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School Engagement and the Achievement Gap

Nicole R. Skalsky
University of Denver

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Nicole R. Skalsky

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Advisor: Dr. Martin Tombari

Author: Nicole R. Skalsky
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Advisor: Dr. Martin Tombari
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ABSTRACT

Evidence of the influence of engagement on learning and achievement is well established. There is also indication of a test-score gap between poor students and middle class students as well as among racial and ethnic groups. This gap continues to be a top priority in educational reform. Since the achievement gap continues to widen for many school districts and states, investigating the possible connection between the engagement gap and the achievement gap deserves needed attention.

This study sought to determine the differences in school engagement and achievement levels between students from low and high-SES backgrounds, as measured by free and reduced lunch, and between Caucasian and Hispanic students. The study examined the engagement and achievement levels of approximately 1,200 sixth grade middle school students in a suburban Colorado school district.

The students' responses were then analyzed using independent sample t-tests to determine differences. The major findings of this statistical analysis were that slight differences exist between Caucasian and Hispanic students as well as low and high-SES students on the 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year. In addition, there were minimal differences between Hispanic and Caucasian students and low and high-SES students in behavioral engagement, but not in cognitive or emotional engagement.

This study has taken an in-depth look at engagement levels, and differences in

achievement were also explored. This study has confirmed that an achievement gap exists. However, the results of this study have shown that the achievement gap cannot be explained by an engagement gap. Based on the results of this study, stressing the importance of engagement in school is not likely the answer for closing the achievement gap.

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CHAPTER 1: AN OVERVIEW

Organization of the Study

This research study on school engagement and the achievement gap was divided into five chapters. A brief summary of each chapter follows.

Chapter 1: An Overview

In this chapter, the achievement gap was defined, statistics were shared, and explanations for the gap were explained. The problem, purpose, research questions, and the importance of the study were also examined.

Chapter 2: Literature Review

A comprehensive review of the literature surrounding the achievement gap and school engagement was shared. Initially, an overview of the test-score gap was examined by reviewing The Coleman Report, *A Nation at Risk*, and The Black-White Test Score Gap. Second, evidence of the test-score gap was shared by investigating cognitive ability tests followed by standardized tests. The literature review also researched the root causes and conditions of the gap including in school factors such as: teachers attitudes and beliefs, less opportunity to learn, and inadequate support and instruction as well as a variety of out of school factors including family, economic, and personal factors. Next, engagement was defined, the three components of engagement were discussed, and the factors influencing engagement were analyzed. The literature review concluded with the outcomes of engagement and ultimately, the research problem, the engagement gap.

Chapter 3: Methodology

The methodology chapter begins with a review of the purpose of the study. After the four research questions were presented, the setting was explored and participants in the study were shared. The instrumentation used in the study was revealed and reliability and validity were discussed. Next, the various procedures used in the study were thoroughly and clearly explained. Finally, the data analysis techniques were communicated.

Chapter 4: Results

The findings from the research were presented and organized around each of the research questions. Conclusions were based on the data and findings were presented according to the research questions. Data was reported in a narrative format as well as displayed in charts, graphs, and tables when appropriate.

Chapter 5: Discussion

Finally, the discussion chapter begins with a brief summary of the study. Next, the research problem was reviewed. Explanations of the findings were discussed and limitations of the study were clearly explained. The chapter concludes with suggestions for future research.

Introduction

One of the most important issues in education is the achievement gap between poor students and middle class students; as well as among racial and ethnic groups. James Coleman first documented the achievement gap, often known as a matter of race and class, in 1966. The gap is evident on a variety of assessments, grades, graduation and dropout rates, and college entrance and completion rates. (D'Amico, 2001). Noguera and

Akom (2000) acknowledged that the results from achievement tests reflected not only racial disparities, but also social inequalities within American society. Since the gap between white students and African American and Hispanic students was first reported, it continues to be a top priority in educational reform (Chubb and Loveless, 2002).

The achievement gap can be defined in different ways; however, the Southwest Educational Developmental Laboratory (SEDL) defined it as the discrepancies between the educational achievement and performance of students of diverse races, ethnicities, income levels, and other groupings (e.g., students with disabilities, English Language Learners). Although, researchers such as Herrstein and Murray, the authors of the controversial book, The Bell Curve (1994) claimed that gaps in student achievement were the natural result of variation in students' genetic makeup and natural ability. Their findings were highly contested and educational researchers asserted that achievement gaps were the result of more subtle environmental factors. Being raised in a low-income family, for example, often meant having fewer educational resources at home, in addition to poor health care and nutrition-factors that may have contributed to lower academic performance. Other researchers believe factors within school such as peer pressure, student tracking, negative stereotyping, and test bias are explanations of the achievement gap (Viadero, 2000).

Although many definitions of the achievement gap exist, for the purpose of this study, the term "achievement gap" will be used to describe the differences in scores on cognitive ability tests and state standardized tests among students from different ethnic, racial and income levels (Southwest Educational Developmental Laboratory).

Educational researchers, Jencks and Phillips, are known for extensive investigation of the achievement gap. In their book, The Black-White Test Score Gap (1998), Jencks and Phillips thoroughly examined the factors that contribute to the test score gap and discussed options for substantially reducing it. They stated that, "Even if resources were not a constraint, the cognitive disparities between black and white preschool children are currently so large that it is hard to image how schools alone could eliminate them" (p. 45). Jencks and Phillips (1998) argued that closing the test score gap would make a difference for economic outcomes, and acknowledged that Americans have been aware of an achievement gap between whites and minorities since World War I. While a number of explanations for this gap have been put forward, none of them are completely satisfactory. Although schools can reduce the black-white test score gap, Jencks and Phillips (1998) did not believe that schools alone could eliminate the gap. Jencks and Phillips attributed test bias, heredity, family background, and cultural explanations as reasons for the test score gap.

In addition to Jencks and Phillips, Nogeura and Akom have also examined the achievement gap. Noguera and Akom (2000) reported that evidence of disparities in achievement have shown up in nearly every relevant indicator of academic performance for many years. The presence of important different indicators of performance among African American, Latino, and Native American students who generally score lower on achievement has been accepted as the norm and unproblematic (2000). This was evident in almost every school and district. The acceptance and nonchalant nature reinforces well-established assumptions regarding the relationship between race, academic ability and intelligence. Nonetheless, despite lingering doubts about the abilities of certain

children to learn, accountability remains a priority and penalties that accompany failure to close the achievement gap exist (2000).

One thing is definite. Despite previous findings, the achievement gap is not closing and concern is growing. Many reform efforts are focusing on strategies to close the gap. In fact, the No Child Left Behind Act of 2001, a federal law commenced by the United States Department of Education, is often regarded as the most significant federal education policy initiative in a generation. This law requires schools and districts to meet targets for school improvement in academic areas not only for their entire student population, but also for several subgroups of students including African American, Hispanic, economically disadvantaged, students with disabilities, and limited English proficiency learners. In addition, dropout rates and graduation rates are included in these accountability measures. If any subgroup consistently fails to meet performance targets, the school and/or district must adhere to specific instructions.

Unfortunately, the reality is grim. Minority students are not achieving as well as their White peers. For example, The Bell Policy Center in Denver, Colorado (2005) reported that "Asian American and white students and students from middle- to high - income families consistently score higher on tests measuring academic achievement than do American Indian, Black, Hispanic and low-income students" (p. 4). Evidence of low-income/minority education in the United States, specifically the fact that African-American and Latinos and students from poor families perform worse in school than their well-off White and Asian peers (2005), are communicated in numerous and alarming statistics.

These eye-opening figures support the need to identify causes contributing to the achievement gap. First, recent national studies showed that as a group, African American and Hispanic students fall behind their white and Asian peers by 4th grade and never really catch up. For example, by 11th grade, African American and Hispanic writing scores are nearly equivalent to the writing scores of white 8th graders. In addition, the National Assessment of Educational Progress (NAEP), another tool that measures student achievement, is taken by school-aged children nationally in fourth and eighth grades. The NAEP consistently reports that the average 8th grade minority student performs at about the level of the average 4th grade white student. Also, data from NAEP showed that the gaps between African American and Hispanic students remained stable or grew slightly in reading and mathematics from 1990 to 1999 (National Governors Association Center for Best Practices, 2003). Finally, NAEP reported that black and Hispanic students were much less likely than white students to graduate from high school, acquire a college or advanced degree, or earn a middle-class living. There are many more statistics that evoke concern and fear.

Explanations for the achievement gap vary widely, as do levels of concern for its existence. There has yet to be consensus on why the achievement gap exists. There is wide disagreement within the educational community about the relative importance of a variety of factors in explaining the achievement gap. Some individuals believe that schools do not have the capacity to close the achievement gap. Therefore, the only feasible solution in closing the achievement gap is to rely on more effective social policies, such as better housing and healthcare for the poor (Heyneman, 2005). The gap is a source of much controversy, particularly since the effort to close the achievement gap

has become a more politically prominent educational reform issue. The Bell Policy Center (2005) reported on the two most significant factors that contribute to the achievement gap based on their analyses. They found that school environment matters. This included high quality teachers, high expectations of students, and rigorous curriculum all contribute to helping close the achievement gap. In addition, they found that social and cultural conditions matter. This included racial discrimination, nutrition, parental involvement, lack of learning opportunities at a young age and student mobility due to the employment or housing circumstances of the family all affect student performance.

There are many unexplained differences in the achievement gap between minority and low socioeconomic students and their white, more affluent peers. Jencks and Phillips (1998) shared, "While we are convinced that reducing the gap is both necessary and possible, we do not have a detailed blueprint for achieving this goal and neither does anyone else" (p. 47).

Another widespread problem facing American educators is the "emotional and physical withdrawal of students from school" (Voelkl, 1996, p. 760). Too many students are not participating in the curriculum, are inattentive and disruptive in the classroom, believe that school fails to provide them what they need out of life, distrust and feel suspicious of the school, experience high rates of juvenile delinquency, and low levels of motivation and interest. Truancy, absenteeism, and eventually dropping out are the most important forms of withdrawal that may result in students not engaging in school (Voelkl, 1996). Although it is evident that students are disengaging from school, there has been

little research conducted on the role that student engagement may play in learning more about the achievement gap.

Statement of the Problem

School dropout rates across the nation are high, and school disengagement continues to be a major factor. Since the achievement gap continues to widen for many school districts and states, researchers are suggesting that investigating the possible connection between the engagement gap and the achievement gap deserves needed attention (Yazzie-Mintz, 2006).

There is a serious need to analyze the engagement levels in a variety of dimensions of the students, particularly the students who fall in the achievement gap, which is evident in an array of measures, including dropout rates, standardized test scores, and grade point average, to name a few (Fredricks et al., 2004).

Purpose of the Study

The purpose of this study was to determine the differences in school engagement and achievement levels between students from low and high-SES backgrounds, as measured by free and reduced lunch, and between Caucasian and Hispanic students. The study examined the engagement and achievement levels of approximately 1,000 sixth grade middle school students in a suburban Colorado school district.

Determining the nature and extent of differences in engagement levels among sub-groups of students will support schools in identifying needs in order to create a variety of strategies and techniques that will best serve these populations of students to close what is called the engagement gap. Research has shown that when students are engaged and motivated during school their success rate at school intensifies. The

National Survey of Student Engagement (2002) reported that students learn more when they are intensely involved in their education and are asked to talk about and apply what they are learning in different settings. By asking students to share their views about student engagement, schools can better understand the perspectives of their students and bringing these critical voices of students into conservations about school reform and school improvement. It is critical for schools to recognize students' academic purpose for being in school as well as their social purpose (Yazzie-Mintz, 2006). In addition, school districts can use the data to address the specific engagement issues and needs of these students to help them achieve in school.

Research Questions

1. What differences existed between Caucasian and Hispanic students in the following areas of achievement: 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year?

2. What differences existed between students from low and high-SES, as measured by qualification for free and reduced lunch, in the following areas of achievement: 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year?

3. What differences existed between Caucasian and Hispanic students in the three primary dimensions of student engagement: cognitive, behavioral, and emotional engagement?

4. What differences existed between students from low and high-SES, as measured by qualification for free and reduced lunch, in the three primary dimensions of student engagement: cognitive, behavioral, and emotional engagement?

Importance of the Study

There have been few studies in the field of education that examine the effects of student engagement and achievement in K-12 students. "While many educators have written about the importance of keeping youngsters "engaged in school, few have attempted to define engagement formally or to study it as an outcome of school processes" (Finn & Voelkl 1993, p. 249). In addition, Finn and Voelkl (1993) shared that,

> "…the number of studies that attempt to define or measure engagement levels, not to mention those that treat engagement as a dependent variable, is minuscule. This oversight is all the more serious if it is understood that both the behavioral and psychological aspects of disengagement from school are potential hazards to the performance of all students, not just those at risk by virtue of status handicaps such as race or socioeconomic status" (p. 266).

There have; however, been numerous studies looking at the engagement of college students and dropout rates for sub-groups of students. In order for students to attend college, they must complete a K-12 education. Student engagement levels must be examined much earlier than college. If students are not engaged in elementary, middle, and high school, thus dropping out or not achieving, then they will not be accepted into or even attend college. If students are not interacting with their learning, and feel that the content is relevant, if they are not engaged in learning, then no seeds are planted for further learning or exploration. The passion that would drive them to college and the next stage is not achieved (Yazzie-Mintz, 2007).

School reform continues to be a top priority for governors and other state policymakers. Although school reform has experienced successes, significant challenges remain. A key education policy challenge facing states today is the achievement gap. It

continues to be one of the most imminent challenges that states currently face. Many states have taken efforts to close the gap, but no major research has been conducted on the link between the achievement gap and student engagement. However, there is an abundance of research that supports the need to identify the many factors contributing to the achievement gap.

Results for this study can be used to help schools identify where to focus attention and resources to improve student learning and school effectiveness. In addition, administrators considering restructuring programs can use the data collected on student engagement to make changes that can improve the learning environment for their students. Examining levels of student engagement among sub-groups of students "brings critical student voices into reform efforts and into conversations about the structures and practices of individual schools," reported Yazzie-Mintz, Project Director for the High School Survey for Student Engagement (HSSSE), one of the few studies on high school student engagement (2006, p. 1). It is critical to study student engagement in an environment in which there's so much emphasis on student achievement and accountability. If students are not finding the material interesting, they are not likely to learn it, they are bored, and achievement is unlikely (Yazzie-Mintz, 2006).

Definition of Terms

Caucasian: a) Of or being a human racial classification distinguished especially by very light to brown skin pigmentation and straight to wavy or curly hair, and including peoples indigenous to Europe, northern Africa, western Asia, and India; b) Of or relating to a racial group having white skin, especially one of European origin; white (American Heritage, n.d.).

Latino: a) A Latin American; b) A person of Hispanic, especially Latin-American, descent, often one living in the United States (American Heritage, n.d.).

Socioeconomic Status: An individual's or group's position within a hierarchical social structure. Socioeconomic status depends on a combination of variables, including occupation, education, income, wealth, and place of residence. Sociologists often use socioeconomic status as a means of predicting behavior (American Heritage, n.d.).

CHAPTER 2: REVIEW OF THE LITERATURE

The Achievement Gap: An Overview

As noted in the introduction, the term "achievement gap" will be used to describe the differences in scores on cognitive ability tests and state standardized tests among students from different ethnic, racial and income levels throughout this study. It is important to note that others have referred to the difference in scores as an attainment gap. While both achievement and attainment could be used interchangeably to refer to the differences in test scores, achievement was chosen for several reasons. First, it is the more commonly used term among educational researchers around the nation. Second, researchers and policy makers readily understand that achievement gap refers to the difference in test scores among student from different ethnic, racial and economic backgrounds.

Addressing the achievement gap, which creates a major issue of equity, is urgent due to an ever-increasing focus on high academic standards for all reports Shannon and Bylsma (2002), researchers from the Office of Superintendent and Public Instruction in Washington. They shared that the changing demographics in schools and the nation pose challenges to the public schools. Students of color, limited English proficiency, and children from low-income families are the clientele of many classrooms today and will likely be in larger proportions in the future. This threatens to create new inefficiencies. The achievement gap suggests that the future generations of low income and minority families may remain mired in poverty. If these students do not achieve at high levels, the economy will suffer.

There have been numerous reports and books published over the years that validate the existence of the achievement gap, which is reduced only slightly when white and black families have the same income, wealth, and amount of schooling. In addition, even though Jencks and Phillips (1998) acknowledge that income equality between blacks and whites is apparent, and that family background does affect test performance, they believe the difference is rather small. In fact, a few skeptics have argued that test scores are simply proxies for family background.

It was important to examine early reports providing evidence of the achievement gap. There have been several monumental publications on the achievement gap, specifically the differences in test scores among sub-groups of students. One cannot ignore the vast amount of statistical data indicating a gap between social classes. Although Jencks and Phillips were a few of the most recent researchers to report on the gap, evidence can be found dating back to the 1960s with the Coleman Report.

The Coleman Report

The Coleman Report was one of the first major publications on socioeconomic status and student achievement. The 1966 Coleman Report was the landmark study led by James Coleman. He and his colleagues studied the association between school inputs and student achievement. *Equality in Educational Opportunity*, otherwise known as The Coleman Report was published by the federal education department in 1966, and examined educational opportunity in terms of input, process, and output variables. Not only did the report examine the equality of investments in the education of different sub-groups, but it also reported on the extent of equality of academic results among groups of students as measured by performance on standardized tests. Providing high-quality

educational experiences and appropriate educational preparation for all groups of students continues to be a goal of American education. As previously mentioned, family and economic factors have been viewed as causing low achievement among non-White students and those living in poverty.

Coleman's 1966 report also indicated that family circumstances had more influence on the achievement of students than did schools. One of his major findings was that when socioeconomic background of students was held fixed, the differences among schools accounted "for only a small fraction of differences in pupil achievement" (Coleman, 1966, p. 21). Therefore, Coleman shared that the more affluent a student's background, the better they will achieve. In addition, his statement "schools bring little influence to bear on a child's achievement that is independent of his background and general social context" (p. 325) was quoted frequently. His statement began to demoralize teachers and schools; many educators felt that they were powerless to make a difference in students' lives.

Although Coleman later wrote that his techniques overestimated the effects of background and underestimated the effects of school, the "no effects" findings continued to influence thinking about student achievement. Actually, Coleman pointed out inequalities in the education system and found that there were differences in the relationship of schools to various racial and ethnic groups when socioeconomic factors were statistically controlled. The achievement of white students was found to be less related to the "strengths and weaknesses of the school's facilities, curriculums, and teachers than the average minority pupil's" (p. 22).

Nonetheless, the strong relationship between test scores and family socioeconomic status is a widely replicated finding (Jencks and Philips, 1998). For example, Lee and Burkam (2002) used data from a U.S. Department of Education survey to study disparities in learning. They found that children form the lowest socioeconomic groups scored 60 percent lower in math and 56 percent lower in reading than children in the highest groups.

Education is the ticket to the American dream. Higher levels of education mean a greater chance of attaining better paying jobs that provide individuals and families with the opportunity to access health care, own a home, and secure a quality education for their children. Society benefits endlessly when students are highly educated. Unfortunately, if the achievement gap persists, the American dream will diminish and we will no longer prosper as a nation.

It is evident that not only are various sub-groups not achieving, but America's students as a whole are being outperformed by other countries. This was reported in the early 1980's by The U.S. Department of Education's National Commission on Excellence in Education. They published the report, *A Nation At Risk: The Imperative For Educational Reform*, in 1983 in an attempt to share the bleak reality that America's students, especially minorities, are lagging behind students in other prospering countries of the vast world.

A Nation At Risk

Reported by the Commission on Excellence in Education (1983), *A Nation At Risk*, is often cited as the origin of current reform efforts focused on all

students achieving, regardless of race, class, and other factors. It is considered a landmark event in modern American educational history.

A Nation At Risk (1983) emphasized that all, regardless of race or class or economic status, are entitled to a quality education. This is now a broken promise because an increasing number of young people graduate from high school without the necessary skills for neither college nor for work. The Commission on Excellence in Education does not believe that a public commitment to excellence and educational reform must sacrifice society's commitment to the equitable treatment of our diverse population. Equity and high-quality schooling are of equal importance for our economy and society, and we cannot favor one more than the other (*A Nation At Risk*, 1983). Not only have we lost sight of the basic purposes of schooling, but also of the high expectations and disciplined effort needed to attain them. America's schools and colleges encounter conflicting demands such as providing solutions to personal, social, and political problems that the home and other institutions either will not or cannot resolve. If only to maintain and increase the competitive edge with other countries, the United States must dedicate itself to the reform of our educational system for the benefit of old and young, affluent and poor, majority and minority. Our nation's people and its schools and colleges must be committed to achieving excellence (*A Nation At Risk*, 1983).

A Nation At Risk, the result of 18 months of study, sought to generate reform of our educational system in fundamental ways and to renew society's commitment to producing well-educated citizens, minorities or not. The public's support for education is the most powerful. Society believes that education is critical for the future strength of

this country and public education should be the top priority for additional federal funds. The public supports a more demanding curriculum for all students including those planning to go to college and those who do not. Interestingly, after the report was released, President Regan introduced a series of education reforms taking into account the public's opinions. The Commission, in *A Nation At Risk* (1983), shared the following recommendations:

- Graduation requirements must be strengthened so that all student's education includes four years of English, three years of mathematics, three years of science, three years of social studies, one semester of computer science, and two years of foreign language for students planning to attend college.
- Schools should adopt higher and measurable standards for optimal academic performance, and colleges should strengthen their admissions requirements.
- Lengthening the school day and year should significantly increase the amount of time students spend engaged in learning.
- Citizens need to hold educational leaders accountable for providing the monetary resources necessary in order to implement the reforms.

Is our nation still at risk? Since 1983, over 10 million Americans have reached the 12th grade without reading at a basic level. Over six million Americans dropped out of high school altogether during this same time frame. The statistics were even more alarming in minorities' communities. For example, just over ten years ago, 13% of all

African Americans aged 16-to-24 were not in school nor did they earn a high school diploma (National Commission of Excellence in Education, 1983).

Not only was *A Nation At Risk* reported, but a slew of corporate leaders, governors, and other individuals published reports that shared education deficiencies as the source of the nation's economic problems. The achievement gap was evident before 1983 when a *Nation At Risk* was released, and it is still prevalent today as seen in The Black-White Test Score Gap (1998), written by Jencks and Phillips, that will be explored next.

The Black-White Test Score Gap

The test-score gap, referred to as the achievement gap in this study, between blacks and whites on tests of vocabulary, reading, and math, as well as on tests that claim to measure scholastic aptitude and intelligence is large enough to have far-reaching social and economic consequences. In "America's Next Achievement Test," Jencks and Phillips (1998) argued that eliminating this test-score gap between black and white students would dramatically reduce economic and educational inequality. They believed that closing the gap would do more to promote racial equality than any other strategy currently under investigation, but also that changing parenting practices and making a greater social investment in early cognitive development were among the most promising avenues for narrowing the gap still further in the future.

Although the gap decreased by about 40 percent from 1970-1990, it has held steady since then. Even though significant attempts have been made over the past three decades to shrink the test-score gap, the median black American still scores below 75

percent of American whites on most standardized tests. Theoretically being able to close the gap and actually closing it are two different things.

Jencks and Phillips (1998) maintained that results would likely arise from focusing on schools and on culture. They argued that the effects of previous and continuing racism led many young blacks to believe education will not benefit them, a point of view that needed to change into positive views of education. One such study on schools and culture, titled *Inequality: A Reassessment of the Effect of Family and Schooling in America* (Jencks et al., 1972) concluded that educational reform could not bring about economic or social equality and that school quality had little effect on student achievement. Even if schools could be reformed or ensured that every student received an equal education, adult society would hardly be more equal than it currently is.

As previously shared, the achievement gap is evident in a variety of measures. An exploration of the achievement gap on cognitive ability tests, achievement tests, and the gap in students' grades is next.

Achievement Gap on Cognitive Ability Tests

Stanford Binet

There is no doubt that a test-score gap exists on cognitive abilitity tests. Alfred Binet, a French Psychologist created the basis of the IQ (intelligence quotient) test in 1905. It represents the ratio of mental to physical age, became known as the Stanford

Binet (Steele, 1997) and is an IQ score given from a set of standardized tests that were developed with the purpose of measuring a person's cognitive abilities in relation to one's age group. Although the use of an IQ to predict intelligence between people of different

cultural background has fallen under increasing criticism, it remains widely used.

Steele (1997) reported a reliable test-score gap between white and black Americans. For instance, on IQ tests, it is about one standard deviation, roughly 15 points. In previous years, the United States reported that the mean IQ score among blacks was approximately 85, Latinos was approximately 89, and the mean IQ score among whites was approximately 100. Although the difference in cognitive ability scores is highly debated, it has been found that measures of school achievement correlate fairly well with IQ.

Next, the test-score gap evident in a variety of other cognitive ability tests including the Wechsler Intelligence Scale for Children (WISC), Stanford Binet, Peabody Picture Vocabulary Test (PPVT), Scholastic Aptitude Test (SAT), ACT, and the Graduate Record Exam (GRE) will be explored.

Wechsler Intelligence Scale for Children (WISC)

The WISC was developed by Wechsler as an intelligence test for children between the ages of 6-16. A person taking the test receives a full-scale IQ score, which includes a global, verbal, and a performance IQ score, as well as scaled scores on each of the subtests. The WISC is used to compare a child's cognitive development to his or her actual school or social performance. The WISC(R) was standardized and found the mean I.Q. for each age.

The WISC(R) was standardized and found the mean I.Q. for each age group to be 100, with a standard deviation of 15, which is typical of other IQ tests. Although extensive standardization has occurred, the test-score gap between ethnicities is still

around one standard deviation, which amounts to 15 points. For example, Viadero (2007) reported that on the WISC, the average score for black students is currently 92.1, compared with an average score of 103 for white students. The gap between the two groups was 16 to 17 points in 1978, providing evidence that the gap is slowly closing.

Peabody Picture Vocabulary Test (PPVT)

Unlike the WISC which has many subtests, the Peabody Picture Vocabulary Test, also a cognitive ability test, consists of only one item type. In the PPVT, the test taker must define a word by deciding which of the four pictures best represents the meaning of the word said by the proctor.

Jencks and Phillips (1998) found that young Black children's vocabulary on the PPVT was about one year behind white children. Black five and six-year- olds in the data provided by the National Longitudinal Survey of Young (CNLSY) scored 16 points (one standard deviation) below whites on the Peabody Picture Vocabulary Test.

SAT

The SAT is considered an IQ test since they are highly correlated. The SAT, which was first administered in 1926, used to be known as the Scholastic Aptitude Test, but today, the test administered by the College Board, is just called the SAT.

Because the SAT was devised as a tool to identify talented students from underprivileged backgrounds, it was thought of as a test that would measure an innate ability referred to as "aptitude," rather than abilities that these students might have developed through school. However, according to the College Board, in "Secrets of the SAT: What does the SAT really measure?" (Frontline, n.d.) the SAT does not measure any innate ability. Instead, the SAT measures developed reasoning, which are skills that students developed both in and out of school.

Statistics on the test-score gap on the SAT plague the literature. Over the years, researchers have documented persistent gaps in the performance of different groups on the SAT and other standardized tests (La Griffe du Lion, 2000). It was evident that test scores increased with family income and improved with socioeconomic status. Both of these trends were observed within all ethnic and racial groups. However, consider the statement that black children from the wealthiest families had lower mean SAT scores compared to white children from families below the poverty line. Math SAT scores increased with family income for both whites and blacks. However, black students from families earning more than $70,000, in 1995, scored lower than white students whose families earned less than $10,000. The same was true for the verbal SAT. The wealthiest blacks scored below the poorest whites. It was not surprising then that math and verbal SAT scores for black and white children varied with parental levels of education. In both cases, black children of parents with graduate degrees scored lower than white children whose parents had a high-school diploma or less (La Griffe du Lion, 2000). Similar gaps were seen in other tests of cognitive ability, such as the GRE (Roth et al., 2001).

The Journal of Blacks in Higher Education (2007) reported that in 2007, 158,536 African Americans took the SAT test. African Americans accounted for 11 percent of all SAT test takers. Only 910 African-American college-bound students scored 700 or above on the math SAT and only 1,176 scored at least 700 on the verbal SAT.

Nationally, more than 89,000 students of all races scored 700 or above on the math SAT and nearly 75,000 students scored 700 or above on the verbal SAT. Thus, in this top-scoring category of all SAT test takers, African-American students made up only one

percent of the students scoring 700 or higher on the math test and only 1.6 percent of the students scoring 700 or higher on the verbal SAT (The Journal of Blacks in Higher Education, 2007). Some other statistics on the test-score gap on the SAT include the following:

- The average score for Asian Americans, Asians and Pacific Islanders on the SAT I math was 32 points higher than that for whites. But the greatest disparities have been documented between African Americans and whites (Frontline, n.d.).
- African Americans score lower than whites on vocabulary, reading and math tests, as well as on tests such as the SAT (Jencks and Phillips, 1998)
- Among seniors who are entering college in the Fall of 1999, African Americans' average scores on the SAT I Verbal were 93 points below white students' average scores. Blacks scored, on average, 106 points less than whites on the SAT I Math (Frontline, n.d.).
- A study of the 1,989 applicants to five highly-selective universities found that white candidates' average combined SAT score was 186 points higher than the corresponding SAT average for African American applicants. Close to 75 percent of the white applicants scored over 1200 on the SAT, while 29 percent of black applicants did (Bok & Bowen, 1998).
- When analyzing SAT scores, black and white students who scored the

same on the SAT did not perform the same in college. Jencks and Phillips (1998) reported that the SAT appears to overestimate the college performance of black students. Essentially, blacks in college do worse than whites with the same SAT scores.

- European Americans score higher than black students on tests of vocabulary, reading and math, as well as on scholastic aptitude and intelligence tests (Jencks & Phillips, 1998).
- On the SAT exam, the test-score gap is about 100 points on each of the sub-tests, the verbal and the quantitative sections of the SAT (Steele, 1997).
- Black students who gained admission to prestigious institutions had mean SAT scores 15 percent or more below the mean for white students who were admitted (The Journal of Blacks in Higher Education, 2007).
- African Americans made up only one or two percent of the top-performing group of students who took the SAT college entrance examination (The Journal of Blacks in Higher Education, 2007).

ACT

The ACT is a curriculum-based college entrance examination. It was created to assess students' ability to succeed in college and has a possible scoring range from a low of one to a high of 36. The Bell Policy Center (2005) reported that the average 2004 ACT composite score for American Indian, African American, Mexican American and Hispanic 11th graders in Colorado was less than 17. Colorado found that the largest gaps on the ACT in 2004 occurred between white and Mexican American, white and black,

white and American Indian, and white and Hispanic students, totaling more than four points. The difference in ACT scores in Colorado was yet another example of the test-score gap that exists.

Graduate Record Exam (GRE)

The Graduate Record Examination (GRE) is a cognitive ability assessment taken by about 300,000 prospective graduate students every year. The GRE consists of two analytical writing sections, a verbal reasoning test, and a quantitative section. Statistics exist that provide evidence that the achievement gap exists on the GRE as well.

Data collected dates back to 1996. In 1996, black students had a mean combined score of 798. Between 1996 and 2003 there has been a 23 point improvement in black scores on the GRE. However, white scores have increased at an even greater rate. In 1996 the combined white score was 1034. Thus, the black-white gap was 236 points in 1996. In 2003, 27,267 blacks took the GRE test. Therefore, 8.8 percent of all students who took the GRE in 2003 were black. The mean score for blacks on the combined verbal and quantitative sections of the GRE was 821. For whites, the mean combined score was 1062. Thus the mean white score was 241 points, or twenty percent, higher than the mean score for blacks. This racial scoring gap is even wider than the persistent and growing gap on the SAT test. It is clear that the racial gap on tests for admission to graduate school remains very large.

Achievement Gap on State's Standardized Tests

A standardized test is a written test whose scores are interpreted by reference to the scores of a norm group which has taken the test and which is usually considered to be

representative of the population, which takes the test. Standardized tests are shown to have a relative degree of validity and reliability, as well as results which are generalizable and replicable. They are useful for admissions purposes in higher education, where a school is trying to compare students from across the nation or across the world.

State Standardized Tests

Several states have their own statewide exams. Results are usually reported as pass rates, often at several achievement levels such as unsatisfactory, partially proficient, proficient, and advanced. The statewide exams are designed to maintain a constant level of difficulty from year to year, so that changes in performance indicate growth or decline in skills. These high-stakes tests are critical. When achievement levels increase, schools are praised. However, when levels decrease, schools are criticized. Although statewide tests vary, they are designed to pass most students, though this has not yet occurred universally (La Griffe du Lion, 2000).

Colorado Student Assessment Program (CSAP)

The achievement gap crisis appears especially worrisome in Colorado. Colorado's achievement gap is large and persistent – it is bigger than most other American states and has not decreased in any meaningful way over the past five to ten years. "National test scores show that the gap in Colorado is equivalent to about two grade levels, that means that on average, Latino and black students are performing about two full grade levels behind the average white student…." was reported in "The Achievement Gap – Colorado's Biggest Education Problem" (National Center for Education Statistics, n.d.). The gap is slowly decreasing in a few grades; however, at the current rate of improvement, many more students will graduate with sub-standard skills.

The Colorado Student Assessment Program (CSAP) measures achievement according to our Colorado's content standards. It has been the subject of extensive technical analysis and is widely considered a high-quality standardized test by educators and researchers (National Center for Education Statistics, n.d.). The CSAP tests indicate that many students are not learning the expected standards, and entire groups of students — identified by race, ethnicity, gender, income and disability — are falling behind, reported Sharp-Silverstein, Hartman, Frye, & Jones (2005).

Overall, the racial achievement gap on the CSAP is widening in Colorado. Although the gap between black students and white students has decreased slowly in grade eight math and grade four reading, it has remained constant or widened in other grades, according to CSAP scale score data. Colorado fares slightly better on the white-black student gap than the white-Latino gap. The state ranked 21st out of the 50 states for the composite score difference between white students and black students in 2005. Broken down by subject areas, Colorado was tied for 10th in reading and tied for 32nd in math in the white-Latino achievement gap. In grade ten math and grade eight reading, the gap has consistently grown from 2001-2005 (Sharp-Silverstein, Hartman, Frye, & Jones, 2005). Between 2002 and 2005, the white-Latino achievement gap grew in every grade, in every subject, on each of the 22 CSAP tests. While the gap has grown overall since 2001, small gains have been made in many subjects between 2003 and 2005, indicating a possible positive trend, which may be due to the changes in NCLB requirements. The achievement gap in Colorado between white and Latino students is worse than in most other states. In 2005, Colorado ranked 39th out of 50 states on the composite score difference between white students and Latino students. Broken down by

subject area, Colorado ranked 37th for the reading gap and 41st for the math gap among black and white students (Sharp-Silverstein, Hartman, Frye, & Jones, 2005).

Unfortunately, in middle and high school the statistics do not improve. In fact, black and Hispanic students lose ground in between elementary, middle, and high school. The gap between white and Hispanic student performance on the high school reading assessment was one of the largest found.

Narrowing Colorado's achievement gaps poses a major challenge. Despite a decade of reforms, featuring statewide and local initiatives, the performance gaps between students of different backgrounds are wide and persistent. Statistics show that other states share the same types of frustrations. Colorado is not alone.

Maryland School Performance Assessment Program (MSPAP)

The Maryland School Performance Assessment Program has since been replaced with the Maryland School Assessment, which is a test of reading, math, and science achievement. The MSPAP is given each May to Maryland's third, fifth, and eighth graders to test their mastery of the basics and how well they applied knowledge in authentic problem solving.

The Maryland State Department of Education (2007) reported that between 1993 and 1999 the black-white achievement gap for eighth grade math on the MSPAP increased from 36.8 to 42.3 percentage points. Maryland has not fared well with its MSPAP tests. Pass rates are low all around, and the black-white gap stubbornly resists closing.

Texas Assessment of Academic Skills (TASS)

As part of its comprehensive statewide testing program, Texas requires its

high school students to pass an exit exam called the Texas Assessment of Academic Skills (TAAS) as a graduation requirement and as part of its comprehensive statewide testing program (La Griffe du Lion, 2000). Students first attempt to pass the exam is in 10th grade, and when students do pass, regardless of the number of attempts, they are awarded a diploma. The black-white and Hispanic-white mean differences for first attempts at the exit exam from 1994 to 1999 were examined. The mean differences for Black students on their first attempt to pass the test was reduced from nearly .95 standard deviations (SD) to approximately .83 in 1999. The mean differences for Hispanic students was reduced from about .77 SD to .72 SD. Although the gap is narrowing, it is still very apparent. Texas has made significant progress raising the passing fraction of all its racial and ethnic groups (La Griffe du Lion, 2000)

Minnesota's Basic Skills Test (BSTs)

Students must pass the Basic Skills Tests (BSTs) to receive a diploma from a public high school in Minnesota. The reading and mathematics tests are first administered to these students in grade eight and the writing test in grade ten(Minnesota Department of Education, 2007).

In 1996, students took the BSTs as a trial run. A University of Minnesota professor found that 75 percent of African-American students failed the math test, and 79 percent failed in reading, compared to 26 percent and 42 percent respectively for whites. He suggested that poverty was the main cause of the poor performance of Black students on the BSTs (Berlak, 2001).

The achievement test gap on state's standardized tests exists worldwide, although some states are narrowing the gap at a faster pace than others. We have seen evidence of

the gap in Colorado, Maryland, Texas, and Minnesota. It is clear that the achievement gap exists, so exploring the root causes and conditions is the next logical step.

Root Causes and Conditions of the Gap

As previously mentioned, another explanation for the test-score gap is environmental factors. Neisser, a psychology professor at Cornell University, as well as other researchers, believe that heredity does not play a factor in the differences in IQ scores because IQ scores had risen dramatically since the 1930s among all racial groups. Neisser does not believe poverty, racial segregation, or inadequate funding of black schools can explain it. In fact, some experts say the changing test scores show intelligence is much more flexible and more subjective to environmental influences than anyone previously thought. However, Jensen argued that even if the environments of blacks and whites were equalized, the 15-point gap in IQ scores between the races would only be partly eliminated (Hall, 1998). And, although these differences are substantial, there are much larger differences between people within each group than between the means of the groups. This large variability within groups means that a person's racial or ethnic identification cannot be used to infer his or her intelligence.

Socioeconomic status is strongly related to cognitive skills. Lee and Burkam (2002) found that SES accounts for the most variation in cognitive scores than any other factor by far. They discovered that average math achievement was 21% lower for blacks than for whites, and 19% lower for Hispanics. In addition, students from the lowest socioeconomic groups scored sixty percent lower in math and 56 percent lower in reading than children in the highest groups. Based on their research, they concluded that low-

SES and minority children were likely to experience larger class sizes, less outreach to smooth the transition to school, and fewer prepared and experienced teachers.

Researchers have identified in-school and out-of-school factors they believe might contribute to creating the achievement gap between higher and lower achieving students from different social classes and racial groups. In-school factors included estimated time students are in the classroom learning, teachers' perceptions of student capabilities, teacher-parent communication patterns, parental standards for student academic pursuits, and students' out-of-school time-use patterns (Clark, 2002). Out-of-school factors studied were family, economic, and personal characteristics. Interestingly, Clark (2002) reported a higher relationship for student achievement with in-school factors than the out of school factors, which are discussed next.

In-School Factors

First, research has identified various school-related factors that can perpetuate the gap. There are many factors preventing education from being "the great equalizer". Schools serving low-income students receive fewer resources, have a difficult time attracting qualified teachers, experience many more challenges in addressing students' needs, and receive less parental support. All of these factors contribute to this well-recognized inequality (Lee and Burkam, 2002).

Recent studies have challenged the assumption that schools and educators have little or no impact on how well students achieve (Lee and Burkam, 2002). These studies have found that low-income and minority students encounter lower expectations from their schools and teachers, less opportunity to learn, and inadequate instruction and

support. Research has also pointed out that schools are more reflective of white, middle-class society. This can lead to a disconnect between students who come from different cultures and family conditions and the traditional school structure and expectations (Shannon & Bylsma, 2002).

Teachers Attitudes and Beliefs

One factor that can be controlled, to some extent, are teachers' attitudes and beliefs. In fact, the effects of racism, prejudice, and segregation influence many aspects of the educational system, including the relationship teachers have with minority students. The achievement gap is influenced by how teachers respond to student diversity. Jencks and Phillips (1989) acknowledged that discrimination by teachers exists, but it is unlikely to account for much of the test-score gap since a large proportion of the gap is already present before schooling begins.

Dusek and Joseph (cited in Ashton & Webb, 1986) concluded that socioeconomic class, race, attractiveness, and classroom conduct of students affect teachers' expectations for student performance. Ashton and Webb (1986) reported that teachers' expectations about students' ability appeared to be the single most influential student characteristic affecting their behavior. If teachers had low expectations of their students' ability to learn, they put forth less effort in teaching the students. Ashton and Webb (1986) also noted that low efficacy teachers explained low achievement in terms of the students' failings. These students "lacked ability" and "motivation," had "character deficiencies," or had "poor home environments." In contrast, they found that high sense-of-efficacy teachers expressed the importance of developing warm relationships with students and the view that they could take positive actions to avoid problems. High sense-

of-efficacy teachers were "more likely to demonstrate to students that they care about t them and were concerned about their progress and their problems" (p. 75).

Ferguson (1998) reported five conclusions based on conditions in schools and teacher expectations conducted over the last thirty years (cited in Jencks & Phillips, 1998).

- Teachers have lower expectations for blacks than for whites.
- Teachers' expectations have more impact on black students' performance than on white students' performance.
- Teachers expect less of blacks than of whites because black students' past performance and behavior have been worse.
- By basing their expectations on children's past performance and behavior, teachers perpetuate racial disparities in achievement.
- "Exhorting teachers to have more faith in black children's potential is unlikely to change their expectations. But professional development programs in which teachers actually see disadvantaged black children performing at a high level can make a difference" (p. 29-30 in Jencks & Phillips, 1998).

Less Opportunity to Learn

There are many in-school factors that are within our control. One factor is the overall education that some students receive. Minority students often experience fewer opportunities to learn (Barton, 2003). Since accountability remains a top priority, with increased expectations for student achievement comes the duty of providing students with adequate "opportunities to learn," the overlap between the information students were taught and the information on which they were tested (Banicky, 2000). However, in

recent policy discussions, OTL now also refers to the equitable conditions or circumstances within the school or classroom that promote learning for all students. OTL is a critical issue. Several studies have shown a positive relationship between OTL and student achievement (Banicky, 2000). Stevens (1993) noted, “Opportunity to learn the designated curriculum for a grade level or age group is a major equity issue for students who are at risk of not developing academically to their fullest potential" (p. 1). She emphasized the teacher's role in determining opportunity to learn by "implementing instructional models and programs that will promote access to learning for poor and minority students" (p. 3).

When students are tested with high-stakes assessments, evidence must be provided that the students have had adequate opportunity to learn the material on which they are being tested. Recent legislative proposals have called for the development of opportunity-to-learn standards that coincide with content standards and performance standards (Ysseldyke, Thurlow, & Shin, 1995).

Opportunity to learn standards are used as the basis for assessing the sufficiency or quality of the resources, practices, and conditions necessary at each level of the education system to provide all students with the opportunities to learn the material content standards (Ysseldyke, Thurlow, & Shin, 1995).

Inadequate Instruction and Support

One final in-school factor to note is the inadequate support and instruction minority and low socioeconomic students receive on a daily basis. It is generally characterized by lower quality teaching. Darling-Hammond (1999) reported that lower

teacher qualifications are more likely to be correlated with racial minority status. Minority and low-income students are subjected to lower expectations for performance and behavior, limited access to challenging and rigorous coursework, and insufficient instructional resources such as reasonable class sizes, up-to-date instructional materials, and clean and safe buildings.

Other researchers have reported that low achieving students are typically given more routine, highly structured class work focused on low-level intellectual activity causing low achieving students to continue to fall behind their high achieving counterparts. Oakes (1985) contrasted the student behavior required by high school teachers in high-track and low-track English and math classes.

Teachers of high-track classes were more likely

> "to emphasize such behaviors as critical thinking, independent work, active participation, self-direction, and creativity than were other teachers. At the same time, teachers of low-track classes were more likely than others to emphasize student conformity: students getting along with one another, working quietly, improving study habits, being punctual, and conforming to classroom rules and expectations" (p. 85).

Next, Darling-Hammond (1997) described the experiences of students whose teachers were poorly trained. These students were confined to their desks for long periods of the day, performed low-level tasks such as matching the picture in column "a" to the word in column "b", filling in the blanks, and copying from the board. They worked at a low cognitive level on tedious tasks that were disconnected from the skills they needed to learn. "Rarely are they given the opportunity to talk about what they know, to read real books, to construct and solve problems in mathematics or science" (p. 272).

Finally, Fletcher and Cardona-Morales (1990) reported research that suggested that instructional inadequacies may have accounted for poor academic achievement and low motivation among many Hispanic students. They noted that several studies showed classroom instruction in schools serving predominantly Hispanic students tended to be whole-class instruction with students participating passively (i.e., watching or listening) in teacher-assigned and teacher-generated activities. Teachers spent more time explaining things to students rather than questioning, cueing, or prompting students to respond and did not encourage extended student responses. In these classrooms, teachers typically used direct instruction to teach to the whole class, and they controlled all of the classroom discussion and decision-making (cited in Padron, Waxman, & Rivera, p. 70-71).

Out-of-School Factors

Next, research has found that factors outside the classroom—such as family, economic, and personal characteristics—have a strong influence on achievement.

Family

There are many family factors that contribute to the achievement gap. The inequalities facing children before they enter school such as parenting practices and the role of genetics, as well as parents' reactions to the perceptions and realities of public schools will be examined.

Jencks and Phillips (1998) described different explanations and the research behind family characteristics. The explanations were parental schooling, income effects, single-parent families, parenting strategies, and grandparents. Jencks and Phillips

believed that parenting practices seemed to have a significant impact on childrens' test scores. In addition, they believed,

> "Parenting practices almost certainly have more impact on children's cognitive development than preschool practices. Indeed, changing the way parents deal with their children may be the single most important thing we can do to improve children's cognitive skills" (p. 46).

Jencks and Phillips (1998) communicated several findings related to family background and parenting practices. First, the effect of the mothers' education on the test-score gap does not appear to be very large, and differences in black and white father's level of education appeared to have even less impact on their childrens' test scores. The researchers shared that once the mother's family background, her test scores, and years of schooling were controlled, whether or not she was married had even less effect on childrens' test score than whether or not she was poor. Second, the fact that white parents tend to make more money than black parents does not explain the gap, reported Jencks and Phillips. According to research, once parental schooling, test scores, and family background are taken into account, the effects of income differences between black and white parents became quite small. So small, in fact, that Jencks and Phillips (1998) believed that changing parenting practices might do more to reduce the gap than changes in parental income or educational attainment.

What role does genetics play in achievement? The issue of genetic differences is evident in The Bell Curve, written by Murray and Herrnstein in 1994. Following the footsteps of Jensen, Murray and Herrnstein advocated a strong link between IQ and income, and consequently, class and upward mobility. Jencks and Phillips (1998) also shared their views about the role genetics played in their book, The Black-White Test

Score Gap. Since many different family characteristics correlated with childrens' test scores, and nearly any family characteristic could be a proxy for childrens' genes, people were interested in how and if a mother's genes affected her test scores and educational attainment. Jencks and Phillips (1989) found that mothers who finished college versus mothers who only finished high school had children with different vocabulary scores. They believed this difference could be genetic and/or environmental. They believed that genetic variation does explain a substantial fraction of the variation in cognitive skills among people of the same race, yet so do environmental variations. However, they shared that there is not any genetic evidence indicating that black individuals have less innate intellectual ability than do whites. Jencks and Phillips (1998) believed that emphasizing heredity as an explanation for the test-score gap is likely to have negative consequences for African Americans, since they lagged behind whites and often needed to work even harder to catch up.

Research supports the idea that differences in measured intelligence between individuals are partially, not completely, due to genetic factors. Some individuals believe that racial and ethnic groups score differently on intelligence tests partly because of genetic differences between the groups, whereas others think that certain racial and ethnic groups perform more poorly on IQ tests because of cultural and social factors that put them at a disadvantage, such as poverty, less access to good education, and prejudicial attitudes that interfere with learning. Because of disagreements about the origins of group differences in average IQ, conclusions about these differences must be evaluated cautiously.

Inequality at the Starting Gate, a report by Lee and Burkam (2002), shared that the inequalities of children's cognitive ability are substantial from the first day of kindergarten. The report examined children who are at risk for school failure by exploring the tie between social background and academic skills. The authors examined a variety of factors and then painted a clear picture of how different children's lives and their family resources directly affect their test scores when they enter school.

Lee and Burkam (2002) used data from a U.S. Department of Education survey that provided a comprehensive and representative picture of five and six-year-olds nationwide who began kindergarten in 1998. Their study of more than 16,000 children at the beginning of kindergarten reported variations in literacy and mathematics by race, ethnicity, and socioeconomic status (SES) as they began kindergarten. The authors noted that these disparities in children's academic skills that affect achievement are substantial on their first day of formal schooling.

The analysis conducted by Lee and Burkam (2002) led to several conclusions relevant for education policy. They reported the following findings on students entering kindergarten. Prior to entering kindergarten, the average cognitive score of children in the highest SES group are sixty percent above the scores of the lowest SES group. Math and reading scores for new kindergartners from the lowest socioeconomic group are sixty percent and fifty-six percent lower, respectively, than those of students at the highest end. In addition, low-SES children begin school at kindergarten in systematically lower-quality elementary schools than their more advantaged counterparts. Children who attended center-based child care before kindergarten show higher achievement, yet only twenty percent of low-SES kindergartners are likely to have attended, compared to 65%

of upper-SES kindergartners. And, fourteen percent of low-SES kindergartners live in non-English speaking households, whereas only five percent of their upper-SES peers do. Research has clearly shown that disadvantaged children fall behind at a very early age, before they ever enter a classroom. Schools must be held accountable for raising achievement for all students, but increasing accountability will not eliminate the inequalities that stem from family background (Lee and Burkam, 2002).

In addition to the assortment of inequalities children face when they begin kindergarten, another factor that is noteworthy is parents' perceptions and realties of public schools. Schools are inadequate in terms of quality and funding. This is particularly true in low-income inner-city schools. Noguera and Akom (2000) stated that many schools are unable to provide consistent and reliable evidence that the students who attend their school are learning and receiving a quality education. Because of this, parents often perceived their designated "home" school as hopeless and unresponsive to their needs, prompting parents with the financial means to transfer their children to private schools. For the parents who did not have the funds, many sought alternatives to their "home" school by utilizing vouchers and various privatization schemes (Noguera and Akom, 2000).

Economic

There is an abundance of supporting research regarding income or family structure, and its correspondence to the achievement gap. There is little disagreement that family economic background and student achievement are associated. The U.S.

Census Bureau (2001) shared numerous findings on this difference. For instance, minority students are more likely to live in families that have a low socioeconomic status. In addition, SAT scores broken down by family income show when students have similar family incomes, black and Latino students still scored lower than whites, and whites score lower than Asians with similar incomes (U.S. Census Bureau, 2001).

Historically, the disparity in poverty rates between whites and people of other ethnicities has been large. For instance, the national poverty rate for blacks, Hispanics, and American Indians is triple that of whites. White parents who participated in the National Longitudinal Survey of Youth (CNLSY) reported earning 73 percent more money than their black counterparts. There were more people of color living in poverty than whites, despite the fact that whites represented 79 percent of the total U.S. population (U.S. Census Bureau, 2001). Jencks and Phillips (1998) shared that when black and white parents were found to make the same income, black parents were more likely to have been raised in disadvantaged families. These statistics support a difference between groups of individuals, and are not intended to report deficiencies among races or classes.

Jencks and Phillips (1998) reported that significant portions of the black-white test score gap disappeared once social class differences between the groups were adjusted for. When one compares black and white children who come from similar economic and family circumstances, their test scores were typically closer than when one compares all black and white children. Farkas (2004) explained:

> "Many studies show that differences in children's class and family backgrounds explain about half of the black-white test score gap, yet fewer studies find that these background differences explain most or even all the gap.

> The latter studies suggest that, so long as blacks continue to close the economic gap with whites, successive generations of black students will narrow and eventually eliminate the test-score gap with whites" (p. 18).

Numerous studies reinforced that family background and achievement are related. Fotheringham and Creal's (1980) study on how the home, socioeconomic, and process characteristics related to student achievement reported a highly significant association between ratings of family characteristics and academic achievement. They believed that since wide disparities exist among adults in the amount of income and occupational attainment, that society ought to be committed to improving the income and occupational status of individuals on the lower end of the population distribution.

Another study on the association between family background and achievement was conducted in the Chicago Public Schools in the late 1980s. Menacker (1990) found that family income showed a strong correlation between ACT scores and elementary school sixth grade reading scores. His analysis provided strong support that student income level, regardless of race, is the critical variable. He acknowledged that the families of students had more influences upon them than the school. Menacker suggested educating a minority of poverty-level students together with their peers from higher socioeconomic levels, regardless of race or ethnicity. He believed this would produce positive results.

Finally, Okpala, Smith, and Jones (2000) conducted a study in North Carolina during the 1995-1996 school year. They researched teacher and school characteristics as well as student and family demographics. They found a strong, positive correlation between socioeconomic status and students' scores on reading and math assessments.

Since the 1960s there are more affluent black parents; however, their childrens' test scores still remain lower than those of white children from equally affluent families. It is quite evident in the research that the achievement gap widens as students continue through middle school, high school, and college. In a study by Sutton and Soderstrom (1999), it was reported that low income, high school graduation rate, and the dropout rate all demonstrated a strong and significant correlation with achievement scores in reading and mathematics. Findings similar to these fill the literature and research.

If educators and policymakers are serious about closing the achievement gap and leaving no child behind, more must be done, and it must be done earlier. The family, economic and minority influences on achievement cannot be ignored.

Personal

There are many personality factors that influence achievement including stereotype threat and student's habits and aspirations. These are offered as the final explanations for the gap.

First, a psychological factor known as "acting white," or stereotype threat, can also play a role in academic achievement reported Shannon and Bylsma (2002). Black students may under perform because they are threatened by the stereotype that blacks are not as intelligent as whites.

A set of experimental studies conducted by Steele, a black psychologist, sought to explain the circumstances and situations that gave rise to the underperformance. He and colleagues gave equal numbers of black and white Stanford sophomores a 30-minute standardized test composed of some of the more challenging items from the advanced Graduate Record Examination in literature. The researchers told half the students that the

test did not assess ability, but that the research was aimed at "understanding the psychological factors involved in solving verbal problems." The others were told that the test was a valid measure of academic ability and capacity. Black students who were told that the test was a true measure of ability scored significantly lower than the white students. The other black students' scores were equal to the white students'. Whites performed the same in both situations.

Steele (in Shannon and Blysma, 2002) theorized that minority students scored low because they were anxious that they would do poorly and confirm negative stereotypes about their race. Steele suggested that such anxiety-ridden students may react defensively and downplay the importance of an academic task.

In a series of experiments, the study found that when black students were asked to record their race before they took a test, they tended to score lower, reported Jencks and Phillips (1998). Black students also made more mistakes when the test was described to students as a "verbal reasoning ability" assessment. And, yet, white students' test scores did not change under either circumstance. Steele's (1997) findings suggested that anxiety about these stereotypes and intellectual ability can depress capable black student's test performance. He believed that stereotype threat is mainly an issue for black students who have an emotional investment in seeing themselves as good students. Jencks and Phillips (1989) found that black academically successful students tended to benefit more from their success than white students.

Steele also attributed stereotype threat to why so many black students disidentify with school (p. 35 in Jencks and Phillips, 1998). Finn and Voelkl (1993) reported that "Poor academic achievement may be a threat to the self-esteem of African American and

white students alike, but African Americans who do not succeed in school also run the risk of confirming a stereotype of intellectual inferiority" (p. 250). The constant comparison with white students that occured in desegregated schools may have only increased the likelihood of disidentification from school among African Americans. Some experts found that disidentification could have explained why average scores are low for black students on some standardized tests. One critique of this research said that while the fear of "acting white" probably did not have much to do with creating the test-score gap, it may be important in understanding why black students do not reduce the gap.

In addition to stereotype threat, several studies have indicated that students' habits and aspirations are also important when explaining the achievement gap. For example, Nougera and Akom (2000) reported that middle class black and Latino students spent less time on homework and studied in less effective ways than middle class white and Asian students. Research also showed that black students were less likely to be involved in extracurricular activities, which are shown to positively influence achievement (Noguera and Akom, 2000).

Survey data collected from the 2002 ITBS showed that black, Hispanic, and American Indian students watched more television, studied fewer hours, and aspired to lower educational goals than white and Asian students. In fact, Vigue (2000) shared that in a study of more than 3,000 children, black and Hispanic children spent an average of three to four hours a day watching television, compared with an average of two hours and 22 minutes a day for white children.

In addition, non-white students are less likely to enroll in certain courses or participate in extracurricular activities such as school band, newspaper, debating team or honor society since those activities are typically deemed for white students. If a school has only a few minority students in advanced placement classes then qualified minority students may decline to take the advanced courses for fear of becoming isolated by his/her peers. Peers are powerful and may push students in a different direction than their parent's desire (Noguera and Akom, 2000). Jencks and Phillips (1998) reported that white students are much more likely to take academically challenging classes. Ferguson (1998) found that class placements depend on a number of factors including a student's socioeconomic background, although it is not known how that factors affect course placement.

Finally, Coleman (1966) reported that a child's attitude related strongly to school achievement, and that a strong sense of "self" in a child is crucial if he or she was to achieve academically within his or her potential. Students' attitudes and self-concept affected school achievement far more than family background or school characteristics. Finally, another personal factor that has not been examined is engagement. Sadowski (2001) stated that society has a desire to see all students succeed and to ensure that they have the educational opportunities to do so; therefore, we need to understand why the achievement gap is occurring and how to interpret the data as we move forward in reducing, if not eliminating, the achievement gap. While the gap remains, there is a need to understand how engagement relates to the achievement gap.

School Engagement: A Theoretical Framework

Definition

Since school engagement is a multifaceted construct, there are many definitions. The concept of school engagement has attracted growing interest as a way to improve poor academic achievement, elevated levels of student boredom and disaffection, and extreme dropout rates in urban areas. The phrase "engagement in school" is often cited as an essential component of dropout prevention programs or other interventions for students at risk. However, there have been very few attempts to define engagement behaviorally or to study it as part of the learning process. Chapman (2003) described engagement as students' willingness to participate in routine school activities, such as attending classes, submitting required work, and following teachers' directions in class. When students are engaged and motivated during school their success rate at school intensifies. The National Survey of Student Engagement (2002) defined student engagement as:

> "Engagement is also about motivation. For most students, motivation to learn is external-to please parents with good grades, be the most competitive candidate for a job after graduation, or even enjoy elevated status among peers. But external, or extrinsic motivation rarely deepens engagement. Intrinsic motivation is key to student involvement-and to the kind of independent learning, that last a lifetime" (p. 1).

Ainley, Frydenberg, and Russell (2005) defined engagement as energy in action. Engagement is the connection between the person and the activity, while Skinner and Belmont (1993) defined engagement as:

> "Engagement includes both behavioral and emotional components. Children who are engaged show sustained behavioral involvement in learning activities accompanied by positive emotional tone. They select tasks at the border of their competencies, initiate action when given the opportunity, and exert intense effort and concentration in the implementation of learning tasks; they show generally

> positive emotions during ongoing action, including enthusiasm, optimism, curiosity, and interest" (p. 572).

One other well-known explanation of engagement is Finn's (1989) model of student engagement. It has two central components, participation and identification. Participation, the behavioral component, includes basic behaviors such as the student's acquiescence to school and class rules, arriving at school and class on time, attending to the teacher, and responding to teacher-initiated directions and questions. The affective component, identification, refers to the student's feelings of belonging in the school setting and valuing the outcomes that school will provide. Finn (1989) has found that the relationship of specific engagement behaviors with academic performance is strong and consistent across populations defined by background characteristics and grade level. Positive engagement behaviors explain why some students perform well in school in spite of the adversities they face as members of high-risk populations; that is, they are "academically resilient."

Many definitions are listed, and there are many more; however, for the purposes of this study, the model presented by Fredricks, Blumenfeld, and Paris (2004), which includes the behavioral, emotional, and cognitive components of engagement, will provide the structural foundation for the examination of student engagement. Fredricks et al. (2004) believed that unlike IQ and socioeconomic status, engagement can be increased.

One thing is definite. Interest in engagement is growing because it is presumed to be malleable and results from an interaction of the individual with the context and is

responsive to variation in environments (Connell, 1990; Finn & Rock, 1997). Fredricks et al. (2004) stated,

> "Routes to student engagement may be social or academic and may stem from opportunities in the school or classroom for participation, interpersonal relationships, and intellectual endeavors. Currently, many interventions, such as improving the school climate or changing curriculum and standards, explicitly or implicitly focus on engagement as a route to increased learning or decreased dropping out (p. 61)."

How does altering the context influence the three types of engagement? This is what a multifaceted approach to engagement seeks to determine. Fredricks and her colleagues (2004) strongly believed that studying engagement as a multidimensional construct and

> "as an interaction between the individual and the environment promises to help us to better understand the complexity of children's experiences in school and to design more specifically targeted and nuanced interventions (p. 61)."

Components of Engagement

Fredricks et al. (2004) and other research literature defined engagement in three ways: behavioral engagement, emotional engagement, and cognitive engagement. As Fredricks et al. (2004) clearly explained in *School Engagement: Potential of the Concept, State of the Evidence*:

> "Behavioral engagement draws on the idea of participation; it includes involvement in academic and social or extracurricular activities and is considered crucial for achieving positive academic outcomes and preventing dropping out. Emotional engagement encompasses positive and negative reactions to teachers, classmates, academics, and school and is presumed to create ties to an institution and influence willingness to do the work. Finally, cognitive engagement draws on the idea of investment; it incorporates thoughtfulness and willingness to exert the effort necessary to comprehend complex ideas and master difficult skills" (p. 60).

Even though each specific type of engagement has its own meaning, they share overlapping concepts, which can be problematic when trying to differentiate constructs and improve conceptual clarity. Since behaviors, emotions, and cognitions are interrelated, it is difficult to separate them entirely. Forms of engagement are often interdependent. For example, students with positive attitudes to learning, thus being emotionally engaged, are more likely to adopt effective learning strategies, which is cognitive engagement (Ainley, Frydenberg, Russell, 2005).

Yazzie-Mintz (2005) believed that engagement is about relationship. Student engagement can be described as the student's relationship with the adults, peers, rules, facilities, and schedules that make up the people and school community as well as the curriculum and content, the pedagogy, and curricular, co-curricular, and extracurricular opportunities. Students may engage with the school community in a variety of ways; however, the depth, quality, and breadth of the student's relationship with various aspects of school will determine the degree to which a student is engaged (Yazzie-Mintz, 2005).

However, Fredricks et al. (2004) believed that despite attempts

> "to conceptualize and examine portions of the literature under the label 'engagement,' it definitely has promise as a multidimensional concept that unties behavioral, emotional, and cognitive engagements in a meaningful way" (p. 60).

Behavioral Engagement

Behavioral engagement is a complex construct that is divided into three categories of school participation: (1) positive conduct; (2) involvement in learning and academic tasks; (3) participation in school related activities (Fredricks et al., 2004). This translates to the following:

- Attending class regularly, arriving on time, obeying school rules, and avoiding disruptive behaviors (Finn, 1993; Finn, Pannozzo, & Voelkl, 1995; Finn & Rock, 1997; Fredricks et al., 2004).
- Students' behaviors such as effort, persistence, concentration, attention, seeking answers, conversing with the teacher, and contributing to class discussion promote involvement (Finn, 1993; Finn & Voelkl, 1993; Skinner & Belmont, 1993; Voelkl, 1997; Fredricks et al., 2004).
- Participation in extra-curricular activities such as clubs, sports, and student governances in a category of behavioral engagement (Finn, 1993; Finn & Voelkl, 1993; Fredricks et al., 2004).

"Behavioral engagement captures students' actions in social, extracurricular, and non-academic school activities, including interactions with other students…." (Yazzie-Mintz, p. 8, 2006). Behavioral engagement can be thought of as engagement in the existence of the school. It ranges from doing the work and following the rules to participating in extracurricular activities (Fredricks et al., 2004). Behavioral engagement is the extent to which students are actively responding to the learning tasks presented. Students who are behaviorally engaged are asking relevant questions, solving task-related problems, and participating in relevant discussions with their peers and teachers (Chapman, 2003).

Behavioral engagement plays a key role in attendance. Identified as a prerequisite of school completion, student engagement in school and learning has been conceptualized as students' personal investment in learning (Maehr & Midgely, 1996). Lehr, Sinclair, Christensen, authors of "Addressing Student Engagement and Truancy Prevention

During the Elementary School Years: A Replication Study of the Check & Connect Model" (2004) reported:

> "Attendance is one of the most overt indicators of a student's engagement in school. However, an intervention that focuses exclusively on improving attendance perpetuates an incomplete and simplistic view of issues related to truancy and dropout. We must recognize the importance of promoting school completion and facilitating student engagement with school and learning…" (p. 282).

Finn (1989, 1993) suggested that for students to remain in school and graduate, students must actively participate in school and have a simultaneous feeling of identification with school. Students who have experienced repeated school failure and do not participate actively in the classroom are not likely to identify with school and will potentially withdraw from school (Voelkl, 1997).

Healthy attendance patterns have a reciprocal effect on student achievement and behavioral engagement. Roby (2004) examined the relationship between achievement in Ohio schools, as measured by the Ohio Proficiency Tests and attendance. Results suggest a) there was a relationship between student achievement and student attendance; b) there was a significant difference between the achievement levels when comparing student achievement at grades four, six, and nine; c) not only were proficiency test averages higher, but also annual attendance averages of students in school buildings that have higher test scores (Roby, 2004).

Moreover, absenteeism has been linked to disruptive behavior in the classroom and to juvenile delinquency (Finn, 1993). Finn and Rock (1997) found that behaviorally engaged students attended class, arrived to school on time and avoided disruptive behavior in class (Finn & Rock, 1997). Furthermore, Finn (1993) contended that students

who had weak bonds to school engage in deviant behavior. Such deviant behavior patterns are rooted in the early school years or before. Attempts should be made in providing positive reinforcement for acceptable behaviors (Finn, 1993).

Finn and Voelkl (1993) found that there is a relationship between behavioral engagement and participating in class activities, both are antecedents of successful academic achievement outcomes. In a separate study, Finn (1993) shared that students with high levels in participation also have higher averages in academic scores. Students who are engaged with school pay attention in class, participate in class work, complete assignments in school and homework, ask questions, dialogue with their teachers, contribute to class discussion, take school seriously, and want to do well academically (Finn, 1993; Finn & Voelkl, 1993; Skinner & Belmont, 1993; Voelkl, 1997; Marks, 2000; Libbey, 2004; Fredricks et al., 2004). Moreover, students who are engaged in school increase their level of achievement by spending numerous hours doing homework, as well as caring about their grades and test scores (Manlove, 1998). Thus, achievement and participation are reciprocal features (Finn, 1993). Voelkl (1997) found that students demonstrating high academic achievement and active involvement in the learning process were more likely to identify with school. Finn and Rock (1997) identified dependability, personal discipline, and positive work habits as personal qualities as contributors for behavioral engagement.

Voelkl (1995) studied the association of perceived school warmth with adolescents' participation in class. In a nationwide sample of 13,121 eighth graders, the findings indicated that student perceptions of school warmth were related to academic achievement, there was a relationship between students' perceptions of school warmth

and participation, and when the effect of participation was eliminated from the warmth-achievement relationship, school warmth did not affect achievement. All in all, student perceptions of school warmth and academic achievement may be influenced by participation (Voelkl, 1995).

Quality classroom experiences attribute to greater behavior engagement (Marks, 2000). Shernoff, Csikszentmihalyi, Schneider, & Shernoff (2003) used a longitudinal sample of 526 high school students across the United States to determine how high school students spend their time in school and the extent they were engaged in school. Results indicated that students spent one-third of their class time in a passive state of learning such as listening to a lecture or watching television or a video, half of classroom time was spent on independent work that was somewhat active, structured, or intellectually challenging, and only fourteen percent of class time was spent in interactive oriented activities such as class discussions and group activities (Shernoff et al., 2003).

Behavioral engagement transcends the school day and the classroom setting. Students who participate in extracurricular activities outside of the school day are known to have higher academic achievement levels than their counterparts (Finn, 1993; Finn et al., 1995; McNeely et al., 2002; Libbey, 2004; Fredricks et al., 2004). Participation in extracurricular activities promotes school engagement. Students that participated in extracurricular activities tended to be deeply invested in their school and experienced a greater sense of belonging to the school community (Finn, 1993). Participating in extracurricular activities provides students with additional opportunities for leadership, personal growth, and for developing a sense of commitment to the community at-large.

In addition, Brophy (1987) suggested that students were more engaged when they exercised autonomy and creativity in deciding how to organize their time and effort in order to fulfill task requisites. Conversely, students felt unduly pressured if they perceived that every move they make was being prescribed and monitored by the teacher

Emotional Engagement

Emotional engagement refers to students' affective reactions in the classroom such as interest, boredom, anxiety, sadness, and a student's identification with school (Fredricks et al., 2004; Ainley, Frydenberg, & Russell, 2005) as well as students investment in, and their emotional reactions to, the learning tasks.

Students are emotionally engaged when they exert positive or negative emotional responses to a learning activity (Skinner & Belmont, 1993). Yazzie-Mintz (2006) believed that:

> "Emotional engagement emphasizes students' feelings of connection to (or disconnection from) their school — how students feel about where they are in school, the ways and workings of the school, and the people within their school" and can be described as 'engagement of the heart'" (p. 8).

Some conceptualize emotional engagement as identification with school (Finn, 1989; Voelkl, 1997). Finn defined identification as having a sense of belonging, a feeling of being important to the school, and feeling valued. Essentially, it is deeply valuing or identifying with an institution (Fredricks et al, 2004). Identification occured when students felt that they are an integral part of the school environment and that school was an important aspect of their own experience. Identification with school was likely to occur over time if students participated in classroom and school activities and if student performance was acknowledged and rewarded. "An internalized sense of identification

can, in turn, serve to perpetuate the student's active participation in class and school" (Finn & Voelkl, 1993, p. 250).

Evidence supported the conclusion that students who did not actively participate in school from a young age and who did not develop a sense of identification with school were at risk for a number of long-term, adverse consequences including disruptive behavior in class, absenteeism, truancy, juvenile delinquency, and dropping out of school (Finn, 1989). "Unfortunately, all of these behaviors are found more commonly among minority students or those from low-income homes" (Finn & Voelkl, 1993, p. 250).

Emotional engagement includes how students feel about where they are in school, the ways and workings of their school, and their feelings toward the individuals in their school (Yazzie-Mintz, 2006). Educators can influence how students feel about where they are in school by allowing students to be educated with their peers in the regular classroom setting and by establishing cooperative learning and partner work in the classroom so students can learn with and from each other.

The ways and workings of the school can include a focus on all students being successful in their learning. If necessary, accelerated learning and extended instructional support are provided so that all students experience success rather than failure. Remediation is kept to a minimum. The ways and workings of the school also includes families supporting their children's learning, particularly of at-risk students, developing structures for involvement that encourage parents and families to participate in the school, and involving students in planning, organizing, and evaluating their own learning (Yazzie-Mintz, 2006).

In addition, emotional engagement includes students' feelings toward the people

within their school. To foster this, administrators, school board members, teachers, parents, and the extended school community should support the changes needed to provide stimulating and challenging learning for all students. It is important for teachers to appreciate the strengths, experiences, and cultures of their students so that classrooms can be as comfortable as possible for all students. In addition, school staff should develop strategies for engaging students in active learning instead of expecting them to sit and listen for long periods of time (Yazzie-Mintz, 2006). As students become engaged, self-regulated learners, the teacher's role changes from maintaining control to modeling effective learning strategies and providing instructional support (McCombs, 1996).

Cognitive Engagement

Cognitive engagement describes students' investment in learning, self-regulation, and strategies for learning (Fredricks et al., 2004; Yazzie-Mintz, 2006) as well as the extent to which students are attending to and expending mental effort in the learning tasks encountered (Chapman, 2003). This type of engagement focuses primarily on engagement during instructional time and with instructional-related activities. Cognitive engagement can be described as "engagement of the mind" (Yazzie-Mintz, 2006, p. 7). Specifically, cognitive engagement includes how engaged students are with homework and classroom discussions and assignments, was well as the level of academic challenge. Cognitive engagement can range from simple memorization to the use of self-regulated learning strategies that promote deep understanding and expertise. (Yazzie-Mintz, 2006).

Connell and Wellborn's (1991) definition of cognitive engagement included thinking outside of the box, qualities of hard workers, and positive coping strategies when dealing with failure while other researchers have defined cognitive engagement as an inner psychological quality and investment in learning, implying more than just behavioral engagement.

Cognitive engagement can be considered self-regulating or strategic (Fredricks et al., 2004). Strategic learners implement various strategies when learning becomes challenging. They may practice rehearsal, summarizing, and elaboration, organization, (Weinstein & Mayer, 1986) as well as problem-solving, use of effort, higher level thinking skills, information-seeking, and experimentation when learning becomes challenging. Zimmerman (1990) suggested that self-regulated learners possess metacognitive processes. They plan, set goals, organize, self-monitor, and self-evaluate at various points during the process of learning acquisition. Strategic learners are able to manage and control their effort by their perseverance and ability to stifle distractions in order to maintain their cognitive engagement (Corno, 1993; Pintrich & De Groot, 1990). Self-regulated students assume responsibility and control for their own knowledge and skill attainment. In addition, self-regulated learners approach learning opportunities with confidence, diligence, and resourcefulness. They are keenly aware of their knowledge and skill level. In addition, they seek out learning opportunities as opposed to strategic learners who are reactive to their learning outcomes (Zimmerman, 1990). Zimmerman shares several ways schools can assist students in increasing their cognitive engagement. Schools can:

- Adopt changes in curriculum, changes in instruction, and changes in

assessment to promote learning for at-risk students.

- Provide meaningful learning experiences for all students by creating bridges between students and the curriculum so that students will understand the purposes and value of learning.
- Create a curriculum that focuses on meaningful, engaged learning activities and makes connections between what the students are learning and the world beyond the classroom.
- Establish a priority on teaching advanced thinking skills to all students.
- Develop specific strategies that engage at-risk students.
- Acknowledge that students have multiple intelligences and ways of thinking.
- Recognize that many at-risk students benefit when instruction provides a diverse set of experiences to help students learn by using a range of strengths.
- Develop a curriculum that provides for multiple ways of learning and knowing.

It is not uncommon for cognitive engagement to be compared to motivation to learn (Brophy, 1987), learning goals, and intrinsic motivation. Motivation is often inferred from students' engagement in learning activities (Ainley, Frydenberg, & Russell, 2005). According to Fredrick's model, "children who are engaged in ongoing learning activities should not only feel pride and satisfaction in their accomplishments but should also increase their actual competencies (Fredricks et al., 2004, p. 64)

A student who values learning and strives for mastery in learning situation is motivated to learn. Students who embrace learning are focused on comprehension, and achieving the impossible. They value learning as a meaningful and fulfilling activity (Brophy, 1987). Highly motivated students are enthusiastic, interested, involved, hard working and persistent, and actively cope with challenges and setbacks (Skinner & Belmont, 1993).

Brophy (1987) suggested that motivation to learn can be viewed as a general trait that describes the intrinsically motivated student. Intrinsically motivated students seek challenges and are persistent. Academic intrinsic motivation is best understood as the product of an optimal match between the student, the task, and the learning environment (Hudley, Daoud, Hershberg, Wright-Castro, & Polanco, 2002). Subsequently, students' motivation increases when they perceive value of the task can benefit their future endeavors. Students who experience intrinsic motivation are more likely to strive for academic achievement and maintain a positive attitude toward those efforts (Hudley et al., 2002). Harter (1996) concluded that students who experience low intrinsic motivation report that the school environment is more intolerable than do those students who experience high intrinsic motivation.

Factors Influencing Engagement

School-Level Factors

For students to be successful in school, they must engage actively with school. Such engagement will lead to higher quality educational achievements, and these in turn will prepare the way for a dynamic process of engagement, learning, and achievement throughout life. At the school level, engagement is influenced by factors such as

socioeconomic status, parental educational, occupational status, ethnicity, student's age, and gender. The school has no direct control over these factors, but can adapt its approaches to the needs of it's particular students. Other school-level factors that influence and increase engagement that the school can control include: voluntary choice, clear and consistent goals, small size, student participation in school policy and management, opportunities for staff and students to be involved in cooperative endeavors, and academic work that allows for the development of products (Fredricks et al., 2004, p. 72).

Leadership, teachers' professional development and growth, the school culture, parent involvement, and organizing schools for learning (Ainley, Frydenberg, & Russell, 2005) are school-level factors that can be controlled. Each of these areas affect student learning and engagement. They will now be explored next.

Leadership.

School leadership is a critical factor influencing engagement. A meta-analytic review of forty studies from a range of countries demonstrated that principals have indirect influence on student engagement and achievement and this operates through their capacity to enable teachers to work effectively with students. (Ainley, Frydenberg, & Russell, 2005).

*Professional Development and Growth***.**

Another factor that schools can control is the professional development and growth of its teachers. When teachers participate in professional growth opportunities, they are able to improve their skills in regard to pedagogy, classroom environment and relationships with students.

School Culture.

The culture of the school has a significant impact on student engagement. This is evident not only in the research, but also from listening to students; observers of their teachers, the classroom, of their own reactions, and of their learning (Ainley, Frydenberg, & Russell, 2005). With a positive culture, teacher engagement, learning and pedagogy, and student engagement increases. School culture has a constant influence on students. Students who attend schools that display and exhibit a clear purpose, equity for all, and individual support and attention, as well as allow all students to experience success on a regular basis where a focus is on caring, are most likely to develop the emotional, cognitive and behavioral components that constitute a sense of belonging and identification with the school and its values (Ainley, Frydenberg, & Russell, 2005).

Parent Involvement.

Not only does parental involvement increase student engagement and achievement, it is often advocated as an important feature of school culture. When parents engaged in dialogue with their children about education as well as involved themselves in the schools, they contributed significantly to school engagement. A positive parent-student relationship significantly increases emotional engagement (Ainley, Frydenberg, & Russell, 2005).

Organizing Schools for Learning.

Finally, organizing schools for learning is another controllable factor that affects engagement. The concepts of professional learning community and learning organization, as described by Ainley, Frydenberg, & Russell (2005):

> "…have been invoked to describe schools in which teachers and leaders can be seen as lifelong learners in action, working together on the basis of shared beliefs about learning and in a climate of trust to improve their professional practices; communicating openly and sharing difficulties, uncertainties and strategies; having influence on and ownership of their work and related decision-making; interest in trying out new approaches and taking collective responsibility for student learning" (p. 13).

Classroom-Level Factors

There are many classroom-level factors that have been shown to influence behavioral, emotional, and cognitive engagement. These factors include: teacher support, peers, classroom structure, autonomy support, and task characteristics (Fredricks et al., 2004).

Teacher Support.

Teacher support can be identified in many ways and has been shown to influence behavioral, emotional, and cognitive engagement. However, this section will focus on the impact teachers have on student's motivation to learn and the behaviors teachers exhibit that promote student engagement.

Students who experience emotional support from their teachers respond by sustaining high levels of motivation with each learning activity (Ryan & Patrick, 2001; Furrer & Skinner, 2003). Darling-Hammond et al., (2002) indicated that strong relationships between students and teachers are paramount to student success. Students who feel a sense of belonging feel strong affective ties to their teacher (Battistich et al.,

1997; Samdal et al., 1998; Libbey, 2004; Catalano et al., 2005).

Certain teachers' behaviors can enhance student engagement. Likewise, teachers who employ specific strategies elicit positive outcomes from their students. There is a reciprocal relationship between teachers' behaviors and student's engagement in the classroom. Students' behavioral and emotional engagement could be predicted by teachers' interactions with their students. Teachers who are enthusiastic, caring, sincere, and provide clear expectations and guidance for their students increased student engagement (Skinner & Belmont, 1993). Teacher responsiveness has been found to have a significant effect on Australian primary and secondary students' emotional, behavioral and cognitive engagement, and, through these, on achievement reported Frydenberg, Ainley, & Russell (2005).

Peers.

Although researchers have focused more on teacher support as a factor in the socialization of engagement than peer groups, (Ryan, 2000) there is a link between peers and engagement. First, researchers have discovered that students cluster with their peers who have similar levels of engagement (Kindermann, 1993; Kindermann, McCollam, & Gibson, 1996). For example, Kindermann (1993) discovered that elementary school children who were affiliated with high engagement peer groups increased their level of behavioral engagement throughout the school year.

Peer acceptance and engagement are likely to be reciprocal. Peer support is associated with aspects of emotional and behavioral engagement such as satisfaction in school and socially appropriate behavior and academic effort. Fyrdenberg, Ainley, and

Russell (2004) reported several findings on their research on peer group engagement, peer acceptance and rejection, and the effectiveness of peer interaction in learning. They found that belonging to a high engagement peer group tends to increase behavioral engagement at the individual level. In the same way, a peer group that rejects learning has a negative impact on individual member's engagement. In addition, they reported that peer acceptance is associated with emotional and behavioral engagement in school, and cognitive engagement is increased by peer interaction during learning (2004).

Classroom Structure.

Not only has research explored the impact of teacher support and peers, but it has also examined how behavioral and emotional engagement is influenced by the structure of the classroom. Several researchers have explored the link between students' perceptions of the learning environment, including the clarity of teacher expectations for academic and social behavior and the consequences of failing to meet those expectations (Connell, 1990), and their behavioral engagement. They found that teachers who have clear expectations and demonstrate consistency have students who are more behaviorally engaged (Connell & Wellborn, 1991; Skinner & Belmont, 1993), show greater attentiveness, spend more time on task, and exhibit less disruptive behavior.

In addition, students are more likely to be behaviorally engaged when they know their teachers expect them to succeed, and they are familiar with the consequences of not meeting those expectations. A supportive, nurturing, and safe classroom where the environment is one of optimism and encouragement contributes to student's social-emotional well-being and engagement in learning (Frydenberg, Ainley, & Russell, 2004). It is no surprise that teachers who exhibit solid classroom management skills lead

classrooms where more students are on task and exhibit fewer disciplinary problems; both indicators of behavioral engagement (Fredricks et al., 2004).

Autonomy Support.

Although further research on the impact of autonomy supportive classrooms needs to be conducted, there is evidence that classrooms that promote making choices, sharing decision making about curriculum and assessment, and avoiding grades or rewards and punishments for doing schoolwork or behaving well, are positively related to attitudes in school (Connell, 1990; Deci & Ryan, 1985). In fact, Frydenberg, Ainley, and Russell (2004) concluded that providing boys with choices and some input into learning tasks resulted in greater engagement. In addition, they also reported that students find school engaging when students' voices are heard during decision-making about the planning, implementing, reporting, and assessing of work in a classroom that allows some autonomy and control (2004).

Task Characteristics.

A large body of research and practice supports the idea that students will engage in tasks they find interesting, challenging and important (Frydenberg, Ainley, & Russell, 2004). Unfortunately, the most common instructional tasks found in many classrooms are those that require students to recognize, recall, and memorize rather than engage in deeper strategies to understand what is being taught, thus not requiring components of cognitive engagement such as intensive effort, self-regulation, and gaining a deep understanding. Authentic and challenging tasks are associated with higher behavioral, emotional, and cognitive engagement (Marks, 2000).

In summary, I have reviewed school-level factors as well as classroom-level factors including peers, classroom structure, tasks, autonomy support, and task characteristics that are associated with engagement. Although school-level factors are coupled with behavioral engagement, there is less evidence about the relationship between school-level factors and emotional and cognitive engagement. Fredricks et al. (2004) reported that, in general, there is more research on social contextual factors than on academic factors and engagement. Thus far, researchers have examined engagement as an outcome rather than determining whether the connection between context and engagement leads to achievement-related outcomes such as standardized tests and letter grades.

Outcomes of Engagement

There is evidence from a variety of studies to suggest that engagement positively influences achievement. Research shows that behavioral engagement (e.g., participation, work behavior, and conduct) is correlated with higher achievement across various samples and ages (Marks, 2000; Skinner, Wellborn, & Connell, 1990; Connell & Wellborn, 1991). In addition, there is some evidence of a correlation between emotional engagement, specifically interest and value, and achievement, as well as achievement benefits, which are evident when students work above and beyond the expectations or initiating discussions with their teachers (Fincham, Hokoda, & Sanders, 1989), of cognitive engagement, particularly when students utilize metacognitive strategies. The correlation between engagement and achievement varies depending on how achievement is assessed.

Behavioral engagement is likely to be related with teacher grades and scores on basic skills assessments, whereas associations to cognitive engagement are more likely to appear when examinations measure synthesis, analysis, and deep-level understanding of content. Problems with behavioral engagement have been associated with lower achievement. In general, there is a consistent association between teacher and student reports of behavioral engagement and achievement (Fredricks et al., 2004).

Although emotional engagement and achievement is not as heavily researched, some studies show varying correlations between achievement and a combination of emotional and behavioral engagement (Connell et al., 1994; Skinner et al., 1990). For example, Voelkl (1997) documented that a sense of value and school belonging, components of emotional engagement, were significantly correlated with achievement test scores in fourth and seventh grades for white students but not for African American students.

Finally, achievement benefits of cognitive engagement, particularly strategy use, is also evident. Zimmerman (1990) reported that children who monitor their effort and attention, build schema, screen their comprehension, or utilize other metagcognitive strategies, such as regulating their attention and effort, relating new information to existing knowledge, and actively monitoring their comprehension, perform better on various gauges of academic achievement.

Since the achievement gap continues to widen for many school districts and states, researchers are suggesting that investigating the possible connection between the engagement gap and the achievement gap deserves needed attention. There have been few studies in the field of education that examine the effects of

student engagement and achievement in K-12 students. Results for this study can be used to help schools that are restructuring to use the data to make modifications that can improve the learning environment and the effectiveness of the school.

Research Problem: The Engagement Gap

So, is there really an engagement gap? Data gathered from the 2006 High School Survey of Student Engagement suggested that there may be an engagement gap, in addition to the persistent achievement gap, that exist within high schools. There were noticeable gaps in levels of cognitive, behavioral, and emotional engagement among the high school students who participated in the 2006 survey Yazzie-Mintz (2006) suggested that further research needs to be conducted on the nature of the engagement gap, and the possible connection to the achievement gap. He believed that addressing the engagement gap was a critical beginning step toward engaging all students.

CHAPTER 3: METHODOLOGY

Research Procedures

This chapter consists of a description of the purpose of the study, research questions, setting and participants, instrumentation, reliability, validity, procedures, and data analysis techniques.

Purpose of the Study

The purpose of this study was to determine the differences in school engagement and achievement levels between students from low and high-SES backgrounds, as measured by free and reduced lunch, and between Caucasian and Hispanic students. Determining the nature and extent of differences in engagement levels among sub-groups of students will support schools in identifying needs in order to create a variety of strategies and techniques that will best serve these populations of students to close what is called the engagement gap.

Research Questions

The following questions provide the framework for this study:

1. What differences existed between Caucasian and Hispanic students in the following areas of achievement: 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year?

2. What differences existed between students from low and high-SES, as measured by qualification for free and reduced lunch, in the following areas of

achievement: 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year?

3. What differences existed between Caucasian and Hispanic students in the three primary dimensions of student engagement: cognitive, behavioral, and emotional engagement?

4. What differences existed between students from low and high-SES, as measured by qualification for free and reduced lunch, in the three primary dimensions of student engagement: cognitive, behavioral, and emotional engagement?

Setting and Participants

The county where the school district that was surveyed is among the top ten populous counties of the 64 counties in Colorado. It consists of seven cities and one town. The United States Census Bureau estimated that the county's population was approximately a half million in 2006. The county where the study was conducted has a total area of nearly 2,000 square miles and is located near Denver, Colorado.

As of the 2000 census, there were about 400,000 people, over 100,000 households, and approximately 90,000 families residing in the county. The racial makeup of the county was nearly eighty percent white with the remaining twenty percent from other races including: black or African-American, Hispanic, Native American, Asian, and Pacific Islander. Of the 128,156 households in the county, nearly forty percent had children under the age of 18 living with them. The county's population was spread with nearly forty percent under the age of 24, a third from 25 to 44 years, and the rest of the residents older than 45. In addition, the median income for a family in the county was $52,517. Approximately six and one-half percent of families including nearly eleven

percent of those under the age of 18 were below the poverty line as of the 2000 Census. The school district where the *Student Engagement Survey* (SES) was administered serves five unique communities. The district is located adjacent to the conveniences of a major city, yet far enough away to offer the quiet of the suburbs. The district prides itself on offering the benefits of a large district with a close-knit feel. The district's focus, like many others, is improving student achievement in a safe learning environment. It has demonstrated significant growth on the CSAP tests numerous years in a row. Compared to all other school districts in the metro Denver area, this school district made the most gains on the CSAP in both 2005 and 2006. The district's goal is to have ninety-five percent of all students at or above grade level in reading, writing, and math.

As of 2007, the district's student enrollment was nearly 40,000 students in its many elementary, middle, high, charter, and alternative schools as well as a technical education and adult education center. There are over seventy languages spoken in the district, more than 3,000 identified gifted and talented students, nearly 6,000 students with limited English proficiency, and approximately 3,500 students served through special education. Overall, more than one third of the students in the school district receive free and reduced lunch. About sixty percent of the student body is white; nearly thirty percent Hispanic.

The participants in this study were a convenience sample of nearly 1,000 sixth grade students enrolled in a middle school in the district. Although all middle schools in the school district were invited to participate, three schools declined. The school district was selected to participate in the study because they agreed to cooperate. It was strictly a convenience choice. Participation in the study was anonymous and parental permission

slips were distributed during student orientation at the beginning of the 2007-2008 school year. Attritition was not an issue because the *Student Engagement Survey* was administered only once.

Instrumentation: School Engagement Survey

The 15 item *School Engagement Survey* (SES) was developed by the National Center for School Engagement to provide insight into students' attitudes toward school and the school experience, as well as learn about how to keep children interested in completing school. The School Engagement Survey contains items that were embedded in a series of questions related to behavioral, emotional, and cognitive engagement (NCSE, 2006). Some of the questions were about student-teacher and student-peer relationships, completion and quality of school work, following rules, and interest in school, to name a few. This scale was used in the current study because it asked students about their current level of school engagement and allowed for quantitative examination and comparison of students' levels of school engagement over time.

Each of the sixth grade students participating in the study completed the *School Engagement Survey* (SES), which assesses student engagement in three areas: *cognitive*, *emotional* and *behavioral*. The assessment consisted of a total of 15 items addressing the three areas of engagement. All 15 items were based on a *1-5* Likert scale. There were two *1-5* scales for the survey. The first *1-5* scale is ranked as follows: (1) *strongly agree*; (2) *agree*; (3) *neutral; (4) disagree*; and (5) *strongly disagree*. An example item for this scale, taken directly from the survey is, "I treat my classmates with respect." The other *1-5* scale is: (1) *always/almost always* (2) *often*; (3) *sometimes*; (4) *rarely* and (5) *never/almost never*. An example for this scale, taken directly from the survey is, "I feel

excited by the work in school." It should be noted that engagement is measured from high to low, which causes a negative statistical relationship to be reported; however, this relationship is actually positive.

As an assessment, the SES had a fairly strong reliability when used to assess sixth grade students on the three scales of engagement: Behavioral, Emotional, and Cognitive. Cronbach's Alpha reliability for this assessment ranged from .732-.802, and indicated reliability for the survey

Procedures

The study took place in October and November of 2007. Data for this study was collected using a survey instructed called the *School Engagement Survey* (SES), used to assess school engagement (see Appendix 1). This study was given approval by the Institutional Review Board (IRB) of the Colorado Foundation for Families and Children of Denver, Colorado. Next, the study was approved by the research office in the school district where the study was to be conducted. All procedures regarding consent practices for collecting student data through surveys were followed.

The first step was acquiring parental consent. Consent forms were distributed to all sixth grade students in the seven participating middle schools. Students were told to return the parental consent form the following day. Staff from the Colorado Foundation for Families and Children collected the returned consent forms and separated students according to school.

Sixth grade students in seven middle schools participated in the study. In three out of the seven participating middle schools, the *School Engagement Survey* was administered in an assembly format by the school staff. Researchers from the Colorado

Foundation for Families and Children were monitoring and available for assistance. Before the students who returned the parental consent form began taking the survey, they were also asked to give their own consent. In the remaining four participating middle schools, the *School Engagement Survey* was administered in a classroom setting by the researchers from the Colorado Foundation for Families and Children. Data collection was anonymous and information collected was confidential.

The survey was administered during the first twenty minutes of class time. First, instructions were orally given to the students on how to complete the paper-and-pencil survey. Students then took approximately 15 minutes to complete the 15 item *Student Engagement Survey*. Students were not given incentives, but each of the participating schools received $1,500.00 to spend as they choose for participating in the study.

In addition to the engagement survey itself, other data was collected on each student including students' SES (either low or high-SES as measured by qualification for free and reduced lunch), first trimester grade point average, ethnicity, and 2007 CSAP scores in reading, writing, math, and science. Individual student data was collected via student identification numbers from student records. Once all the data had been collected, it was coded into Microsoft Excel and then transferred into SPSS, a statistical analysis software.

Data Analysis Techniques

The first step in this study's statistical analysis was a descriptive analysis. During this step, frequency distributions, measures of central tendency, and measures of variability for each variable were calculated. Variables included in this analysis were: students' SES (either low or high-SES based on qualification for free and reduced

lunch), first trimester grade point average, ethnicity, and 2007 CSAP scores in reading, writing, math, and science.

The average scores for cognitive, behavioral, and emotional engagement were computed as well as average scores for all achievement measures for Caucasian and Hispanic students as well as students from low and high-SES backgrounds. A series of independent t-tests were conducted using the Statistical Package for the Social Sciences, otherwise known as SPSS, to determine if differences existed in engagement levels and achievement among the sub-groups of sixth grade students who participated in the study. Independent t-tests were ran because the data was assumed to be normally distributed, the samples were independent of each other, and the data exhibited equality of variances.

Chapter 4 presents the descriptive statistics for each of the variables. The categorical variables included Hispanic, Caucasian, high SES, and low SES as measured by qualification for free and reduced lunch while the quantitative variables were comprised of emotional, cognitive, and behavioral engagement, as well as 2007 CSAP scores for science, math, writing, and reading and first trimester grade point average. In addition, a correlational matrix was run on the school engagement subscales and the areas of achievement. Next, the results of Cronbach's Alphas reliability tests are shared, and, finally, the results of the four research questions that were the basis of the study on engagement and achievement are presented.

CHAPTER 4: SURVEY RESULTS

This chapter is organized by the research questions used to frame this study. A summary of the data collected through the electronic survey instrument is presented in this chapter, both in narrative form and through the use of tables and figures when possible. A description of the respondents is presented first, followed by the results of the survey.

The survey data was compiled and analyzed using SPSS statistical data analysis software. The School Engagement Survey (SES) consists of five parts. Section one asked for students to identify their ethnicity. Section two asked for students to list their primary and secondary language. Sections three, four, and five were questions about behavioral, emotional, and cognitive engagement.

The first step in analyzing the data was examining the descriptive statistics associated with each variable in the study. The distribution of the data values looked approximately normal. As can be seen in Tables 1, 2, and 3, there were 943 students who completed the survey. 612, or 64.9 percent, were identified as high SES as they did not qualify for free and reduced lunch. The remaining 331 students, 35.1 percent, did qualify for free and reduced lunch, thus falling into the category of low SES. Of the 943 sixth grade middle school students, 35.4 percent, or 334 students, listed their ethnicity as Hispanic, whereas 64.6 percent, or 609 students, identified themselves as Caucasian. Tables 1, 2, and 3 contain the descriptive data for the categorical variables: Hispanic,

Caucasian, high SES, and low SES as measured by qualification for free and reduced lunch.

Table 1

Frequency Table: Statistics

		Number of Students	Ethnic Code
N	Valid	943	943
	Missing	0	0

Table 2

Frequency Table for Low and High-SES Students

		Frequency	Percent
Valid	NA	612	64.9
	Free and Reduced Lunch	331	35.1
	Total	943	100.0

Table 3

Frequency Table for Ethnicity

		Frequency	Percent
Valid	Hispanic	334	35.4
	Caucasian	609	64.6
	Total	943	100.0

Table 4 shows the descriptive data for the quantitative variables: emotional, cognitive, and behavioral engagement, as well as 2007 CSAP scores for science, math, writing, and reading and first trimester grade point average.

Table 4

Frequency Table for Emotional, Cognitive, and Behavioral Engagement, 2007 CSAP scores for Science, Math, Writing, and Reading and First Trimester Grade

	Emotional	Cognitive	Behavior	Science	Math	Writing	Reading	Tri 1 GPA
N Valid	892	935	929	835	843	840	842	920
Mean	18.1469	17.9925	22.0936	550.74	533.56	507.95	609.35	3.12
Median	19.0000	18.0000	23.0000	554.00	539.00	508.50	619.00	3.22
Mode	20.00	20.00	23.00	551	555	484	633	4
Std. Deviation	4.23095	3.84426	2.42891	49.869	78.657	50.090	63.802	.666

As can be seen in Table 4, there were 892 scores for emotional engagement, 935 cognitive engagement scores, and 929 scores for behavioral engagement. The means for the group are on a scale from one to twenty-five as there are five questions that address each of the three types of engagement with each question being one to five points. The means of emotional, cognitive, and behavioral engagement for the entire group were all relatively high since they ranged from 18-22 on a 25 point scale.

There were 835 scores for science CSAP, 843 for math, 840 for writing, and 842 for reading as shown in Table 4. The mean, median, and modes of the tests could not be compared since the performance level scale ranges varied for each test. There were 920 valid scores for first trimester grade point average. The mean GPA reported with the group of students was 3.22, while the mode was 3.22 on a 4.0 scale.

Next, one of the assumptions made at the beginning of the study was that there is a relationship between school engagement and measures of achievement. Although none

of the research questions specifically address this, it is important to provide data displaying the relationship between engagement and achievement. Therefore, a correlation matrix was created in SPSS. The matrix, as can be seen in Table 6, provides correlation statistics among the engagement and achievement variables and provide evidence of construct validity, the ability of the instrument to measure the hypothetical construct of school engagement, using the School Engagement Survey instrument.

The Pearson correlations illustrated in Table 5 for the constructs of school engagement were as follows: behavioral and emotional (.491); behavioral and cognitive (.522); and emotional and cognitive (.757) which indicate moderate to high correlations. Additionally, the relationship between these subscales were all identified as significant at the $p < .01$ level.

The correlations illustrated in Table 5 show the relationships between the subscales of achievement and school engagement. The relationship between behavioral engagement and all subscales of achievement including: first trimester GPA, reading, writing, math, and science CSAP scores were all identified as significant at the $p < .05$ level. The Pearson correlations for behavioral engagement and the areas of achievement indicated low and moderate correlations. First, the correlation between behavioral engagement and first trimester grade point average was .395, which indicated a moderate correlation. The remaining correlations for behavioral engagement and the areas of achievement indicated low correlations. The correlation between behavioral engagement and reading, writing, math, and science CSAP were (R) .186; (W) .223; (M) .173; and (S) .108, respectively. Based on the data in the correlational matrix, there is not a strong relationship between the behavioral engagement and areas of achievement.

Next, the correlations between cognitive engagement and achievement, which are also shown in Table 5, will be examined. The relationship between cognitive engagement and three of the five areas of achievement were identified as significant at the $p<.05$ level. The three areas were first trimester GPA, reading CSAP, and writing CSAP. The relationship between cognitive engagement and math and science CSAP were not significant at the $p<.05$ level. The Pearson correlations for cognitive engagement and the areas of achievement were as follows: cognitive engagement and first trimester grade point average (.235); cognitive engagement and reading CSAP (.076); cognitive engagement and writing CSAP (.103), cognitive engagement and math CSAP (.041), and cognitive engagement and science CSAP (.011). These correlations indicate that cognitive engagement is only minimally related to the areas of achievement.

Finally, the relationship between emotional engagement and the five areas of achievement will be explored. This can be seen in Table 5. The relationship between emotional engagement and two of the five areas of achievement were identified as significant at the $p<.05$ level. The three areas were first trimester GPA and writing CSAP. The relationship between emotional engagement and reading, math, and science CSAP were not significant at the $p<.05$ level. The Pearson correlation between emotional engagement and first trimester GPA, reading, writing, math, and science CSAP were (GPA) .186; (R) .035; (W) .077; (M) .013; and (S) -.038, respectively. The correlations between the various aspects of engagement and the measures of achievement were, for the most part, low. In the few instances where the correlations were statistically significant, the correlations explained less than four percent of the variance between the three facets of engagement and the areas of engagement.

Table 5 *Correlational Matrix of School Engagement Subscales and Areas of Achievement*

		Behavior	Cognitive	Emotional	Tri 1 GPA	Reading	Writing	Math	Science
Behavior	Pearson Correlation	1	.522	.491	.395	.186	.223	.173	.108
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000	.001
	N	996	988	945	973	887	885	888	880
Cognitive	Pearson Correlation	.522	1	.757	.235	.076	.103	.041	.011
	Sig. (2-tailed)	.000	.	.000	.000	.024	.002	.219	.750
	N	988	1001	951	977	892	890	893	884
Emotional	Pearson Correlation	.491	.757	1	.186	.035	.077	.013	-.038
	Sig. (2-tailed)	.000	.000	.	.000	.301	.024	.703	.266
	N	945	951	957	934	850	848	851	842
Tri 1 GPA	Pearson Correlation	.395	.235	.186	1	.565	.561	.597	.519
	Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000	.000
	N	973	977	934	986	885	883	886	878
Reading	Pearson Correlation	.186	.076	.035	.565	1	.791	.769	.822
	Sig. (2-tailed)	.000	.024	.301	.000	.	.000	.000	.000
	N	887	892	850	885	899	897	899	889
Writing	Pearson Correlation	.223	.103	.077	.561	.791	1	.746	.723
	Sig. (2-tailed)	.000	.002	.024	.000	.000	.	.000	.000
	N	885	890	848	883	897	897	897	887
Math	Pearson Correlation	.173	.041	.013	.597	.769	.746	1	.804
	Sig. (2-tailed)	.000	.219	.703	.000	.000	.000	.	.000
	N	888	893	851	886	899	897	900	890
Science	Pearson Correlation	.108	.011	-.038	.519	.822	.723	.804	1
	Sig. (2-tailed)	.001	.750	.266	.000	.000	.000	.000	.
	N	880	884	842	878	889	887	890	891

Next, Cronbach's Alpha reliability tests were run on behavioral, cognitive, and emotional engagement as seen in Table 6. All showed a relatively high level of reliability based on the Cronbach's Alpha test. The reliability for behavioral engagement was .732, .765 for cognitive engagement, and the Cronbach's reliability for emotional engagement was .802.

Table 6

Reliability Statistics for Behavioral, Cognitive, and Emotional Engagement

	Behavioral	Cognitive	Emotional
Cronbach's Alpha	.732	.765	.802
Cronbach's Alpha Based on Standardized Items	.743	.777	.805

The statistics for each area of engagement will be discussed next. The first five items (S3-S7) of the SES assessed behavioral engagement levels, the next five questions (S8-S12) examined cognitive engagement levels, and the final five items on the survey (S13-S17) addressed emotional engagement. The means for each question that assessed engagement, which are based on a 5.0 scale since each question is worth one to five points, and the standard deviations for the three areas of engagement, are listed in Tables 7. The means ranged between 3.25 and 4.78. Therefore, based on the means reported for each question, the group had moderate to high levels in all three areas of engagement.

Table 7

Item Statistics for Behavioral (S3-S7), Cognitive (S8-S12) and Emotional Engagement (S13-S17)

	Mean	Std. Deviation	N
S3	4.23	.719	929
S4	4.49	.660	929
S5	4.06	.857	929
S6	4.78	.516	929
S7	4.53	.700	929
S8	3.28	1.018	935
S9	3.45	1.031	935
S10	3.25	1.324	935
S11	3.63	1.091	935
S12	4.39	.834	935
S13	3.40	1.028	892
S14	3.60	1.266	892
S15	3.55	1.100	892
S16	3.72	1.164	892
S17	3.88	1.088	892

Next, statistics for each set of five questions that address the components of engagement are found in Table 8. The table lists all of the summary item statistics for behavioral, cognitive, and emotional engagement. The lowest average for this entire group, a 3.248, was in cognitive engagement while the highest mean of 4.777 was in behavioral engagement. Once again, the means of 4.419, 3.599, and 3.629 reported by the group for behavioral, cognitive, and emotional engagement, respectively, indicate moderate to high levels of engagement.

Table 8

Summary Item Statistics for Behavioral, Cognitive, and Emotional Engagement

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Behavioral	4.419	4.065	4.777	.713	1.175	.077	5
Cognitive	3.599	3.248	4.388	1.140	1.351	.218	5
Emotional	3.629	3.396	3.878	.482	1.142	.033	5

The next component of this chapter is reporting the results of each of the four research questions.

Research Question #1

"What differences existed between Caucasian and Hispanic students in the following areas of achievement: 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year?"

In order to answer Research Question #1, an independent samples t-test was utilized to test for differences in 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year between Caucasian and Hispanic students.

Table 9 presents the statistics for the group based on their ethnicity as either Hispanic or Caucasian. The table lists the number of Hispanic and Caucasian students, the mean, and standard deviation for first trimester grade point average, and reading, writing, math, and science CSAP.

Table 9

Group Statistics for Ethnicity and 2007 CSAP scores for Science, Math, Writing, and Reading and First Trimester Grade Point Average (GPA)

	Ethnicity	N	Mean	Std. Deviation
Tri 1 GPA	Hispanic	319	2.89	.678
	Caucasian	601	3.25	.625
Reading	Hispanic	277	583.61	68.289
	Caucasian	565	621.97	57.471
Writing	Hispanic	277	490.08	47.404
	Caucasian	563	516.75	49.064
Math	Hispanic	278	496.73	77.052
	Caucasian	565	551.67	72.962
Science	Hispanic	273	524.52	49.488
	Caucasian	562	563.48	44.863

Table 9 shows that there are average differences between Caucasians and Hispanics on all variables of achievement. Caucasian students consistently earned higher average scores than Hispanic students in all areas. As can be seen in Table 10, the mean GPA for Hispanic students was 2.89 and 3.25 for Caucasian students on a 4.0 scale. The Grade Point Average (GPA) is an average of your grade points on a numeric scale of 0-4. Grade points are assigned to letter grades; for example, typical assignment is as follows: A=4, B=3, C=2, D=1 and F=0.

The mean score for the 2007 reading CSAP was 583.61 for Hispanic students and 621.97 for Caucasian students. Second, the 2007 writing CSAP had mean scores of 490.08 for Hispanic students and 516.75 for Caucasian students. Third, the mean scores for 2007 math CSAP were 496.73 for Hispanic students, and 551.67 for Caucasian students. Finally, the mean scores for the 2007 science CSAP for Hispanic students was

524.52 and 563.48 for Caucasian students.

The differences between Caucasian and Hispanic students' scores on the CSAP tests demonstrated that an achievement gap exists. Caucasian students scored nearly 40 points higher on both the reading and science exams, approximately 25 points higher on the writing test, and about 55 points higher than Hispanic students on the math CSAP test. Table 9 clearly shows that there is an achievement gap between the two subgroups of students.

Next, the independent samples t-test for this data is presented. It was evident from the independent samples t-test in Table 10 that differences existed between Caucasian and Hispanic students in the following areas of achievement: 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year.

Table 10

Independent Samples T-Test for Ethnicity and 2007 CSAP scores for Science, Math, Writing, and Reading and First Trimester Grade Point Average (GPA)

Area of Achievement	t	df	Sig. (2-tailed)
Tri 1 GPA	-7.980	918	.000
Reading	-8.541	840	.000
Writing	-7.487	838	.000
Math	-10.089	841	.000
Science	-11.375	833	.000

Based on the independent samples t-test, the observed significance levels for all cases were $p < .05$; indicating there were statistically significant differences between Hispanic and Caucasian students on the CSAP tests as well as GPA.

The independent samples t-test provided evidence that the differences between Hispanic and Caucasian students on the CSAP reading, writing, math, and science as well as first trimester grade point average are statistically significant differences. This confirms the assumption that there is an achievement gap between Hispanic and Caucasian students.

Next, the results of the second research question will be shared.

Research Question #2

"What differences existed between students from low and high-SES, as measured by qualification for free and reduced lunch, in the following areas of achievement: 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year?"

In order to answer Research Question #2, an independent samples t-test (Table 11) was utilized to test for differences in 2007 CSAP scores in reading, writing, math, and science scores. Additionally, first trimester GPA for the 2007-2008 school year between students from low and high-SES. High-SES indicates students who did not qualify for free and reduced lunch at the time of the study.

Table 11 presents the statistics for the group based on their low and high-SES status. The table lists the number of students who either qualified for free and reduced lunch and those students who did not qualify. The means and standard deviations are listed for all areas of the CSAP as well as first trimester grade point average.

Table 11

Group Statistics for low and high-SES and 2007 CSAP scores for Science, Math, Writing, and Reading and First Trimester Grade Point Average (GPA)

Area of Achievement	Low and High-SES	N	Mean	Std. Deviation
Reading	NA	568	621.98	58.690
	Free and Reduced Lunch	274	583.17	66.080
Writing	NA	567	518.51	48.476
	Free and Reduced Lunch	273	486.02	46.197
Math	NA	568	550.58	72.125
	Free and Reduced Lunch	275	498.39	80.031
Science	NA	564	562.72	45.499
	Free and Reduced Lunch	271	525.82	49.417
Tri 1 GPA	NA	603	3.28	.612
	Free and Reduced Lunch	317	2.82	.659

Table 11 shows that there are average differences between low and high-SES students on all variables of achievement. High-SES students consistently achieved higher average scores than low-SES students in all areas.

Low-SES students scored lower on all the CSAP tests and had a lower first trimester GPA than their high-SES peers. First, the mean score for the math CSAP was 550.58 for high-SES students and 498.39 for low-SES students. Second, low-SES students earned a mean score of 486.02 on the writing CSAP while high-SES student earned a 518.51. Third, the 2007 science CSAP had mean scores of 562.72 for high-SES

students and 525.82 for low-SES students. Next, the mean scores for 2007 reading CSAP were 621.98 for high-SES students and 583.17 for students who qualified for free and reduced lunch, the proxy for low-SES. High-SES students scored nearly 40 points higher on both the reading and science exams, approximately 33 points higher on the writing test, and about 52 points higher than low-SES students on the math CSAP test. Finally, the mean scores for the first trimester GPA for students not qualifying for free and reduced lunch was 3.28 and 2.82 for low-SES students. The differences between high and low-SES students' scores on the CSAP tests as well as first trimester GPA demonstrated that an achievement gap exists. Table 11 clearly shows that there is an achievement gap between the low and high-SES students.

Next, it is evident from the independent samples t-test, located in Table 12, that differences existed between students from low and high-SES, as measured by qualification for free and reduced lunch, in 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year.

Table 12

Independent Samples T-Test for low and high-SES and 2007 CSAP scores for Science, Math, Writing, and Reading and First Trimester Grade Point Average (GPA)

Area of Achievement	t	df	Sig. (2-tailed)
Tri 1 GPA	9.237	838	.000
Reading	9.500	841	.000
Writing	10.667	833	.000
Math	8.623	840	.000
Science	10.573	918	.000

As shown in the independent t-test in Table 12, the observed significance levels for all cases were $p < .05$; therefore, there were differences between students from low and high-SES in CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year.

Once again, the independent samples t-test has provided evidence that the differences between low and high-SES students on the CSAP reading, writing, math, and science as well as first trimester grade point average are statistically significant differences. This confirms the assumption that there is an achievement gap between low and high-SES students.

Next, the results from research question three will be shared.

Research Question #3

"What differences existed between Caucasian and Hispanic students in the three primary dimensions of student engagement: cognitive, behavioral, and emotional engagement?"

First, Table 13 presents the statistics for the group based on their ethnicity as either Hispanic or Caucasian. The table lists the number of Hispanic and Caucasian students, the means, as well as the standard deviations for behavioral, cognitive, and emotional engagement. Overall, the mean scores reported for both Hispanic and Caucasian students were highest in behavioral engagement.

Table 13

Group Statistics for Ethnicity and Behavioral, Emotional, and Cognitive Engagement

Area of Engagement	Ethnicity	N	Mean	Std. Deviation
Behavior	Hispanic	327	21.8471	2.57784
	Caucasian	602	22.2276	2.33537
Cognitive	Hispanic	331	17.9728	3.86780
	Caucasian	604	18.0033	3.83447
Emotional	Hispanic	318	18.2925	4.20372
	Caucasian	574	18.0662	4.24747

Table 13 shows that there are slight differences between Hispanic and Caucasian students in behavioral, cognitive, and emotional engagement. As a group, Caucasian students reported higher average scores than Hispanic students on all three areas of engagement. The highest group mean possible was a 25 since the SES survey had five questions that addressed each of the three areas of engagement. Each question was worth five points. Both Hispanic and Caucasian students reported highest levels of behavioral engagement, followed by cognitive engagement, and then emotional engagement.

Next, in order to answer Research Question #3, an independent samples t-test was utilized to test for differences in Caucasian and Hispanic students among the three primary dimensions of engagement. The independent t-test determined whether or not the slight differences were statistically significant. Table 14 shows the results of the independent t-test for ethnicity and behavioral, emotional, and cognitive engagement.

Table 14

Independent Samples T-Test for Ethnicity and Behavioral, Emotional, and Cognitive Engagement

Area of Engagement	t	df	Sig. (2-tailed)
Behavior	-2.285	927	.023
Cognitive	-.116	933	.908
Emotional	.765	890	.445

The observed significance level for behavioral engagement was .023 which was $p < .05$; therefore, there were statistically significant differences between Hispanic and Caucasian students in behavioral engagement. Cognitive and emotional engagement were both $p > .05$, therefore, there were no statistically significant differences between Latino and Caucasian students for cognitive and emotional engagement. The observed significance level for behavioral engagement was .023 which was $p < .05$; therefore, there were statistically significant differences between Hispanic and Caucasian students in behavioral engagement. Cognitive and emotional engagement were both $p > .05$, therefore, there were no statistically significant differences between Latino and Caucasian students for cognitive and emotional engagement.

Finally, results will be shared on what differences between low and high-SES students on the areas of engagement exist in research question four.

Research Question #4

"What differences existed between students from low and high-SES, as measured by qualification for free and reduced lunch, in the three primary dimensions of student engagement: cognitive, behavioral, and emotional engagement?"

First, Table 15 presents the statistics for the group based on their qualification for free and reduced lunch. Either students qualified, or they did not and were listed as "NA". The table lists the number of students who did and did not qualify for free and reduced lunch as well as the means and standard deviations for behavioral, cognitive, and emotional engagement. Overall, the mean scores reported for the both subgroups were highest in behavioral engagement.

Table 15

Group Statistics for Low and High-SES and Behavioral, Emotional, and Cognitive Engagement

	Low and High-SES	N	Mean	Std. Deviation
Behavior	NA	603	22.2852	2.28200
	Free and Reduced Lunch	326	21.7393	2.64682
Cognitive	NA	605	18.0843	3.80195
	Free and Reduced Lunch	330	17.8242	3.92088
Emotional	NA	578	18.1298	4.24208
	Free and Reduced Lunch	314	18.1783	4.21696

Table 15 shows that there are slight differences between low and high-SES students in behavioral, cognitive, and emotional engagement. As a group, high-SES students (listed as "NA") reported slightly higher average scores than low-SES students

on all behavioral and cognitive engagement and approximately the same on emotional engagement. Once again, the highest group mean possible was a 25 since the SES survey had five questions that addressed each of the three areas of engagement. Each question was worth five points. Both low and high-SES students reported highest levels of behavioral engagement, followed by emotional engagement, and then cognitive engagement, although the differences between emotional and cognitive engagement means were miniscule.

Next, in order to answer Research Question #4, an independent samples t-test was utilized to test for differences in low and high-SES students, as measured by qualification for free and reduced lunch, among the three primary dimensions of engagement. Table 16 shows the results of the independent t-test for SES and behavioral, emotional, and cognitive engagement.

Table 16

Independent Samples T-Test for Low and High-SES and Behavioral, Emotional, and Cognitive Engagement

Area of Engagement	t	df	Sig. (2-tailed)
Behavior	3.287	927	.001
Cognitive	.988	933	.323
Emotional	-.164	890	.870

The observed significance level for cognitive engagement was .323 and .870 for emotional engagement. In both cases, $p > .05$; therefore, there were no statistically significant differences between low and high-SES students in cognitive and emotional

engagement. The hypothesis that the variances are equal could not be accepted for behavioral engagement because the observed significance level was .005, which was $p < .05$. Therefore, the "equal variances not assumed" row was used. Based on the significance level of .002 for behavioral engagement, there were statistically significant differences between high and low-SES students.

Finally, Table 17 shows the behavioral, cognitive, and emotional engagement means for the entire group, low-SES, high-SES, Hispanic, and Caucasian students. When taking a closer look at the engagement means of the entire group and the subgroups, it is apparent that the means for the subgroups compared to the group means vary only slightly. The subgroups' scores are right at the group's average scores.

Table 17

Engagement Means for the Total Group and Subgroups

Area of Engagement	Total Group Means	Low SES Mean	High SES Mean	Hispanic Mean	Caucasian Mean
Behavior	4.419	4.34786	4.45704	4.36942	4.44552
Cognitive	3.599	3.56484	3.61686	3.59456	3.60066
Emotional	3.629	3.63566	3.62596	3.6585	3.61324

In conclusion, despite the statistically significant differences for behavioral engagement, which are differences that are not due to random sampling or random error but are real differences and would show up were in similar samples with a high degree of probability ($p < .05$), the differences are not important or great enough to explain the achievement gap differences. As previously stated, the correlation explained less than

four percent of the variance between engagement and achievement. Furthermore, the lack of differences for cognitive and emotional engagement and the minimal differences in behavioral engagement are explained by the low relationship between engagement and achievement demonstrated by the correlation matrix previously presented. Due to the large sample size in the study, the miniscule differences in the low and high SES subgroups and between Caucasian and Hispanic students in behavioral engagement were statistically significant. Although when examining the raw data, it is evident that the differences in the behavioral engagement means for all subgroups are unimportant when deciding whether or not meaningful differences exist between Caucasian and Hispanic students.

Several assumptions were made at the beginning of the study. There is definitely an engagement gap. The results of the study have shown that. With the exception of behavioral engagement, there is not an engagement gap between the subgroups of students who participated in the study. Additionally, Hispanic and low-SES are not low in engagement. Their behavioral, emotional, and cognitive engagement means are right at the average for the entire sample. Their behavior item scores are all above 4 on a 5 point scale and their emotional and cognitive engagement scores are all above 3. Therefore, based on the outcomes of this study and the data obtained from the SES survey, educators will need to look at other factors, such as in-school and out-of-school factors, when searching for answers on how to close the achievement gap. There are other instruments that measure engagement that may yield different results that the ones obtained in this study. These instruments will be shared in the discussion chapter.

CHAPTER 5: DISCUSSION AND FINDINGS

This chapter begins with a review of research problem followed by explanations of findings along with implications, limitations, and recommendations for further study.

Summary of the Study

The purpose of this study was to determine if differences existed in school engagement and achievement levels between students from low and high-SES backgrounds, as measured by free and reduced lunch, and between Caucasian and Hispanic students. This study examined the engagement and achievement levels of approximately 1,000 sixth grade middle school students in a suburban Colorado school district. Findings of this study suggested that there are statistically significant differences between Caucasian and Hispanic and low and high-SES students on all areas of achievement that were analyzed in this study. Those areas included 2007 CSAP scores in Reading, Writing, Science, and Math as well as first trimester grade point average. Caucasian and high-SES studentsmconsistently achieved higher average scores on the areas of achievement analyzed than their Hispanic and low-SES peers.

Findings also suggested statistically significant differences between Hispanic and Caucasian and low and high-SES students in behavioral engagement. Caucasian and high-SES students reported higher levels of behavioral engagement than their Hispanic and low-SES peers, although the differences are miniscule. There were not statistically significant differences between Hispanic and Caucasian and low and high-SES students

in on the emotional and cognitive engagement subscales. Next, the achievement gap and decreasing engagement levels, the research problem, will be shared.

Review of Research Problem

Research on the achievement gap has been conducted and reported for decades. Alarming statistics provide evidence that efforts to close the achievement gap are still struggling despite making the gap a top educational, yet controversial, reform issue. Explanations for the achievement gap vary widely, as do levels of concern for its existence. The achievement gap between minority and low socioeconomic students and their white, more affluent peers is apparent throughout the educational system. The achievement gap is evident, once again, based on the results found in this study.

In addition to an achievement gap, there is more and more research on school engagement. A lack of school engagement is also a concern that is growing. Dropping out of school, disrupting the class, truancy, lack of motivation, and distrust are just a few of the consequences of students not engaging in their education (Voelkl, 1996), thus called disengagement. Steele (1992) reports that behavioral and affective disengagement from class and school is a particular problem among minority students from low-income residences. There is a substantial body of evidence suggesting that poor engagement behaviors are more common among minority students. It is often found that minority students who are not successful in school are the same students who are disengaged. There has been little research conducted on the role that student engagement may play in learning more about the achievement gap, despite evidence that fewer students are engaging in school.

Therefore, it was beneficial to investigate links between students who fall

in the achievement gap, which is obvious when examining dropout rates, grade point average, and test scores, and their school engagement levels. Not only does an achievement gap exist, despite numerous attempts at closing it, but a lack of engagement in school is a concerning issue that can have detrimental outcomes (Finn, Pannozzo, & Voelkl, 1995). This study has explored the relationships between achievement and engagement. It has examined differences in grade point averages, test scores, and engagement levels among sixth grade middle school students in Colorado. The results were surprising.

Despite an overwhelming amount of literature suggesting that an engagement gap may be underlying the achievement gap, the results of this study showed no evidence of that. When students are cognitively, emotionally, and behaviorally engaged, many educators believe that their success rate at school increases. Again, the results of this study did not confirm this. The correlations between the areas of achievement and the three levels of engagement were all relatively low. Next, this study will attempt to unravel explanations for the results obtained in the study.

Explanation of Findings

These explanations focus on the school engagement profiles and achievement levels of sixth grade middle school students in a suburban Denver school district. This study examined the engagement and achievement levels of low and high-SES students as well as Caucasian and Hispanic students. First, the explanation of the findings related to

engagement will be discussed. Discussion of the achievement level differences between low and high-SES and Caucasian and Hispanic students will follow.

Based on the results found, there were minimal differences in the reported levels of behavioral and cognitive engagement between low and high-SES students as well as Caucasian and Hispanic students. In addition, low-SES students reported slightly lower levels of behavioral and cognitive engagement but a slightly higher level on emotional engagement based on the mean scores for the three levels of engagement. However, the difference in behavioral engagement between low and high-SES students was the only dimension of engagement that proved to be statistically significant. The significance level was .002, which was $p<.05$. The significance levels for cognitive and behavioral engagement were .323 and .870, respectively, which does not indicate statistical significance based on $p<.05$. Despite these statistically significant differences, as previously noted, the differences are not important enough to suggest that the achievement gap and engagement are tied together based on the results of this study.

Similar results were found for Caucasian and Hispanic students. Caucasian students reported slightly higher mean scores for behavioral and cognitive engagement while Latino students had a higher mean score for emotional engagement, yet the differences are miniscule. Once again, the difference in behavioral engagement between Latino and Caucasian students was the only dimension of engagement that proved to be statistically significant. The significance level was .023, which was $p<.05$. The significance levels for cognitive and behavioral engagement were .908 and .445, respectively, which does not indicate statistical significance based on $p<.05$. There are real differences in behavioral engagement between the subgroups, but the slight

differences are not great enough to serve as an explanation for the achievement gap.

Although the means on the three sub-scales of engagement were extremely similar and only varied slightly, behavioral engagement earned the highest mean score for the entire group and for subgroups of students, followed by emotional engagement, and cognitive engagement had the lowest mean score for students when the SES survey was administered in the fall of 2007. These were the same findings reported by Blanche (2007) who conducted a dissertation study titled, "Self-Concept, School Engagement, and the Freshman Experience" at a semi-rural community high school in Colorado. It is important to remember that the engagement means for the subgroups all hover around the group means. And when thinking about the absolute average, all subgroups are above 2.5 on the 5.0 scale.

Interestingly, the minimum score for the entire sample for both emotional and cognitive engagement was a 5, while the minimum score for behavioral engagement was a 12. The maximum score for all three dimensions of engagement was 25. Why was the minimum score for behavior so much higher than the minimum score for emotional and cognitive engagement? It may be due to when the SES survey was administered. The survey was administered in the fall. At the beginning of a new school year, many students want to start out the year "fresh." They want to follow the rules, adhere to classroom norms, and avoid receiving behavioral referrals and becoming truant (Finn, 1993; Finn, Pannozzo, & Voelkl, 1995; Finn & Rock, 1997); Fredricks, Blumenfeld, & Paris, 2004). Many students are eager to participate in their learning and academic tasks including concentrating, paying attention, asking questions, putting forth effort, and being

persistence (Finn et al., 1995; Skinner & Belmont, 1993; Fredricks, et al., 2004). It is safe to say that engagement levels at the beginning of the school year are higher than at the end of the year. "Prior research of school engagement suggests that school engagement declines at the three-quarter mark (approximately the 27th week) of any given school year" (Capstick, 2007, pg. 138).

As previously mentioned, Capstick (2007) reported in her dissertation study that throughout the school year, all facets of engagement declined, yet behavioral engagement decreased the most. This suggests that the mean engagement levels might be lower at the middle or end of the school year. Behavioral engagement might not have the highest mean score in this study if the SES was administered later in the school year. Therefore, as the school year progresses, fewer students report feeling connected enough with school to attend regularly, participate in class and extracurricular activities, and enjoy the school environment. Capstick (2007) believed that behavioral engagement may be the stepping stone to emotional and cognitive engagement.

This study did not show that engagement was a significant contributor to the achievement gap. The Pearson correlational matrix of school engagement subscales and areas of achievement showed that the correlations between behavioral, cognitive, and emotional engagement and the areas of achievement were, for the most part, low.

Regardless of the fact that this study did not show a relationship between engagement and achievement, there are studies that are citied in the literature review that share otherwise. And, engaging in school is important, nonetheless. It is critical that school personnel begin addressing the facets of student engagement at the elementary level and then work its way up. "The problem with a lack of school engagement is that it

is missing from most dialogue about school reform and achievement, yet it is a critical part of a student's likelihood for success" (Capstick, 2007, pg. 8).

Why is school engagement important if it is not an underlying factor for the achievement gap? School engagement is on the decline so ways to increase engagement are becoming a priority. Fortunately, many educators, including Fredricks et al. (2004), believe that engagement can be increased. As previously shared, interest in engagement is growing because it is presumed to be malleable and results from an interaction of the individual with the context and is responsive to variation in environments (Connell, 1990; Finn & Rock, 1997).

Engagement can be increased in several ways. One way to increase engagement is positive teacher support. Brewster and Bowen (2004) measured the student-perceived parent and teacher support as to its impact on school engagement of at-risk Hispanic middle and high school students. Results indicate that teacher support enhances school engagement beyond the support provided by parents. As levels of teacher support increased, problem behaviors decreased and perceived school meaningfulness increased (Brewster and Bowen, 2004). In addition, students who believed that they received lower levels of teacher support reported lower levels of school engagement (Skinner & Belmont, 1993).

Another way to increase student engagement is to courage participation in extracurricular activities. These activities provide students with opportunities to demonstrate leadership and become deeply invested in school. In addition, teachers and parents must have high academic expectations for students. They must provide support

for learning, elicit positive relationships, and promote physical and emotional safety in order for students to connect with their learning environment. When students have these, their academic performance, behavior choices, motivation, attention, and engagement are all positively impacted (Wingspread Conference, 2003). So even though this study has not shown a strong connection between engagement and achievement, engagement is still an important aspect of a positive school experience.

Just as engagement can be increased in several ways, there are many effects of non-engagement, also known as disengagement. Disengaged students do not adhere to behaviors that are associated with school engagement (Finn, 1993, Finn et al., 1995, Finn & Rock, 1997). They often demonstrate disruptive off-task behaviors that decrease academic performance (Finn et al., 1995). Inappropriate behaviors such as truancy, expulsion, suspensions, and dropping out are all outcomes of nonparticipation in the academic process (Finn et. al., 1995; Audas & Willms, 2001). "Behavioral risk factors exacerbate student achievement outcomes among four racial/ethnic groups: Asian, Hispanic, African-American, and non-Hispanic white (Capstick, 2007, pg. 75). However, students who are connected to and engaged in school exhibit fewer risky behaviors including substance abuse, truancy, sexual activity, and violence (McNeely, et al., 2002). To avoid these detrimental outcomes of disengagement, it is important to focus efforts on increasing engagement for students.

Next, an important component to this discussion is the fact that many of the results of this study contradict what much of the research on engagement and achievement has reported. One reason why the results may not have shown significant differences between the subgroups of students on the areas of engagement is because they

share overlapping concepts, which can be problematic when trying to differentiate constructs and improve conceptual clarity (Ainley, Frydenberg, Russell, 2005). Since behaviors, emotions, and cognitions are interrelated and often interdependent, it is difficult to separate them entirely. Therefore, many of the questions on the survey may have addressed more than one area of engagement.

Next, Finn (1989) and his colleagues reported a strong relationship of specific engagement behaviors with academic performance. In a separate study, Finn (1993) shared that students with high levels in participation, which is behavioral engagement, also have higher averages in academic scores. He also believes that achievement and participation are reciprocal features. These statements cannot be supported based on the results of this study.

Other research that contradicts the findings are reported by a few other groups of researchers. First, Marks, 2000; Skinner, Wellborn, & Connell, 1990; Connell & Wellborn, 1991, shared that behavioral engagement was correlated with higher achievement across various samples and ages. Second, Fincham, Hokoda, & Sanders, 1989, reported that there is some evidence of a correlation between emotional engagement and achievement, as well as achievement benefits. Next, Fredricks et al., 2004 shared that, in general, there is a consistent association between teacher and student reports of behavioral engagement and achievement

Connell et al., 1994 and Skinner et al., 1990, reported that although emotional engagement and achievement are not as heavily researched, some studies show varying correlations between achievement and a combination of emotional and behavioral

engagement. For example, Voelkl (1997) documented components of emotional engagement that were significantly correlated with achievement test scores in fourth and seventh grades for white students but not for African American students. Again, the results of this study can not support these researchers' conclusions.

Despite Yazzie-Mintz (2006) suggesting that there may, or may not, be an engagement gap and the possible connection to the achievement gap, he believed that addressing the engagement gap was a critical beginning step toward engaging all students. Fredricks et al. (2004) reported that, in general, there is more research on social contextual factors than on academic factors and engagement. Thus far, researchers have examined engagement as an outcome rather than determining whether the connection between context and engagement leads to achievement-related outcomes such as standardized tests and letter grades. Is there an engagement gap? Possibly, but not based on the results of this study.

Next, not only has this study has taken an in-depth look at engagement levels, it also explored the differences in achievement. Has this study confirmed that an achievement gap exists? Yes. Without a doubt, the achievement gap is still evident in our schools. The results of this study validate the literature that an achievement gap still exists despite attempts to narrow it. Research questions one and two asked about the differences between Caucasian and Hispanic students and low and high-SES students in the following areas of achievement: 2007 CSAP scores in reading, writing, math, and science scores and first trimester GPA for the 2007-2008 school year. As previously noted, results showed that there are average differences between Caucasians and Hispanics and low and high-SES on all variables of achievement. Low-SES students

experienced lower achievement on all subjects on the 2007 CSAP as well as a lower first trimester grade point average. And, Hispanic students had lower achievement on all subjects on the 2007 CSAP as well as a lower first trimester grade point average. This study explored the differences in scores on the 2007 CSAP assessments and first trimester grade point averages. This results mirror similar studies on the achievement gap.

Next, a recap of the factors that could help answer, "Why did low-SES and Hispanic students have lower first trimester grade point averages and lower 2007 CSAP scores?" will be shared.

Based on the results of this study, school engagement is not a major contributing factor for the achievement gap. The literature review explored many other potential reasons for the gap. In-school and out-of-school factors are worthwhile explanations when searching for factors that may be contributing to the achievement gap. To recap, in school factors include estimated time students are in the classroom learning, teachers' perceptions of student capabilities, teacher-parent communication patterns, parental standards for student academic pursuits, and students' out-of-school time-use patterns (Clark, 2002). Out-of-school factors studied were family, economics, and personal characteristics. It is not surprising that low-SES and Hispanic students earned lower grade point averages and CSAP scores when in-school and out-of-school factors were re-examined. How are students expected to be high achievers when their school receives fewer resources, has less than desirable teachers, experiences an overwhelming number of challenge when addressing students' needs, and receives little, less parental support?

In addition, as shared in the literature review, low-income and minority students encounter lower expectations from their schools and teachers, less opportunity to learn, and inadequate instruction and support.

It would be difficult for a student to feel emotionally invested in the school when the teachers are substandard and have low expectations for them. To put forth the effort necessary to understand what is being taught when students know that the curriculum is being "dumbed-down" is seen as a waste of time. Yet educators ponder why students fail to achieve.

What about the self-fulfilling prophecy, also known as the Pygmalion effect? It is a possible reason why low-SES and Latino students are not achieving as well as their high-SES and white peers. Hardman, Drew, Egan, & Wolf (1996) summarized in *Human Exceptionality, Society, School and Family* the effects of labeling and the definition of self-fulfilling prophecy. A self-fulfilling prophecy occurs when a person has expectations of another person and these expectations affect the behavior, which in turn creates the prophesied expectations. They are ideas that become reality because someone believes them. When having the student evaluate his or her own self and setting positive goals, they are setting their own positive expectations. A student's behavior is affected by his or her core beliefs about him or herself, which could be positive or negative. Good (1987) shares that teachers form expectations of and assign labels to people based upon such characteristics as gender, race, ethnicity, and socioeconomic level, to name a few. Once we label a person, it affects how we act and react toward that person. A school environment has to provide a positive reinforcement in the view of self-fulfilling

prophecy. Clearly, this is not the case in many of the schools where Latino and low-SES students attend.

The effects of the self-fulfilling prophecy cannot be ignored. Although Rosenthal and Jacobson wrote *Pygmalion in the Classroom* (1968) specifically for educators, few educators understand exactly how to use the Pygmalion effect/self-fulfilling prophecy (SFP) as a purposeful pedagogical tool to communicate positive expectations and avoid expressing negative expectations (Tauber, 1998). Teachers are not communicating that they have high expectations for their students when low achieving students are typically given more routine, highly structured class work focused on low-level intellectual activity which may account for poor academic achievement and low motivation among many Hispanic students (Fletcher and Cardona-Morales, 1990). More importantly, longitudinal studies support the self-fulfilling prophecy hypothesis that teacher expectations can predict changes in student achievement and behavior beyond effects accounted for by previous achievement and motivation (Jussim & Eccles, 1992). Teachers, more often than not, get from students what they expect from them. Each time teachers size up or size down a student they are, in effect, influencing this student's future behavior and achievement. This is an awesome burden for educators to carry, especially when educational leaders are working with schools to close the achievement gap and trying to engage students in the learning environment.

The achievement gap exists, and the gap will unlikely close anytime soon. Although school engagement is extremely important, it does not appear to be an underlying factor to the achievement gap. Instead, parents and educators must focus on

what they can control. What can parents, educators, and the students themselves do to help increase achievement levels? Since children spend about 1,000 hours per year in school, helping children enjoy learning and being successful in school is an important goal for parents, family members, and the schools themselves. It takes two major institutions, the home and the school, working together to successfully educate the child. Students, family members, and teachers are all necessary links in a positive learning experience. Even the most caring and competent teacher needs support from parents and family members who will encourage children and teach them to value education. It is no surprise that children whose parents and/or family members share in their formal education tend to do better in school. However, parental involvement may be more difficult based on challenges that they face such as lack of time, knowledge of ways to be involved, and poor communication between school and home.

As previously stated, Jencks and Phillips (1998) shared the importance of parents' positive attitudes. A parent's attitudes and values about education are easily transferred to children by their actions and words. To ensure success in school, children need their parent's support for school and non-school activities.

Henderson and Berla (1994) described the following ways or changes that would likely increase student achievement:

- Establishing a daily family routine.
- Monitoring out-of-school activities.
- Modeling the value of learning, self-discipline, and hard work.
- Encouraging children's development and progress in school.

- Reading, writing, and discussions among family members
- Using community resources for family needs

Finally, what can all students, not just low-SES and Latino, themselves do to increase their achievement in school? Students' habits and aspirations are also important when explaining the achievement gap. Since middle class black and Latino student mspend less time on homework, watch more television, study in less effective ways, are less likely to enroll in certain courses or participate in extracurricular activities in certain courses or participate in extracurricular activities, and aspire to lower educational goals than middle class white and Asian students, they need to change their behaviors. It is not just the school and parents responsibility that children are successful in school. A child's attitude is strongly connected to school achievement. Also, to achieve academically within his or her potential, a strong sense of "self" in a child is critical. Coleman (1966) reported that students' attitudes and self-concept affected school achievement far more than family background or school characteristics.

Peers, teachers, and family members whom have significant influences over the student's beliefs and behaviors, particularly toward motivation and achievement, shape a student's self-concept. Although they help shape a student's self-concept, children need to develop the skills necessary to develop a solid sense of self to avoid a greater risk of academic, behavioral, social, and emotional problems (Aviles, Anderson, & Davila, 2006). Blanche (2007) reported a positive self-concept being associated with strong leadership abilities, high expectations for one's success in school, and positive relationship skills. In contrast, poor attitudes toward school and decreased expectations for school success are linked with a low self-concept. "The idea that construction of the

self-concept is a process involving interwoven social, emotional, and cognitive elements…lead to a multifaceted depiction of school engagement…." (Blanche, 2007, p. 21)

A final explanation for the results obtained is the use of the School Engagement Survey (SES) survey. Other engagement tools might render different outcomes when exploring achievement and engagement. Although the most common way school engagement is measured is through the information reported by the students themselves in surveys and/or questionnaires regarding their level of engagement (Chapman, 2003), other methods such as checklists and rating scales completed by teachers, observations, work sample analyses, and case studies might have rendered different results than the ones collected in this study.

Surveys and questionnaires are the most widely used tool when assessing engagement. There is a variety of self-report questionnaires have been used to assess engagement. This reflects the multi-faceted nature of the construct (Chapman, 2003). In addition to asking the question of *whether* students are engaged in learning tasks, self-report measures can provide some indication of *why* this is the case. Although self-report scales are widely used, the validity of the data yielded by these measures will vary considerably with students' abilities to accurately assess their own cognitions, behaviors, and engagement levels (Assor & Connell, 1992).

In addition to student self-report measures, a few studies have used summative rating scales to measure school engagement levels. For example, the teacher report scales used by Skinner & Belmont (1993) and Skinner, Wellborn, & Connell (1990)

asked teachers to assess their students' willingness to participate in school tasks, as well as their emotional reactions to these tasks. Rating scales utilized by teachers are another tool that is used to measure school engagement.

Direct observations are often used to confirm students' reported levels of engagement in learning tasks. Chapman (2003) believes that direct observations will yield fairly conservative estimates of student engagement rates, and direct observations of students are more sensitive to variations in the consistency and persistence of students' behavior.

Another way to assess engagement is analyzing work samples. Work samples can provide insight into students' levels of learning task engagement by focusing on students' use of higher cognitive or metacognitive strategies in confronting learning tasks.

Finally, when searching for effective ways to assess school engagement, researchers cannot forget the importance of focused case studies. These are typically used with small groups of students as it is often more useful to collect detailed descriptive accounts of engagement rates (Chapman, 2003).

Recording students' interactions with other individuals and objects within classrooms is paramount when studying engagement. Ideally, researchers observe engagement within the total context of the classroom and/or school. Researchers conducting the qualitative study are equally concerned with the processes associated with engagement and depicting engagement levels (Chapman, 2003). There are many instruments that are created to measure engagement, but the self-reporting measures such as surveys and questionnaires continue to be the most popular instruments.

The School Engagement Survey (SES) created by the Colorado Foundation for Families and Children is just one example of the instruments available that was created to assess school engagement. There are many more. For example, Appleton, Christenson, Kim, and Reschly (2006) created a self-report instrument that was designed to measure cognitive and psychological engagement in school from the student perspective. The Student Engagement Instrument (SEI) was created as an instrument to measure these facets of engagement because the researchers believed that "there is an overemphasis in school practice on indictors of academic and behavioral engagement" (p. 431). Appleton et al. (2006) reported that their results were as they expected them to be. This is not always the case, as was evident in the current study.

The assumption that school engagement and achievement levels would be dramatically different between the subgroups in the study was not supported. It may have been confirmed if another instrument was utilized. Therefore, it is important to remember that a typical assessment protocol comprises a number of separate indices for assessing the engagement. This reflects the fact that no one instrument is likely to be able to comprehensively assess student engagement on all of the construct dimensions. Researchers interested in assessing student engagement should consider using separate measures to get at the cognitive, emotional, and behavioral aspects of school engagement. Within each of these domain areas, using a range of methods can also strengthen the validity of findings and provide alternative perspectives on the results (Chapman, 2005). It may help researchers gain a better understanding of why students are or are not

engaging in school if the engagement instrument addresses the question of why students do, or do not, engage with particular types of tasks.

This study has shown that the achievement gap cannot be explained by an engagement gap. There is a critical need for students to become engaged in their learning. This is evident. Deliberate attempts must be made to ensure this happens (Fredricks, et al., 2004). In addition, steps are being taken to close the achievement gap, and have been occurring for years. Audas and Willms (2001) claim that school engagement is a determinant of success in school. This is most likely true. But will stressing the importance of engagement in school likely close the achievement gap? It is unlikely based on the results of this study.

A major strength of this study was challenging a very evident stereotype. One stereotype that exists is that Hispanic students are less engaged in school than their Caucasian peers. This study has disproved that stereotype. Based on the findings of the study, Hispanic students were not low in engagement. Hispanic students were equally engaged as their Caucasian peers. Hopefully this finding can help educators promote engagement in all students, regardless of their ethnicity and socioeconomic class.

Differences in engagement depend on many factors including when engagement is measured, what instrument is used, what grade levels are measured, time of year, and more factors. The results of this study did not show important differences between the subgroups of students. Therefore, based on the data, educators need to focus their efforts elsewhere when searching for solutions to close the achievement gap.

The final two sections of this chapter include the limitations and suggestions for future research. As with any study, there are limitations. There were several limitations of this study, which are listed next. Finally, based on what the data has shown and the conclusions made from the current study, suggestions for future research are listed.

Limitations of the Study

- For socioeconomic status, students were classified as either high-SES or low-SES. If students do not qualify for free and reduced lunch, then they were automatically considered high-SES, even though that may not be the case.
- This study examined the differences between Caucasian and Hispanic students on the 2007 CSAP and first trimester grade point average along with their reported cognitive, emotional, and behavioral engagement levels. Since the achievement gap predominately refers to students from ethnicities other than Caucasian, examining the achievement and engagement levels among other minority students might have been provided interesting insight.
- It would have been helpful to analyze the engagement and achievement levels between males and females and not just between low and high-SES and Caucasian and Hispanic students.
- The survey instrument, School Engagement Survey (SES), was administered in the fall of the 2007-2008 school year. Engagement levels are typically higher at the beginning of the school year.

Therefore, it would have been interesting to re-administer the SES to the same group of sixth grade middle school students in the spring of 2008 to see if their engagement levels decreased. Another possibility would have been to administer the survey to the sixth grade student in the spring of 2008 and then again in the fall of 2008 to determine if engagement levels really are higher at the beginning of the school year.

- It would be interesting to see what percentage of Caucasian students in the school district qualify for free and reduced lunch compared to their Hispanic peers. Of the sixth grade students participating in the study, approximately two-thirds of the students did not qualify for free and reduced lunch, whereas, one-third of the students did qualify. Two-thirds of the students identified themselves as Caucasian. One-third of the sixth grade students listed their ethnicity as Latino. This study did not investigate if the same one-third of Hispanic students were also the same one-third that qualified for free and reduced lunch.
- This study utilized survey research to gain insights from students in their behavioral, cognitive, and emotional engagement levels. Unfortunately, no one instrument is likely to be able to comprehensively assess student engagement on all of the construct dimensions. This study did not use other methods such as checklists and rating scales completed by teachers, observations, work sample analyses, and case studies.

- The survey instrument asked whether students were engaged, but did not ask why they are, or are not, behaviorally, cognitively, and emotionally engaged in their learning environment. Clearly, understanding the "why" students are engaged would be extremely helpful for educators in addressing student engagement.
- In the current study, 334 students were identified as Hispanic. The Hispanic students spoke English as their second language (ESL). The SES was only administered in English. Reading and comprehending the survey questions was not an issue. The reliability of the survey was no different for Hispanic and Caucasian students. If language was a concern, the reliability would have been lower.
- Grade point average, along with 2007 CSAP scores, was one of the measures of achievement assessed in this study. One concern is whether or not there would be an achievement gap since the CSAP scores analzyed were from the spring of 2007 and the first trimester grade point average was from the fall of 2008. As shown in the results, there were still differences between the subgroups of students despite analyzing spring CSAP scores and fall GPA.
- This study was a one time, one shot study. In a study like the one conducted, generalizability is limited. It is important to note that this study was replicated in the spring of 2008. Findings were similar to those obtained in the fall of 2007.

Recommendations for Future Research

- In an attempt to increase academic achievement, conduct a study that would address class size. It is established that small classes have a positive impact on academic achievement, at least in the early grades. If small classes also have a positive effect on student engagement, then the effects are likely to be especially profound for minority students and for other students at risk educational failure. Further, a small class setting may make it difficult for a youngster to withdraw from participating, and make it difficult for a teacher to overlook the needs of particular students.
- A pretest/posttest control group design could be implemented. A group of students could be in classes where the class sizes are small whereas other students are in regular sized classes. To determine if a smaller class size had any impact on the academic achievement, student's grade point averages could be examined. In addition, students in regular sized classes and in classes with less students could take a pretest and posttest of the Student Engagement Survey (SES) and determine if smaller class sizes increase student engagement.
- The School Engagement Survey (SES) instrument could be provided to students in each of their classes to determine if some teachers are better at engaging students or if some classes are more engaging than others.
- It would be interesting to compare the engagement and achievement levels for low and high-SES males and females and Hispanic and

Caucasian males and females; thus seeing if there are differences between the two genders.

- Duplicating this study in single-sex and specialist school may show some interesting findings. Yazzie-Mintz (2006) reports that specific types of school and class structure are sometimes advocated because they increase student motivation, engagement and achievement.
- More studies identifying different patterns of motivation and engagement between sub-groups within broader samples are needed.
- It would be helpful to see if teachers report that same engagement levels on their students as the students report on themselves.
- An increase in creative, observational and qualitative approaches would likely enrich the understanding of the way in which engagement impacts achievement.
- There is also a need for multidimensional, multilevel, longitudinal studies that focus on engagement and achievement in elementary, middle, and high school students throughout the nation.
- A comprehensive protocol that include measures that address the question of why students do, or do not, engage with particular types of tasks could greatly facilitate the interpretation of engagement subscales.

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APPENDIX A: SCHOOL ENGAGEMENT SURVEY

NCSE | National Center for School Engagement

Student ID Number: _____
Date completed:_____
School:_____
Age:____Grade:___ Boy or Girl (circle one)

We would like to find out a little more about you and how you feel about school. Your answers to the following questions will help us to do this. It will take you about 15 minutes to complete this survey. If you are unsure of how to answer a question, please answer it as best you can and then write a comment in the margin. All the information you provide is confidential. It will only be used to help us learn about how to keep children interested in completing school.

1. Your ethnicity (please check all that apply):
   ☐ White/Anglo ☐ African American
   ☐ Hispanic/Latino ☐ American Indian
   ☐ Asian/Pacific Islander
   ☐ Other, describe_____

2. Your primary language: _____Second language:_____

3. How much do you agree with each of the following statements?	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
I come to class prepared.	☐	☐	☐	☐	☐
I treat my classmates with respect.	☐	☐	☐	☐	☐
I complete my work on time.	☐	☐	☐	☐	☐
I treat my teachers with respect.	☐	☐	☐	☐	☐
I follow the rules at school.	☐	☐	☐	☐	☐

4. How often are the following statements true for you?	**Never/ Almost Never**	**Rarely**	**Sometimes**	**Often**	**Always/ Almost Always**
I feel excited by the work in school.	□	□	□	□	□
I am interested in the work I get to do in my classes.	□	□	□	□	□
I talk with people outside of school about what I am learning.	□	□	□	□	□
I check my schoolwork for mistakes.	□	□	□	□	□
I learn a lot from my classes.	□	□	□	□	□

5. How often are the following statements true for you?	**Never/ Almost Never**	**Rarely**	**Sometimes**	**Often**	**Always/ Almost Always**
I enjoy the work I do in class.	□	□	□	□	□
I feel I can go to my teachers with the things that I need to talk about.	□	□	□	□	□
My classroom is a fun place to be.	□	□	□	□	□
Most of my teachers praise me when I work hard.	□	□	□	□	□
Most of my teachers understand me.	□	□	□	□	□

THANK YOU FOR COMPLETING THIS SURVEY!