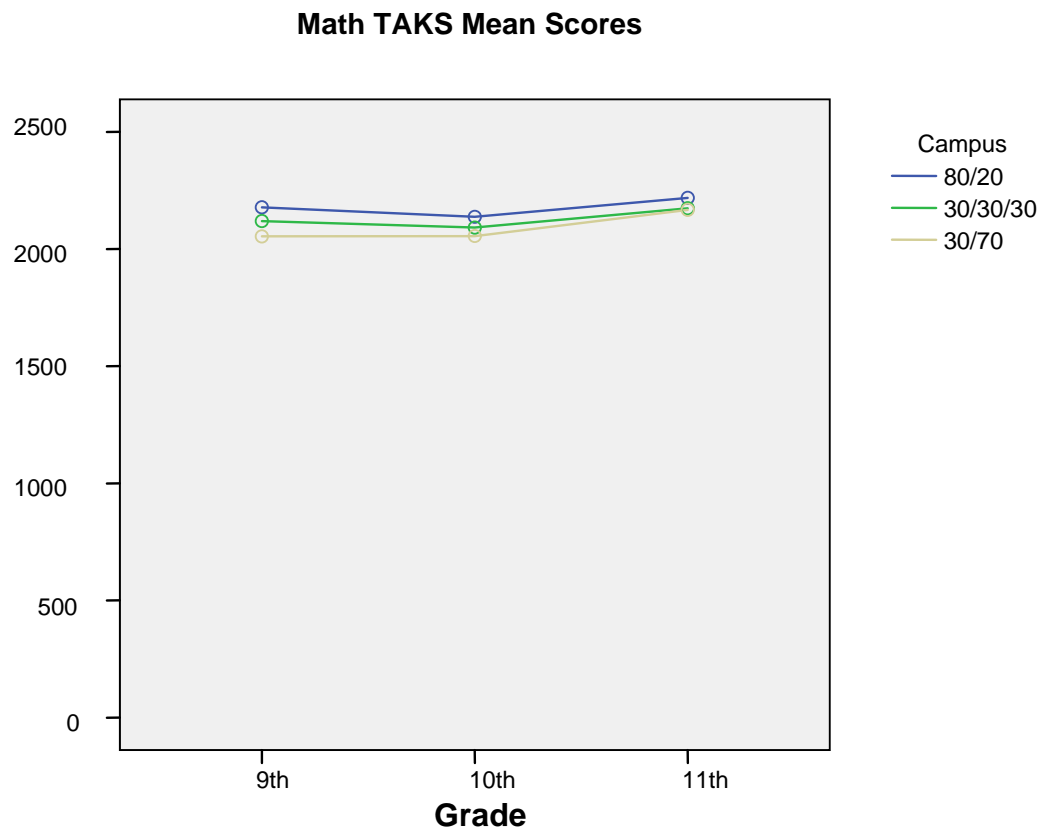
Figure 2. Trend of TAKS Mathematics Achievement Scores Segmented by School

Mixed-Model ANOVA with repeated measures

      In order to assess whether the differences in the Reading and Math scores of

African American students attending schools with different racial composition were

statistically significant, two separate repeated measures ANOVA (one for Reading

achievement and one for Math achievement) were carried out. Prior to conducting the

repeated measures ANOVA, a correlation analysis was the first and foremost technical

characteristic of the measurement endeavor. The correlation coefficient between the two

dependent variables (mathematics and reading scores) was found to be $r = 0.556$. Based

on the findings from the level of correlation between the two variables, the researcher

proceeded to carry out the two separate repeated measures ANOVA.

One assumption of repeated measures ANOVA is that the covariance matrix of

the dependent variable should be spherical. In order to test whether this assumption held,

Mauchly's test of sphericity was performed on the data. The null hypothesis of this test

is that the covariance matrix is circular, and thus the assumption of the repeated

measures ANOVA is satisfied. The test results are presented in Table 5.

TABLE 5
Results for Mauchly's Test of Sphericity for the Global ANOVA

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	p	Epsilon(a)		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Grade	Read	.992	3.317	2	.190	.992	1.000	.500
	Math	.938	25.774	2	.001	.942	.951	.500

Note: Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed
dependent variables is proportional to an identity matrix.
    (a) May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests
        are displayed in the Tests of Within-Subjects Effects table.
    (b) Design: Intercept + Campus within Subjects Design: Grade

As can be gleaned from this table, the null hypothesis was *not rejected* at the 0.05 level

($W = 0.992$, $p = 0.190$) for Reading. Therefore, the sphericity assumption can be

assumed to hold. However, the sphericity of the covariance matrix was rejected for Math

($W = 0.94$, $p < 0.001$). Given this fact, an adjustment was made to the degrees of

freedom in order to carry out the repeated measures ANOVA. This adjustment was made

using the Lower-bound values provided in the above table under the Epsilon column.

Tables 6 and 7 give the ANOVA results for the independent and combined effects of the

variables (grade level and types of school campuses) on the reading and math TAKS

scores.

TABLE 6
Analysis of Variance Summary for the Between-Subjects Effects
of School Campus on Reading and Math Performance

Transformed Variable: Average

Source	Measure	Sum of Squares	Df	Mean Square	F	p	Partial Eta Squared
Campus	Read	715137.06	2	357568.532	15.701	.001	0.062
	Math	962992.11	2	481496.058	8.579	.001	0.045
Error	Read	9268961.24	407	22773.861			
	Math	22842951.50	407	56125.188			

As can be gleaned from Table 6, the null hypotheses that Campus had no effect

on Reading and Math performance were rejected at the 0.05 level (F = 15.701, $p <$

0.001) and (F = 8.579, $p < 0.001$) respectively. However, it should be noted that the

partial eta-squares (0.062) and (0.045), were relatively small, suggesting that the effect

of Campus on Reading and Math performance was medium to small.

TABLE 7
Analysis of Variance Summary for Within-Subjects Effects for Grade and Campus

Source	Measure		Sum of Squares	Df	Mean Square	F	p
Grade	Read	Lower-bound	749511.559	1.000	749511.559	75.918	.001
	Math	Lower-bound	1508829.31	1.000	1508829.31	100.207	.001
Grade * Campus	Read	Lower-bound	103100.706	2.000	51550.353	5.222	.001
	Math	Lower-bound	214889.018	2.000	107444.509	7.136	.001
Error(Grade)	Read	Lower-bound	4018172.76	407.00	9872.660		
	Math	Lower-bound	6128222.25	407.00	15057.057		

As can be gleaned from Table 7, the effect of Grade ($p < 0.001$) and of the interaction of Grade x Campus ($p = 0.001$) were significant at the 0.05 level. Irrespective of the adjustment applied in math, the null hypotheses that Grade had no effect or that the interaction of Grade x Campus had no effect were rejected at the 0.05 level. These results imply that the changes in Reading and Math performance across grades were significantly different from zero. Furthermore, since the interaction was significant, the results suggest that this change was significantly different depending on the level of school campus or grade.

Because a significant main effect was found between the three campuses and grade level, and a statistically significant two-way interaction effect was found between grade and campus, a test of simple main effects was conducted to probe the nature of the significance interaction. Six separate simple main effect (SME) ANOVAs were

conducted (three for grades and three for campus) followed by a post hoc analysis when necessary.

SME ANOVA for Campus at Grade

SME ANOVA was carried out separately for Campus at each Grade in order to determine the impact of Campus on Reading and Math scores.

Grade 9

Campus had a significant impact on both Reading and Math scores in Grade 9 ($p < 0.001$). Results are shown in Table 8.

TABLE 8
Analysis of Variance Summary for the Between-Subjects Effects of School Campus on 9th Grade Reading and Math Performance

Source	Dependent Variable	Sum of Squares	Df	Mean Square	F	p
Corrected Model	Read – 9	680847.902(a)	2	340423.951	23.941	.001
	Math – 9	1490507.902(b)	2	745253.951	22.791	.001
Intercept	Read – 9	2711319778.185	1	2711319778.185	190682.605	.001
	Math – 9	2466499365.401	1	2466499365.401	75429.892	.001
Campus	Read – 9	680847.902	2	340423.951	23.941	.001
	Math – 9	1490507.902	2	745253.951	22.791	.001
(MSE')Error	Read – 9	10578951.17	744	14219.02		
	Math – 9	24328225.53	744	32699.23		
Total	Read – 9	3506846825.000	747			
	Math – 9	3178989374.000	747			
Corrected Total	Read – 9	11272240.581	746			
	Math – 9	23719733.432	746			

(a) R Squared = .060 (Adjusted R Squared = .058)
(b) R Squared = .063 (Adjusted R Squared = .060)
MSE'= (pooled error term; see appendix for details)

A post hoc analysis was carried out in order to assess the magnitude of campus differences. Results for this are shown in Table 9.

TABLE 9
Multiple Comparisons Post Hoc LSD Analysis for Grade 9

Dependent Variable	(I) Campus	(J) Campus	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Read – 9	80/20	80/20					
		30/30/30	-2.2293	13.7186	.871	-29.1613	24.7026
		30/70	59.0345(*)	12.7482	.001	34.0077	84.0612
	30/30/30	80/20	2.2293	13.7186	.871	-24.7026	29.1613
		30/30/30					
		30/70	61.2638(*)	9.82395	.001	41.9778	80.5497
	30/70	80/20	-59.0345(*)	12.7482	.001	-84.0612	-34.0077
		30/30/30	-61.2638(*)	9.82395	.001	-80.5497	-41.9778
		30/70					
Math – 9	80/20	80/20					
		30/30/30	11.1473	19.8745	.575	-27.8697	50.1642
		30/70	96.8448(*)	18.4686	.001	60.5880	133.1017
	30/30/30	80/20	-11.1473	19.8745	.575	-50.1642	27.8697
		30/30/30					
		30/70	85.6976(*)	14.2321	.001	57.7576	113.6376
	30/70	80/20	-96.8448(*)	18.4686	.001	-133.1017	-60.5880
		30/30/30	-85.6976(*)	14.2321	.001	-113.6376	-57.7576
		30/70					

Based on observed means.
* The mean difference is significant at the .05 level.

No significant differences were observed between the 80/20 and 30/30/30 school for either Reading or Math at 9th grade. The 30/70 school showed significantly lower scores in both Reading and Math than both other schools.

Grade 10

Campus had a significant effect on both Reading and Math scores in Grade 10 (p

< 0.001). Results for this are shown in Table 10.

TABLE 10
Analysis of Variance Table for the Between-Subjects Effects
of School Campus on 10th Grade Reading and Math Performance

Source	Dependent Variable	Sum of Squares	df	Mean Square	F	p
Corrected Model	Read - 10	163612.577(a)	2	81806.289	9.107	.001
	Math - 10	386748.943(b)	2	193374.472	10.631	.001
Intercept	Read - 10	2242131993.262	1	2242131993.262	249591.626	.001
	Math - 10	2056816397.303	1	2056816397.303	113078.482	.001
Campus	Read - 10	163612.577	2	81806.289	9.107	.001
	Math - 10	386748.943	2	193374.472	10.631	.001
(MSE') Error	Read - 10	5785182.22	644	8983.20		
	Math - 10	11713897.65	644	18189.28		
Total	Read - 10	3027470333.000	647			
	Math - 10	2768565499.000	647			
Corrected Total	Read - 10	6022801.994	646			
	Math - 10	11197616.093	646			

a. R Squared = .027 (Adjusted R Squared = .024)
b. R Squared = .035 (Adjusted R Squared = .032)
MSE'= (pooled error term; see appendix for details)

A post hoc analysis was carried out in order to assess the magnitude of campus

differences. Results for the post hoc analysis are shown in Table 11.

TABLE 11
Multiple Comparisons Post Hoc LSD Analysis for Grade 10

Dependent Variable	(I) Campus	(J) Campus	Mean Difference (I-J)	Std. Error	p	95% Confidence Interval	
						Lower Bound	Upper Bound
Read – 10	80/20	80/20					
		30/30/30	21.3823	12.05465	.077	-2.2888	45.0535
		30/70	44.1488(*)	11.40133	.001	21.7605	66.5371
	30/30/30	80/20	-21.3823	12.05465	.077	-45.0535	2.2888
		30/30/30					
		30/70	22.7665(*)	8.27826	.006	6.5108	39.0221
	30/70	80/20	-44.1488(*)	11.40133	.001	-66.5371	-21.7605
		30/30/30	-22.7665(*)	8.27826	.006	-39.0221	-6.5108
		30/70					
Math – 10	80/20	80/20					
		30/30/30	37.1408(*)	16.37442	.024	4.9871	69.2945
		30/70	69.5892(*)	15.48700	.001	39.1781	100.0004
	30/30/30	80/20	-37.1408(*)	16.37442	.024	-69.2945	-4.9871
		30/30/30					
		30/70	32.4484(*)	11.24476	.004	10.3676	54.5293
	30/70	80/20	-69.5892(*)	15.48700	.001	-100.0004	-39.1781
		30/30/30	-32.4484(*)	11.24476	.004	-54.5293	-10.3676
		30/70					

Based on observed means.
* The mean difference is significant at the .05 level.

As can be gleaned from Table 11, in terms of Reading there were no significant differences between the 80/20 and 30/30/30 schools. The 30/70 school had significantly lower scores than the other two schools. In terms of Math scores, all three schools had significant differences, with the 80/20 showing the highest scores, followed by the 30/30/30 school and then the 30/70 school.

Grade 11

Campus had a significant effect on Reading scores in Grade 11 ($p < 0.001$), but

not on Math scores ($p = 0.292$). Results for this are shown in Table 12.

TABLE 12
Analysis of Variance Summary for the Between-Subjects Effects of School Campus
on 11th Grade Reading and Math Performance

Source	Dependent Variable	Sum of Squares	df	Mean Square	F	p
Corrected Model	Read – 11	239994.569(a)	2	119997.284	9.169	.001
	Math - 11	51869.405(b)	2	25934.703	1.227	.292
Intercept	Read – 11	1918727339.561	1	1918727339.561	146625.969	.001
	Math - 11	1814314416.762	1	1814314416.762	85826.888	.001
Campus	Read – 11	239994.569	2	119997.284	9.169	.001
	Math - 11	51869.405	2	25934.703	1.227	.292
(MSE')Error	Read – 11	6189613.23	473	13085.86		
	Math - 11	9998856.51	473	21139.23		
Total	Read – 11	2360087974.000	476			
	Math - 11	2247188973.000	476			
Corrected Total	Read – 11	6277507.580	475			
	Math - 11	9990747.687	475			

(a) R Squared = .038 (Adjusted R Squared = .034)
(b) R Squared = .005 (Adjusted R Squared = .001)
MSE'= (pooled error term; see appendix for details)

A post hoc analysis was carried out in order to assess the magnitude of campus

differences. Results for the post hoc analysis are shown in Table 13.

TABLE 13
Multiple Comparisons Post Hoc LSD Analysis for Grade 11

Dependent Variable	(I) Campus	(J) Campus	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval	
						Lower Bound	Upper Bound
Read - 11	80/20	80/20					
		30/30/30	57.2416(*)	15.54026	.001	26.7052	87.7781
		30/70	64.0881(*)	15.08932	.001	34.4377	93.7385
	30/30/30	80/20	-57.2416(*)	15.54026	.001	-87.7781	-26.7052
		30/30/30					
		30/70	6.8465	11.34926	.547	-15.4547	29.1477
	30/70	80/20	-64.0881(*)	15.08932	.001	-93.7385	-34.4377
		30/30/30	-6.8465	11.34926	.547	-29.1477	15.4547
		30/70					

Based on observed means.
* The mean difference is significant at the .05 level.

As can be gleaned from this table, in terms of Reading there were no significant differences between the 30/70 school and 30/30/30 school. The 80/20 school had significantly higher scores than both other schools.

SME ANOVA for Grade at Campus

ANOVA were carried out separately for Grade at each Campus in order to determine the impact of Grade on Reading and Math scores at each Campus. One assumption of the repeated measures ANOVA is that the covariance matrix of the dependent variable should be spherical. In order to test whether this assumption held, Mauchly's test of sphericity was performed on the data for each campus. The null hypothesis of this test is that the covariance matrix is circular, and thus the assumption of the repeated measures ANOVA is satisfied.

80/20 Campus

The null hypotheses was *not rejected* at the 0.05 level (W=0.865, *p*=0.009;

W=0.934, *p*=0.107) for Reading and Math. Therefore, the sphericity assumption can be

assumed to hold. The sphericity test results are presented in Table 14 for the 80/20

campus.

TABLE 14
Mauchly's Test of Sphericity for the 80/20 Campus SME ANOVA

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	p	Epsilon(a)		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Grade	Read	.865	9.421	2	.009	.881	.903	.500
	Math	.934	4.468	2	.107	.938	.964	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.
(a) May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.
(b) Design: Intercept Within Subjects Design: Grade

TABLE 15
Analysis of Variance Summary for Within-Subjects Effects
for Grade on 80/20 Campus

Source	Measure		Sum of Squares	df	Mean Square	F	p
Grade	Read	Lower-bound	300336.925	1.000	300336.925	19.856	.001
	Math	Lower-bound	184309.373	1.000	184309.373	12.911	.001
Error(Grade)	Read	Lower-bound	998295.075	66.000	15125.683		
	Math	Lower-bound	942205.960	66.000	14275.848		

As can be gleaned from Table 15, Grade had a significant effect on both Reading and Math scores on the 80/20 campus (p< 0.001).

A post hoc analysis was carried out in order to assess the magnitude of grade differences on the 80/20 campus. Results for this are shown in Table 16.

TABLE 16
Multiple Comparisons Post Hoc LSD Analysis for the 80/20 Campus

Measure	(I) Grade	(J) Grade	Mean Difference (I-J)	Std. Error	p	95% Confidence Interval for Difference(a)	
						Upper Bound	Lower Bound
Read	9	9					
		10	18.130(*)	4.551	.001	9.186	27.074
		11	-43.105(*)	5.009	.001	-52.950	-33.259
	10	9	-18.130(*)	4.551	.001	-27.074	-9.186
		10					
		11	-61.234(*)	4.817	.001	-70.702	-51.766
	11	9	43.105(*)	5.009	.001	33.259	52.950
		10	61.234(*)	4.817	.001	51.766	70.702
		11					
Math	9	9					
		10	13.932(*)	5.463	.011	3.194	24.670
		11	-80.798(*)	6.682	.001	-93.931	-67.664
	10	9	-13.932(*)	5.463	.011	-24.670	-3.194
		10					
		11	-94.730(*)	5.583	.001	-105.703	-83.756
	11	9	80.798(*)	6.682	.001	67.664	93.931
		10	94.730(*)	5.583	.001	83.756	105.703

Based on estimated marginal means
* The mean difference is significant at the .05 level.

30/30/30 Campus

The null hypotheses was *not rejected* at the 0.05 level (W=0.954, *p*=0.018) for

Reading. Therefore, the sphericity assumption can be assumed to hold. However, the

sphericity of the covariance matrix was rejected for Math (W = 0.889, $p < 0.001$). Given

this fact, an adjustment was done to the degrees of freedom in order to carry out the

repeated measures ANOVA. This adjustment was accomplished using the Lower-bound

values provided in the above table under the Epsilon column. The sphericity test results

are presented in Table 17 for the 30/30/30 campus.

TABLE 17
Mauchly's Test of Sphericity for the 30/30/30 Campus SME ANOVA

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	p	Epsilon(a)		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Grade	Read	.954	8.017	2	.018	.956	.966	.500
	Math	.889	19.861	2	.001	.900	.909	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.
(a) May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.
(b) Design: Intercept Within Subjects Design: Grade

As can be gleaned from Table 18, Grade had a significant effect on both Reading

and Math scores on the 30/30/30 campus ($p < 0.001$).

A post hoc analysis was carried out in order to assess the magnitude of grade

differences. Results for this are shown in Table 19.

TABLE 18
Analysis of Variance Summary for Within-Subjects Effects
for Grade on 30/30/30 Campus

Source	Measure		Sum of Squares	df	Mean Square	F	p
Grade	Read	Lower-bound	155263.52	1.000	155263.520	16.836	.001
	Math	Lower-bound	637662.61	1.000	637662.608	36.768	.001
Error(Grade)	Read	Lower-bound	1567753.81	170.000	9222.081		
	Math	Lower-bound	2948314.72	170.000	17343.028		

TABLE 19
Multiple Comparisons Post Hoc LSD Analysis for the 30/30/30 Campus

Measure	(I) Grade	(J) Grade	Mean Difference (I-J)	Std. Error	p	95% Confidence Interval for Difference(a)	
						Upper Bound	Lower Bound
Read	9	9					
		10	24.959(*)	7.669	.001	9.820	40.098
		11	-17.433(*)	7.785	.026	-32.800	-2.065
	10	9	-24.959(*)	7.669	.001	-40.098	-9.820
		10					
		11	-42.392(*)	6.509	.001	-55.241	-29.543
	11	9	17.433(*)	7.785	.026	2.065	32.800
		10	42.392(*)	6.509	.001	29.543	55.241
		11					
Math	9	9					
		10	26.111(*)	9.009	.004	8.326	43.896
		11	-58.234(*)	11.617	.001	-81.166	-35.302
	10	9	-26.111(*)	9.009	.004	-43.896	-8.326
		10					
		11	-84.345(*)	9.388	.001	-102.878	-65.812
	11	9	58.234(*)	11.617	.001	35.302	81.166
		10	84.345(*)	9.388	.001	65.812	102.878
		11					

Based on estimated marginal means
* The mean difference is significant at the .05 level.

30/70 Campus

The null hypotheses was *not rejected* at the 0.05 level (W=0.993, *p*=0.493;

W=0.978, *p*=0.104) for Reading and Math. Therefore, the sphericity assumption can be

assumed to hold. The sphericity test results are presented in Table 20 for the 30/70

campus.

TABLE 20
Mauchly's Test of Sphericity for the 30/70 Campus SME ANOVA

Within Subjects Effect	Measure	Mauchly's W	Approx. Chi-Square	df	p	Epsilon(a)		
						Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Grade	Read	.993	1.413	2	.493	.993	1.000	.500
	Math	.978	4.522	2	.104	.978	.988	.500

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.
(a) May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.
(b) Design: Intercept Within Subjects Design: Grade

As can be gleaned from Table 21, Grade had a significant effect on both Reading

and Math scores on the 30/70 campus ($p < 0.001$).

A post hoc analysis was carried out in order to assess the magnitude of grade

differences. The results for this are shown in Table 22.

TABLE 21
Analysis of Variance Summary Table for Within-Subjects Effects
for Grade on the 30/70 Campus

Source	Measure		Sum of Squares	df	Mean Square	F	p
Grade	Read	Lower-bound	526996.010	1.000	526996.010	60.003	.001
	Math	Lower-bound	1689492.901	1.000	1689492.901	125.569	.001
Error(Grade)	Read	Lower-bound	1765361.323	201.000	8782.892		
	Math	Lower-bound	2704393.766	201.000	13454.695		

TABLE 22
Multiple Comparisons Post Hoc LSD Analysis for the 30/70 Campus

Measure	(I) Grade	(J) Grade	Mean Difference (I-J)	Std. Error	p	95% Confidence Interval for Difference(a)	
						Upper Bound	Lower Bound
Read	9	9					
		10	11.807	6.311	.063	-.638	24.252
		11	-55.812(*)	6.727	.001	-69.077	-42.547
	10	9	-11.807	6.311	.063	-24.252	.638
		10					
		11	-67.619(*)	6.734	.001	-80.898	-54.340
	11	9	55.812(*)	6.727	.001	42.547	69.077
		10	67.619(*)	6.734	.001	54.340	80.898
		11					
Math	9	9					
		10	-3.233	7.752	.677	-18.519	12.054
		11	113.589(*)	8.740	.001	-130.823	-96.355
	10	9	3.233	7.752	.677	-12.054	18.519
		10					
		11	110.356(*)	7.958	.001	-126.049	-94.664
	11	9	113.589(*)	8.740	.001	96.355	130.823
		10	110.356(*)	7.958	.001	94.664	126.049

Based on estimated marginal means
* The mean difference is significant at the .05 level.

SME ANOVA results were similar for all three schools, as a significant effect of Grade was detected in all of them both for Reading and Math scores. In the 80/20 and 30/30/30 schools, significant differences were observed across all grades, for both Reading and Math. The highest score was observed in grade 11, followed by grade 9 and finally grade 10. On the other hand, in the 30/70 school, no significant differences were observed between grades 9 and 10, while grade 11 showed significantly higher scores than the other two grades.

Summary of Results for Research Questions One and Two

These findings support the hypothesis that the differences in the Reading and Math achievement of African-American high school students attending schools with different racial composition are statistically significant. In particular, academic performance appears to be higher in schools where the proportion of African-Americans is smaller. However, it should be noted that despite the fact that the differences were significant, they were also small, which would suggest that the effect of racial composition of the school on academic achievement was not strong.

A detail explanation of the results and analyze presented in this chapter will be provided in Chapter V.

CHAPTER V

DISCUSSION OF FINDINGS AND CONCLUSION

Introduction

The main objective of this research study was to examine the differences in the academic performance of economically disadvantaged African-American students in three comprehensive high schools with distinct racial compositions of students. The following overarching research question was posed: Are there significant differences in the Reading and Math TAKS performance of economically disadvantaged African-American students attending schools with distinct ratios of school racial composition? In this chapter, the researcher outlines the findings and limitations of this study, and concludes by addressing the implications of this study to both practice and future research.

Findings

The most important finding in this study was that the differences that exist in the Reading and Math TAKS performance of economically disadvantaged African-American high school students attending schools with different racial composition are statistically significant. The researcher observed an increase in the average academic performance of African-American students as the concentration of minority students in the schools was reduced. Although the effect of school racial composition was minimal, the findings indicate that (even after controlling the effects of schools and students'

demographic factors by holding these variables constant), the reading and math TAKS

scores were consistently higher in the 80/20 school than in the 30/30/30 school, followed

by the 30/70 school. Consistent with the literature on school desegregation and academic

achievement, minority students are most disadvantaged when they are in school with

high minority populations (Krol, 1984; Mahard & Crain, 1983); minority students in

low-minority schools learn more than their counterparts do in high-percent minority

schools (Bankston & Caldas, 1996). The findings further suggest that students attending

racially integrated schools perform better than their segregated counterparts do (Heubert,

1999).

      This research dissertation was based on the elements of the social structure and

personality theoretical framework with a specific focus on social relation. The idea is

that school structures influence students' achievement outcomes. Students who have

better social relations in schools have better academic outcomes than their peers that

may lack such model of support (Ames 1992; Connell, 1990; Roeser, Midgley, & Urdan,

1996). Consequently, students have better social relations in schools with more teachers

and students of the same ethnicity/race (Finn & Voelkl, 1993). The findings from this

study do not support the social relations literatures stated above which posit that social

relations (especially for African-American students) is best in schools that have a

majority of African-Americans. In fact, the results of this study implies that social

relations of minority students are not necessarily hindered by being in schools with low

minority student concentrations or helped by being in schools with high minority

concentration.

Over the years, researchers have demonstrated the positive correlations between the average school SES and individual student achievement (Wilms, 1986; Link & Mulligan 1991; Lippman et al.1996). In fact, Jencks and Mayer (1990) concluded that once individual SES is controlled, school-level SES has very large effects on the academic achievements for African-American students. Although this study controlled for the effect of SES by only including African-American students in all three schools that qualified for the free or reduced lunch program (students of low SES), it is important to note that the overall average school SES in all these three school varied. The 80/20 school had an average school SES of about 25 percent. The 30/30/30 school's average school SES was about 36 percent, and the 30/70 school about 80 percent. The differences observed in the TAKS performances of economically disadvantaged African American students in these three schools were consistent with the variation that exist in the schools overall average SES levels. The researcher found that the average academic performance of economically disadvantaged African American students was higher in the school with the fewest number of African American students and the same school had the highest overall school average SES levels. Although the result does not imply the theories that suggest that African-American students are performing better in schools where they have good social relations (social and academic belonging, student-teacher relationship etc), it does provide some support to the existing literature that SES plays a greater role in the level of achievement of students. Predominately-White student populations are more likely to be in schools with higher school average SES levels, while those enrolling more minority students tend to be in schools with lower school

average SES levels (Bankston & Caldas 1998, 2002; Lippman, Burns, & McArthur 1996). The researcher suggests that based on prior research findings, the results of this study implies that the intermingling relationship of low SES African-American students with high SES students in schools with fewer minority students may provide potentially greater academic advantage than their social relations in schools with high minority populations or students of their own race.

A push towards racial integration may not necessarily provide the optimal student achievement, especially for low SES African-American students; socioeconomic integration may be best for academic achievement. However, it is important to note that in a capitalist system like the United States, race and SES are associated in particular ways. Predominately-White student populations are more likely to be in schools with higher average school SES levels, while those enrolling more minority students tend to be in schools with lower average school SES levels (Bankston & Caldas 1998, 2002; Lippman, Burns, & McArthur 1996). This concentration of wealth or poverty may be the factor that significantly influences the academic outcomes of students.

Limitations of the Study

Although this study advances research knowledge on the importance of school racial composition on the academic achievement of African-American students, there are several limitations that are worth mentioning. The first limitation is that the results of this study are bounded by the limitations of the data. The results can only truly be

generalized within the parameters of the three schools and the subjects involved in the study.

The sample size and the missing data may place additional limitations on the scope of generalization of the results of this study. The smaller sample size was due to listwise deletion being used for the missing values. This choice was made because the sample size was still adequate even after this deletion. Although listwise deletion is the easiest and most common method for handling missing data, the loss on statistical power and the precision of estimation cannot be ignored (Timm, 1970).

A second limitation was the inability to capture student perception data for the racial dynamics in the schools. Because the research was partly based on social relations theories (i.e. minority students have social relations and perform better in schools with more minority students and teachers), it would have been useful to be able to extrapolate race-based social relations measures. Although this research contradicts assumptions of the social theory framework posited in this dissertation, the measure of students' perceptions of the schools structure may provide information about greater influences on the association between school and other academic outcomes not examined here, such as dropping out of school. Minority students may not be demonstrating academic gains in high minority schools, but their interaction with other minority students of their own race might be a key factor in keeping them in school.

The third limitation (perhaps the most important for this type of research) is school location, and how the overall average school SES might be influenced by it. In the study, the researcher attempted to control for the effect of individual SES by only

including African-American students that classified as low SES based on the student's eligibility for federal free or reduced-price lunch programs. Prior researchers have provided evidence that overall school SES is a better predictor of academic success (Bankston & Caldas 1998, 2002; Lippman, Burns, & McArthur 1996). The three schools included in this study varied in overall average school SES. The differences in the overall school SES may be largely attributed to the schools' locations and the district attendance pattern. It may have been helpful to incorporate the effects of the average school SES into the design of the study because it may have helped to provide an alternative explanation for the results and validity to the existing research on the effect of SES. Although the results of this study may suggest some interplay of overall average school SES, it is important to focus on the research questions in this dissertation that were geared mainly toward the effects of racial composition of schools, which lean more on the framework of the effects of social relations /interaction instead of the effect of SES.

Finally, in selecting the three schools, it was necessary to keep constant (across schools) the variables that are correlated to both school and academic achievement (such as the schools' academic ratings, school location, academic program, etc.). It is important to note that it was almost impossible to keep constant within this research all the known variables that have been shown to affect both school and academic achievement. In addition, the variables that were kept constant in this study still had a wide range of margin that could have significantly affected the results. For example, all three schools included in the research had an academic rating of "Academically

Acceptable" (which is a TEA rating for a campus that has at least "45.0 – 65.0 percent of all students and students in each subgroup meeting minimum size requirement passing each section of the TAKS). In all actuality, the "Academically Acceptable" rating ranges from 45.0 to 74.99 percent of all students passing because the next rating of "Academically Recognized" is only assigned to schools that have 75 percent of all student and subgroups that are passing. The wide margin that exists within the schools that could fall under the category of the rating of "Academically Acceptable" could translate into a wide margin between the overall academic performances of these schools. Despite these limitations, there are useful implications of this study to both practice and future research.

Implications of the Study

The findings of this study have four very important implications. The most important implication points to the benefits of racial diversity in school enrollment. African-American students are more likely to have statistically significant academic outcomes in schools with fewer concentrations of minority students. With the results of this study, the research speaks to the fact that the integration of African American students in diverse educational environment may be potentially beneficial to the academic attainment of African American students. In fact, the association of school racial compositions with other school organizational and structural factors is the determining factor for student success (Bankston & Caldas 1998). Therefore, policy-makers hoping to improve the academic achievement of African-American students and

close the achievement gap should pay close attention to the continuous "resegregation" of minority students in inner-city schools. Policies should focus more on appropriate distribution of racial groups and socioeconomic class integration in the public schools. Public school districts should provide parents the options of transferring their students from racially segregated neighborhood schools to other schools where these students will have the opportunity to intermingle with students from other racial groups and social class. Kahlenberg (2001) considered socioeconomic integration as a less expensive and more productive alternative to the controversial compensatory education programs, including publicly funded private school vouchers. The impending end of legally mandated school desegregated efforts and termination of school desegregation decrees does not mean that issues relating to racial balance and diversity within school should be abandoned totally; instead, policy efforts should be geared toward environments where students are socioeconomically and racially diverse. Despite the controversy surrounding the *No Child Left Behind Act of 2001 (NCLB),* one of the benefits of this accountability policy is that it requires school districts to provide options (at school district's cost) to parents willing to transfer their students from failing schools to other schools in the district that meets the passing standards. Such policy will eventually help promote racial diversity and social class integration in schools.

The second implication from this the research study points to the de facto effects of residential segregation. With the return to neighborhood schools coupled with the correlation that exists between race and concentrated poverty/social-class differentials in the United States (Roscigno, 1998; Orfield et al., 1997; Orfield & Yun 1999), students

attend schools mainly with other students of the same race and SES. This residential segregation in turn forces school segregation and limits the extent to which school districts' policies can reduce overall school segregation. The federal and state government should promote house and land use polices that allow the development of public (low-income) housing projects in strategic sites across cities instead of creating concentrated low-cost housing within a neighborhood. In addition, improvements should be made to current housing voucher programs so that low-income families can qualify for substantial allocations that will enable them to rent or own homes in more middle-class neighborhoods.

The third implication applies to school districts' charter and magnet school programs. These programs were intended to promote desegregation and racial integration of schools; however, it has moved away from its originally intent. Most charter and magnet school programs have admissions requirements that are stringent and make it difficult for students from low-income families to gain admission. For example, magnet schools that specialize in fine art programs have admission requirements that require students to demonstrate competency in a related skill. In most cases, students from middle or high-class families have an edge with such an admission policy due to prior exposure to private lessons in the fine arts (music, arts, and crafts, etc). School districts should adapt policies similar to affirmative action that gives preferences and seating slots to low-income minority students. These types of policies will allow students of all races who are exposed to integrated educational settings to feel much more

comfortable about their ability to live and work among people of diverse racial and ethnic backgrounds.

By law, under the *No Child Left Behind Act of 2001 (NCLB)*, adequate yearly progress (AYP) targets are required to be set incrementally so that 100% of a state's students are scoring at or above the proficient level on the state test by 2014. Any public school that fails to meet the AYP target is subject to stringent sanctions. Orfield & Lee (2004) found that most of the schools that fail to meet this yearly target are schools with high minority student population. These schools with high minority student population are subjected to yearly federal sanctions that continuously put them in further detrimental positions of meeting the AYP target. The cost of implementing the federal sanctions is considerable; some schools are required to reserve 20% of school budgets to provide school choice transportation costs and supplemental services such as outside tutoring or online learning fees, representing 20% less money for educating students. Policy-makers need to reexamine the mechanisms used by NCLB to improve schools and student achievement, arbitrary timelines, unrealistic goals for improving student achievement and teacher quality, negative sanctions to improve schools, and an accountability system (AYP) that lacks validity as a measure of school effectiveness. This current accountability mechanism has a disparate impact on schools serving large numbers of minority and low-income students.

Suggestions for Future Research

In this dissertation, the researcher investigated the differences that exist in the academic achievement of African-American students attending schools with different racial compositions. There are several avenues for further research in this area. One area for future research is to explore further the differences between school racial composition and overall educational achievement, including the various factors that may account for these differences. Although this research did not support the social relation theory hypothesizing that African-American students perform better in schools that are predominantly African-American, it will be worthwhile to investigate the impact of attending a high minority school on dropout or graduation rate and college attendance. No researcher has yet examined the degree to which the social and academic environment experienced in high school affects academic achievement in college or life-long academic attainment. Although this type of research will require longitudinal data with a lengthy lime span, serious insight may be gained from such endeavor.

There are hosts of school quality factors (such as teacher race and qualifications, student-teacher relationships, participation in advanced classes, academic expectation, social belonging, school funding, etc.) that account for the experiences that students have in schools. These experiences may in turn have a direct or indirect relationship on student academic outcome. Future researchers may want to employ a quantitative methodology to probe deeper into other factors that may be related to school quality instead of just quantitatively analyzing the achievement scores. A combination of both types of research studies may offer insights on how to serve students better wherever

they attend school. Unlike this type of research that was only able to provide information about "how" low –SES African-American students perform in high minority schools, the qualitative piece of the research will help researchers answer the critical "why" question. This will enable researchers and policymakers to make decisions with a better understanding of the nature of the issue.

For years, researchers have known about the effects of individual SES on student achievement. The emphasis in research is now shifting to average school SES and how it influences the academic achievement of students (especially low SES African-American students). In fact, some school districts are shifting the attempt to achieve racial integration to an attempt to balance SES integration (Wake County School District in North Carolina is a good example of such a school district). Most of these types of plans involve limiting the number of low SES students on a campus and in a particular class or grade level. More research is needed in this area of SES integration. This may actually offer a better insight in the quest to improving student success in schools. There is still an overwhelming amount of research needed to investigate how racial differences may account for academic differences; frankly, we may have reached the point that the effect of the SES diversity outweighs racial diversity. Only an investment into future research in this area will provide better guidance on the appropriate direction and course of action.

Conclusions

The era prior to *Brown v. Board of Education* (1954) had a history of a "separate and unequal" educational system. The goal of *Brown* was to create equal assess to educational resources. Such resources were much needed by Black students who had been deprived of such benefits in segregated school settings. The *Brown* decision ruled that separation based upon race was unconstitutional and championed the efforts to desegregate public schools. These desegregated schools exposed minority and non-minority students to equal access to educational resources and a better educational outcome. However, with an increase in residential segregation and a return to neighborhood schools due to the termination of desegregation orders (e.g. busing), there has been a recent return to resegregation of public schools (Orfield, 2001).

It is important to examine the rate at which minority students in inner city schools are resegregating in order to determine if this school racial composition has an effect on student achievement. There have been numerous studies conducted to investigate the effects of desegregation of schools on the academic outcome of students, especially African-American students. Over the years, there have been contradicting results to support two schools of thought. Some researchers have used social relationship theories to state that desegregation of schools has no effect on African-American students, and the relationship that minority students experience in high minority schools actually promotes a better learning environment and yields high student achievement (Rumberger,1983;1987; Mahard & Crain, 1983; Wortman & Bryant, 1985; Hallinan, 1998; Jencks & Phillips, 1998). In fact, the same lines of research indicate results may

have minimal detrimental effects on African-American students due to the lack of belonging and alienation that these students experience in desegregated schools. The other type of research results that have gained ground supports the second school of thought that desegregation does have a positive academic influence on African-American students. With the volume of research literature supporting this line of results, the only problem lies in the ability to operationalize the results. It has been very difficult for practitioners to utilize most of the research findings because the definition of a desegregated school has not been consistent among researchers.

The main issue in this research dissertation was to investigate if economically disadvantaged African-American students perform differently in schools with distinct ratio of racial compositions. These types of research is valuable for providing information on whether desegregation even matters, and if so, at what racial composition is desegregation most beneficial to the academic achievement of African-American students. In designing the methodology for the research study, the researcher attempted to keep constant various factors relating to school quality and student achievement. In doing so, the researcher used the theoretical framework of social structure and personality, based on the hypotheses that minority students will perform better in schools that have high minority concentration because of their relationships with other minority students. In the study, the researcher observed an increase in the average academic performance of economically disadvantaged African-American students as the concentration of minority students in the schools was reduced. The researcher found that

school racial composition has a small but significant effect on the academic achievement of economically disadvantaged African-American high school students.

In our current highly diverse society, the isolation of Black and Hispanic students could have serious ramifications. This isolation is highly correlated with poverty and stratified economical structure. Better education leads to better life outcomes. It is a societal obligation for us to continue to review avenues to provide better educational opportunities to all students through our public education system in order to ensure the upward mobility of our nation.

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APPENDIX

The main effects (Campus and Grade) interaction was significant calling for the tests on simple main effects. However, the Mean Square (within cell) for the between group portion of the partition (Campus at Grade) involves two error. This Mean Square (within cell) is a weighted average of two mean squares. For the between group portion of the ANOVAs, the new error team (MS E') had to be manually calculated (pooled) and substituted for the automated error term generated by SPSS. The new error team (MS E') was calculated at each grade level using the formula below (suggested by B.J. Winer):

MS E' = Sum of Squares *(subject within groups)* + Sum of Squares (*Between * subject within groups*)

$$\overline{\qquad P \text{ (n-1)} + P \text{ (n-1) (q-1)} \qquad}$$

P (n-1) + *P* (n-1) (q-1) = adjusted degrees of freedom; where p and q are the factors (3*3 respectively)

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