

The Relationship Between Student Engagement and Standardized Test Scores of Middle  
School Students: Does Student Engagement Increase Academic Achievement?

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## **Dedication**

This dissertation is dedicated to my mother, Ellen Marie Scheidler. My mother was the most beautiful, the strongest, and the friendliest person that I have ever met. Furthermore, she had a love of learning. Though I didn't necessarily display an affinity for education in my younger years, my mother's calming and caring influence eventually took hold. I became a better person, grew less bitter about life's disappointments, and was quick to praise others when something went well. My mom could always find the positive in a situation, and she always tried to enhance any situation she was involved with. My mother lost her battle with breast cancer in October, 1999. I have dedicated myself to replicating her everlasting positive attitude and her commitment to helping others.

## **Abstract**

The public education system in the United States is under increasing pressure to provide an equitable, effective, and relevant education for all students. In the United States, nearly one of every three students who begin high school does not graduate from high school, resulting in an earning gap of approximately \$10,000 annually between students who graduate from high school and those who drop out of high school (Alliance for Excellent Education, 2009). The potential of millions of students, as well as society at large, is threatened by the fact that more than 50% of minority students drop out of high school before they graduate, limiting their access to opportunity for the rest of their lives (Orfield, 2009).

The purpose of this study is to examine the relationship between student engagement (behavioral, cognitive, and emotional) and the standardized test scores of eighth grade students in three Wakta middle schools. A quantitative survey was used to access 8th graders' perception of their behavioral, cognitive, and emotional engagement. The engagement data was correlated to standardized test scores and demographic data for each student. Further analysis revealed increased engagement has a direct correlation to increased academic achievement. An academic achievement gap between minority students and white students exists in nearly every school district in the United States, and the Wakta school district is not immune to this educational and social reality. If our citizenry does not have the critical thinking, problem solving, or communication skills to compete in the globalized economy, jobs that would have been available to Americans will be outsourced to people who do have the requisite skills (Wagner, 2008).

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## Chapter One

If a nation expects to be ignorant and free, in a state of civilization, it expects what never was and never will be.

Thomas Jefferson to Charles Yancey, 1816

Youngsters entering a new school and neighborhood are confronted with multiple transition challenges. The challenges are compounded when the transition also involves recent arrival to a new country and culture. In the short run, failure to cope effectively with these challenges can result in major learning and behavior problems; in the long run, the psychological and social impacts may be devastating.

Cárdenas, Taylor, Adelman, 1993

### Problem Statement

The public education system in the United States is in peril, and by extension, so is the future of American society. As Thomas Jefferson indicates in the quote above, our freedoms are limited by ignorance. Our civilization is threatened by the fact that more than 50% of minority students drop out of high school before they graduate, limiting their access to opportunity for the rest of their lives (Orfield, 2009). The resegregation of schools in the U.S., particularly racial resegregation, is a national scourge. In *Shame of the Nation*, Harvard researchers Gary Orfield and Susan Eaton are cited for their adamant support of integrated schools: “American public schools are now 12 years into the process of continuous resegregation. The desegregation of black students, which increased continuously from the 1950’s to the late 1980’s, has now receded to levels not seen in three decades” (Kozol, 2005, p. 19). Orfield & Eaton stipulate that

“Desegregation did not fail. In spite of a very brief period of serious enforcement...the desegregation era was a period in which minority high school graduates increased sharply and the racial test score gaps narrowed substantially until they began to widen again in the 1990’s” (Kozol, 2005, p. 19). As racial segregation of students in U.S. schools has increased, especially in the urban cores of the largest cities, the academic achievement gap has widened between white students and minority students.

An academic achievement gap between minority students (primarily black and Hispanic students) and white students exists in nearly every school district in the United States, and the Wakta school district is not immune to this educational and social reality. In the 2010-11 school year at Wakta MS #2, 83% of white 8<sup>th</sup> grade students were proficient on the mathematics MCA-II test, while only 42% of black 8<sup>th</sup> grade students were proficient. The reading MCA-II test results were similar: 91% of white 8<sup>th</sup> grade students demonstrated proficiency, compared to only 52% of black 8<sup>th</sup> grade meeting proficiency requirements. The MCA-II science results were more dismal, as 66% of white 8<sup>th</sup> grade students and only 17% of black 8<sup>th</sup> graders attained proficiency. The stark gap between minority and white student scores on the MCA’s in Wakta mirrors the achievement gap evident in school districts across the nation. A black student of graduation age is four years behind the average white student in terms of academic achievement (Thernstrom & Thernstrom, 2003). This achievement gap is a national issue that has global implications. If our citizenry does not have the critical thinking,

problem solving, or communication skills to compete in the globalized economy, jobs that would have been available to Americans will simply be outsourced to people who do have the capacity and requisite skills (Wagner, 2008).

One cohort of students relatively new to Wakta schools is composed of the students that enroll via *The Choice is Yours* (TCIY) program. *The Choice is Yours* Program emanated from the *NAACP v. State of Minnesota* (2001) case, and it represented a voluntary desegregation effort between Minneapolis and eight western suburban districts. The 2009 multi-year program evaluation of TCIY was conducted by Aspen Associates, and both quantitative and qualitative data was collected for the Minnesota Department of Education. Results were not disaggregated by individual school, preventing an opportunity to compare and contrast the experience of TCIY students in each school.

### **Purpose of the Study**

The overarching purpose of this research is to enhance the educational situation of students by informing educational leaders of student perceptions regarding their eighth grade experience. The specific purpose of this research is to investigate the relationship between the academic achievement (as measured by standardized test scores) and student engagement (behavioral, cognitive, and emotional). A postpositivist researcher "...assumes a learning role rather than a testing one" (Agar, 1988, p 12). Though administrators and teachers are viscerally aware of an academic achievement gap between black and Hispanic students and white and Asian students in Wakta, there is not a consensus on the reasons the gap

persists. The intent of this study is to determine if engagement does indeed have an impact of narrowing the academic achievement gap between black and white students. Researchers who employ a postpositivist approach view themselves as “people who conduct research *among* other people, learning *with* them, rather than conducting research *on* them” (Wolcott, 1990, p 19). This particular point will be critical in the effort to convince school administrators and eighth grade teachers that the trade-off of the loss of teaching time for the online student survey will ultimately benefit all Wakta stakeholders.

Post-positivist research is often exploratory, and explanations for problems “sometimes have to be discovered” (Hammersley, 2000, p 456). Students who participate in this study will have an opportunity to include their comments regarding the reasons they feel they are engaged (or not engaged) in their education. This research will be “postpositivism in nature because it will begin with a theory and data will be collected that will *either* support or disprove the theory” (Sbrocco, 2009, p 88). Dr. Renee Sbrocco conducted the exact same study in Bloomfield, MN in 2008. Dr. Sbrocco’s research revealed a positive and significant correlation between increased engagement and increased academic achievement for black students (Sbrocco, 2009).

A postpositivism orientation lends itself to a variety of specific types of methodology, including both qualitative and quantitative, as long as the purpose is to look for regular and predictable associations among subjective variables (in this case, attitudes regarding the 8<sup>th</sup> grade experience) and achievement. The benefits

of a quantitative study were adroitly outlined by Ryan et al, in 2006. According to Ryan et al, quantitative studies:

- provide a broad familiarity with cases;
- examine patterns across many cases;
- show that a problem is numerically significant;
- provide readily available and unambiguous information.

This study will be *cross-sectional*, as students will be assessed at a single point in time (Sbrocco, 2009). Additionally, this study will be correlational.

Researchers utilize correlational studies to address the relationship of one variable when another variable changes (Thomas, 2003). One advantage of using a correlational study is the use of statistical techniques for calculating the degree of a relationship between two variables. The major limitation of a correlational study is the input data. If a researcher collects faulty data, the correlation is compromised (Thomas, 2003).

### **Research Questions**

The study has five specific research questions. The questions and related sub questions are as follows:

1. What is student engagement?
  - a. What forms of student engagement emerge?
  - b. What are the relationships among the types of student engagement?
  - c. How does student engagement emerge by school, by demographic indicators, and overall?

2. What is the relationship between student engagement and student academic achievement?
  - a. What is the relationship between student engagement and performance on the Reading and Mathematics portions of the MCA II?
  - b. What is the relationship between student engagement and performance on the MAP Mathematics and Reading assessments?
3. What is the relationship between 8<sup>th</sup> grade students' engagement and academic achievement?
  - a. What is the relationship between student engagement and MCA Mathematics and Reading?
  - b. What is the relationship between student engagement and MAP Mathematics and Reading?
4. What is the relationship between students' engagement, developmentally appropriate schooling, and teacher support?
  - a. What is the relationship between student engagement and teacher support?
  - b. What is the relationship between student engagement and developmentally appropriate schooling?
  - c. What were the differences between 8<sup>th</sup> grade students' experience

of both teacher support and developmentally appropriate schooling?

5. To what degree can student engagement decrease or increase the effects of ethnicity on student academic achievement?

### **Context for the study**

The significance of this proposed study is to examine the relationship of student engagement and academic achievement. This study will include all Wakta eighth grade students, thus the Wakta School District will be a beneficiary of the results of the student responses and accompanying analysis. Dr. Renee Sbrocco utilized this survey and research design in her 2008 study and published her findings in 2009. Once this study is complete, there will be data and analysis regarding the relationship of student engagement and academic achievement for both Bloomfield and Wakta, two similar suburban school districts. Each district has three middle schools, and each district has approximately 10,000 students.

### **Achievement Differences Between Groups of Students**

The Wakta Public School District is not immune to the presence of academic achievement gaps among groups of students. In fact, an achievement gap between black and Hispanic students and their white and Asian peers exists in reading, mathematics, and science tests at every grade level in Wakta. The vagaries of an achievement gap between groups of students have local, national and global implications, yet there remains a relative lack of research focusing on student perceptions regarding their educational experience.



The results of disengaged students are harrowing. In the U.S., nearly one of every three students entering high school will not graduate (Alliance for Excellent Education, 2012). According to the Alliance for Excellent Education, Hispanic (56%) and black (54%) student graduation rates are significantly lower than their white (77%) and Asian (81%) peers. This achievement gap leads directly to an earning gap of approximately \$10,000 between students who graduate from high school and those who drop out of high school (Alliance for Excellent Education, 2009). The personal, social, and economic costs of disengagement are quantifiable. According to Bridgeland et al, (2006):

- High school dropouts live a decade less than graduates and are disproportionately affected by heart disease, diabetes, and obesity.
- A one percent reduction in dropout rates would reduce the number of crimes by 100,000 annually. Increasing graduation rates by 10% would correlate with a 20% reduction in murder and assault rates.
- The lower wages of dropouts mean \$36 billion dollars in state and local funding is lost each year.
- The children of dropouts are more likely to drop out and to live in poverty.
- The average high school dropout makes 27% less income per year than the average high school graduate. Over a lifetime, this adds up to over a quarter-million dollars in reduced personal capital.

Given the negative outcomes related to student disengagement, there have been innumerable attempts to stanch the exodus of students from U.S. secondary schools. One structural attempt to enhance the experience of students is the implementation the middle school model. Students are placed in teams with a common group of teachers who are able to discuss the emotional, social, and academic progress (or regress) of each student (Turning Points, 2000). Middle Schools are often arranged by some combination of students in grades 5-9. Wakt

completed a middle school self-study in 2008-09, and *Turning Points 2000* served as one of the guiding documents in this effort. Wakta has utilized a middle school model since the 1997-98 school year. Individual differences in scheduling, course offerings, etc., have emerged among the middle schools, creating divergent learning opportunities for students. The main goal of the 2009 middle school self-study was to create a common experience for all Wakta middle school students, regardless of the school they attended. Advisory classes were instituted at the beginning of the school day (between 8:20-8:40) in each middle school as a result of the work of this committee, with the intent to ensure an adult advocate for each student in middle school (Turning Points, 2000).

The public education system in the United States is the bedrock of our society, serving as a beacon of hope for citizens to pursue the American Dream. The future of U.S. civilization is threatened by the fact that more than 50% of minority students drop out of high school before they graduate, limiting their access to opportunity for the rest of their lives (Orfield, 2009). The resegregation of schools is a national scourge. In *Shame of the Nation*, Harvard researchers Gary Orfield and Susan Eaton are cited for their adamant support of integrated schools: “American public schools are now 12 years into the process of continuous resegregation. The desegregation of black students, which increased continuously from the 1950’s to the late 1980’s, has now receded to levels not seen in three decades” (Kozol, 2005, p. 19).

Academic achievement gaps between groups of students exist in nearly

every school district in the United States, and the Wakta school district is not immune to this educational and social reality. In the 2010-11 school year, yawning gaps in achievement between groups of students were evident in the MCA II Reading results. Of the 8<sup>th</sup> grade students, 92.2% of Asian students, 90.6% of white students, 71.4% of Hispanic students, and 48.6% of black students were proficient in reading. The 8<sup>th</sup> grade mathematics MCA-III test results were similar: 82.1% of Asian students, 72.2% of white students, 38.1% of Hispanic, and 26.1% of black students demonstrated proficiency. The stark gap in academic achievement between black and Hispanic students and white and Asian students in Wakta mirrors the achievement gap evident in the overwhelming majority of school districts across the nation. This achievement gap is a national issue that has global implications.

One cohort of students relatively new to Wakta schools enroll via *The Choice is Yours* (TCIY) program. *The Choice is Yours* Program emanated from the *NAACP v. State of Minnesota* (2001) case, and it represented a voluntary desegregation effort between Minneapolis and eight western suburban districts. The 2009 multi-year program evaluation of TCIY was conducted by Aspen Associates, and both quantitative and qualitative data was collected for the Minnesota Department of Education. Unfortunately, the results were not disaggregated by individual schools.

### **Student Engagement**

Multiple researchers (e.g., Adelman & Taylor, 2010; Fredricks, Paris, & Blumenfeld, 2004) have professed the positive educational outcomes associated with students that are engaged in their education. Fredricks, Paris & Blumenfeld (2004) summarized the connection between student engagement and academic achievement:

Engagement is associated with positive academic outcomes, including achievement and persistence in school; and it is higher in classrooms with supportive teachers and peers, challenging and authentic tasks, opportunities for choice, and sufficient structure (p. 4).

Fredricks, Blumenfeld, & Paris (2004) have identified and explained three types of student engagement that have emerged in school research literature:

- 1) 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.
- 2) Emotional engagement encompasses positive and negative reactions to teachers, classmates, academics, and school and is presumed to create ties to an institution and influences willingness to do the work.
- 3) 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. 3).

Unfortunately, disengaged students are prevalent in schools both in the United States and abroad. The existence of disaffected students is a global problem and can occur at fluctuating levels in schools around the world (Williams, 2003). Citing a devastating report issued by The National Research Council and Institute of Medicine (2004), Dr. Sbrocco noted “that large numbers

of American students are not fully engaged intellectually in the teaching and learning enterprise” (Sbrocco, 2009, p. 9).

A low level of academic engagement has negative effects, one of which is low academic achievement. Dropping out of school is the ultimate form of disengagement (Finn, 1993), Dr. Sbrocco noted “absenteeism, poor overall attitude about school, and greater number of discipline referrals often portend students at risk of prematurely leaving school (Sbrocco, 2009, p. 9). Minority students demonstrate the highest levels of disengagement among U.S. students (Voelkl, 1997). Adelman & Taylor (2010) outlined the deleterious effects of disengagement in their research:

Conversely, for many students, disengagement is associated with behavior problems, and behavior and learning problems may eventually lead to dropout. From a psychological perspective, disengagement from classroom learning is associated with threats to feelings of competence, self-determination, and/or relatedness to value others. The demands may be from school staff, peers, instructional content and processes. Psychological disengagement can be expected to result in internalized behavior (e.g., boredom, emotional distress) and/or externalized behavior (misbehavior, dropping out) (p. 3).

As a result of the increased number of disengaged students, student engagement (behavioral, cognitive, and emotional) has emerged as a crucial aspect of education reform efforts intended to stanch the negative effects of students who are not identifying with their school. Though not a panacea, student engagement “is seen as a possible antidote to declining student academic motivation and achievement” (Sbrocco, 2009, p. 10).

Student engagement may be connected to student achievement, and, as a result, may serve to create an equitable environment that could close the academic achievement gap between black and Hispanic students and their Asian and white peers. If students are motivated (intrinsically or extrinsically), they will often “be conscious and purposeful in the learning process” (National Research Council and Institute of Medicine, 2003, p. 23). Dr. Sbrocco (2009) cited the work of Finn (1993), Marks (2000), and Ogbu (2003) as she stated “teacher behaviors, a school’s climate, and the elimination of racist beliefs can positively impact student’s academic engagement” (p. 10). Student engagement is malleable, and results from an interaction between the student and the school setting (Connell, 1990; Finn & Rock, 1997; Fredricks, Blumenfeld, and Paris, 2004).

### **Definition of Key Terms**

#### **Academic Achievement Gap**

The academic achievement gap in the United States is defined as the lower average test scores, grades and college attendance rates among black and Latino students compared to their white, non-Hispanic peers (Solomon, 2009). The persistent achievement gap between black and white students shows up in grades, standardized-test scores, course selection, dropout rates, and college-completion rates (EPE, 2004). Myron Orfield’s (2011) research found black students tend to receive lower grades in school (Demo & Parker, 1987), score lower on standardized tests of intellectual ability (Steele & Aronson, 1995), drop out at

higher rates (Steele, 1992), and graduate from college with substantially lower grades than white students (Nettles, 1988).

### **Behavioral Engagement**

Behavioral engagement includes both academic and nonacademic school behavior, and research indicates that it has a significant impact on academic achievement. Dr. Sbrocco (2009) posited that behavioral engagement can be seen as positive student conduct, such as following the rules in the classroom and demonstrating behaviors that do not disrupt the learning environment (Finn, 1993; Finn, Pannozzo, & Voelkl, 1995; Finn & Rock, 1997). Another indicator of behavioral engagement is a student's involvement in the daily routines of a classroom. Behavioral engagement may be observed in the effort students display, the amount and depth of questions asked, as well as their concentration on various learning activities (Finn et al., 1995).

### **Cognitive Engagement**

Cognitive engagement is dependent on the commitment a student invests in the learning process (Fredericks, Blumenfeld, & Paris, 2004). Students who demonstrate a commitment to learning attain higher grades and test scores and are less likely to be disruptive, truant, or drop out (Klem & Connell, 2004). Dr. Sbrocco (2009) cited Newmann, Secada, and Wehlage's (1995) definition of engagement in academic work as "student's psychological investment in and effort directed toward learning, understanding, mastering the knowledge, skills, or crafts that the academic work is intended to promote" (p. 12).

## **Emotional Engagement**

Emotional engagement encompasses student actions and feelings of their classroom experience and their school (Sbrocco, 2009). School identification is an integral characteristic of emotional engagement (Finn, 1989; Voelkl, 1997).

Boredom, sadness, and anxiety are a few of the indicators of emotional disengagement (Connell & Wellborn, 1991, Skinner & Belmont, 1993), while feelings related to school safety and connectedness with peers and staff demonstrates emotional engagement. Lee and Smith (1995) have measured emotional engagement by recording student reactions to school and their teachers (Stipek, 2002). One limitation of measuring emotional engagement is the difficulty to focus on one of a wide array of academic factors that impact the educational experience (Fredericks, Blumenfeld, & Paris 2004).

## **Developmentally Appropriate School Model (DASM)**

The seminal *Turning Points 2000* outlines a Developmentally Appropriate School Model (DASM) for 10-14 year-olds as well as provides recommendations for increasing student engagement and academic achievement (Jackson & Davis, 2000). Dr. Sbrocco (2009) outlined the definition for the developmentally appropriate school model in her research:

Students who are emotionally and mentally disengaged from school most often are bored, distracted, mentally troubled, or do not see the value of schooling (National Research Council and Institute of Medicine, [NRCIM], 2003). The ultimate form of disengagement is dropping out of school. Younger students are most often compliant enough to attend school because they do not have the means to avoid it. DASM is a list of recommendations that are designed to provide a comprehensive approach



to educating young adolescents - particularly students in grades six-eight. The model is made up of the following components:

- 1) Curriculum grounded in rigorous, public academic standards;
- 2) Instructional methods designed to prepare all students to achieve higher standards and become lifelong learners;
- 3) Teachers who are expert at teaching young adolescents;
- 4) Organized relationships for learning to create a climate of intellectual development and a caring community of shared educational purpose;
- 5) Govern democratically;
- 6) Provide a safe and healthy school environment as part of improving academic performance and developing caring and ethical citizens;
- 7) Involve parents and communities in supporting student learning and healthy development (Jackson & Davis, 2000). (Sbrocco, 2009, p. 16).

### **Teacher Support**

Teacher support is defined by a teacher's ability to deliver authentic curriculum and instruction in addition to cultivating a classroom environment in which students interact appropriately with their teacher and with each other.

According to the Programme for International Student Assessment (PISA) index (2003), teacher support is manifested when "the teacher shows an interest in every student's learning; the teacher gives students an opportunity to express opinions; the teacher helps students with their work; the teacher continues teaching until the students understand; the teacher does a lot to help students; and the teacher helps students with their learning" (OECD, 2003, p. 1).

### **School Culture**

School culture is defined by Stephanie Stolp (1994) as:

The obvious elements of schedules, curriculum, demographics, and policies, as well as the social interactions that occur within those structures and give a school its look and feel as "friendly," "elite," "competitive," "inclusive," etc. (p. 1).

School culture has emerged in educational research as an important topic of future research and is considered a significant variable in educational reform efforts.

### **Delimitation and Limitations of the Study**

Delimitations are defined as "...how a study will be narrowed in scope, that is, how it is bounded" (Pajares, 2007). This study only includes 8<sup>th</sup> graders from three Wakta middle schools. Consequently, it will be difficult to generalize the results of this sample of Wakta 8<sup>th</sup> grade students to 8<sup>th</sup> grade students in other districts in the U.S. This study was limited to Wakta 8<sup>th</sup> grade students in order to replicate the Sbrocco 2009 study (i.e., only 8<sup>th</sup> graders included in the study).

The limitations of the study are those "...characteristics of design or methodology that set parameters on the application or interpretation of the results of the study; that is, the constraints on generalizability and utility of findings that are the result of the devices of design or method that establish internal and external validity" (Clark, 2000). Limitations also "identify possible weaknesses of the study" (Pajares, 2007). In this study, the sampling frame consisted of all 8<sup>th</sup> grade students and the sample would be one of convenience (Sbrocco, 2009). One limitation of this study emerged as only eighth grade students in Wakta Public Schools were surveyed. Coverage error occurred as there were student absences on the day the survey was taken. Other coverage errors occurred when a parent or student opted not to participate in this voluntary survey. Measurement error was reduced as three groups of 7<sup>th</sup> grade students piloted the survey in January, 2011.

These 7<sup>th</sup> grade students provided feedback regarding vocabulary, process, ease of use, and structure of the survey. Non-response error was mitigated as the 8<sup>th</sup> grade students completed the survey in a computer lab during the school day under the supervision of their geography teacher. Each student had access to a computer, and they had enough time to complete the survey in their geography class. Students were required to answer each question on the survey, eliminating non-response error for the students who took the survey.

The sample size consisted of the entire Wakta 8<sup>th</sup> grade student population (786 students). A response rate of 88% (692/786) was achieved for this study. However, 42 students were not included in the final analysis as they had incomplete test data (e.g., missing MCA test(s), missing MAP test(s), or a combination of missing MCA or MAP test(s)). The final number of participants (N = 650) represents 83% of the Wakta 8<sup>th</sup> graders. Mobility emerged as a limitation as the 42 students not included in the final analysis were new to Wakta Public Schools in the 2009-2010 or 2010-2011 school years (and thus their test data was unavailable). The dearth of Native Americans and the comparatively lower number of Hispanic and Black participants prevent this study from generalizability as the particular demographics of Wakta 8<sup>th</sup> graders do not mirror the majority of 8<sup>th</sup> grade levels in other U.S. school districts. Table 1.1 includes a breakdown of inclusion rates by ethnicity. The final inclusion rate for all students was 83% (650/786).

Table 1.1 *8<sup>th</sup> Grade Student Inclusion Rate, Spring 2011.*

Ethnicity	Declined to take survey	Did not take survey	Took Survey Data Gaps	Took survey and included in analysis	Total Students	Inclusion Rate %
Asian	5	4	3	68	80	85%
Hispanic	2	3	1	16	22	73%
Black	2	17	16	39	74	53%
White	15	47	22	527	610	86%
Overall	24	71	42	650	786	83%

## Chapter Two

*“Learning and succeeding in school requires active engagement. ... The core principles that underlie engagement are applicable to all schools—whether they are in urban, suburban, or rural communities. ... Engaging adolescents, including those who have become disengaged and alienated from school, is not an easy task. Academic motivation decreases steadily from the early grades of elementary school into high school. Furthermore, adolescents are too old and too independent to follow teachers’ demands out of obedience, and many are too young, inexperienced, or uninformed to fully appreciate the value of succeeding in school.”*

National Academy of Science’s Research Council (2004)

### Review of Literature

This chapter reviews current literature pertaining to the evolution of the U.S. school system, achievement gaps between cohorts of students, and the initiatives intended to ameliorate educational inequities. The academic achievement gap has increased the stratification of access to opportunity in our nation by both race and income level with negative effects (Orfield, 2009). An analysis of the research of both in-school factors and societal factors of student achievement is included in this chapter as well. This review also examines the *Choice is Yours* Program, a Minneapolis Voluntary Desegregation Plan created in 2000 after the settlement of the lawsuit brought by the National Association for the Advancement of Colored People (NAACP) versus the State of Minnesota.

### The Academic Achievement Gap

The academic achievement gap in the United States is defined as the lower average test scores, grades and college attendance rates among black and Latino students compared to their white, non-Hispanic peers (Solomon, 2009). Myron Orfield (2011) summarized several researchers; Black students tend to receive

lower grades in school (Demo & Parker, 1987), score lower on standardized tests of intellectual ability (Steele & Aronson, 1995), drop out at higher rates (Steele, 1992), and graduate from college with substantially lower grades than white students (Nettles, 1988). The expanding achievement gap, “of a large and growing scale of African American children is nothing short of national crisis” (Haycock, 2001, p 7). The academic achievement gap in the United States between black and white students has fluctuated in the years since *Brown v. Board of Education*. Recent trends indicate the achievement gap is widening, thereby erasing significant gains made by black students in mathematics and reading during the 1970’s and 1980’s. By the year 2010, black and Hispanic students will make up approximately 50% of students in U.S. schools (Haycock, 2001). The increase of achievement gaps among groups of students threatens U.S. prosperity when one considers the catastrophic impact on society when half of minority students are not proficient on standardized tests (Orfield, 2006). Furthermore, nearly 50% of all black and Hispanic students drop out before they graduate high school (Orfield, 2009).

The effects of a pervasive achievement gap on our nation’s economy, society, and future are harrowing. Tony Wagner outlined the problem in his *Global Achievement Gap* (2008): “Over the next 25 years or so...nearly half of the projected job growth will be concentrated in occupations associated with higher education and skill levels. This means that tens of millions more of our students and adults will be less able to qualify for higher-paying jobs” (p. xx).

Students who lag in achievement or drop out of school are at a competitive disadvantage in the globalized economy of the present and future (Wagner, 2008).

The achievement gap is evident at every level (elementary, middle, high) of the K-12 educational spectrum. Black high school seniors score lower on standardized tests than white eighth graders in mathematics, reading, U.S. history, and Geography (Thernstrom and Thernstrom, 2003). Sam Dillon's analysis of the achievement gap for the *New York Times* (2009) showed a 29-point difference in reading and a 26-point difference in mathematics between black and white students. The massive difference of scores represents two to three years' worth of learning (Dillon, 2009). A typical black or Hispanic 17-year-old is likely to score below 80% of white 17-year-old students on the most reliable tests (Thernstrom and Thernstrom, 2004).

### **Policies Contributing to the Academic Achievement Gap**

The next paragraphs provide an overview of the role of local government, federal government, and the Supreme Court decisions that directly impacted educational and social policies.

#### **Dred Scott Decision**

In 1857, the United States was on the precipice of Civil War. One issue that could not be ignored any longer was the insufferable existence of blacks held in lifetime servitude in the south. This was juxtaposed with the reality of blacks living freely in the northern states. Though the Declaration of Independence states that "all men are created equal," the *Dred Scott v. Sandford* decision overturned

that noble sentiment, at least as it pertained to black people (Waks, 2005). The *Scott* Decision stipulated that “all men” in the Declaration of Independence could not possibly have included black men, and the court ruled “that no African Americans, free or slave, could claim any rights and privileges guaranteed to citizens by the Constitution” (Waks, 2005). At a time when the idea of slavery was still debated in this nation, the status of blacks had been decided in the Dred Scott case.

### **Plessy v. Ferguson**

Whereas the Dred Scott Decision stipulated that black Americans could not be considered citizens, *Plessy v. Ferguson* (*Plessy v. Ferguson*, 163 U.S. 537, 1896) outlined a “separate but equal” doctrine that would eventually permeate every segment of American society. In his dissenting opinion, Justice Harlan noted the *Plessy v. Ferguson* decision violated both the 13<sup>th</sup> and 14<sup>th</sup> Amendments. With the 14<sup>th</sup> Amendment in mind, Harlan argued:

...It added greatly to the dignity and glory of American citizenship, and to the security of personal liberty, by declaring that 'all persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the state wherein they reside,' and that 'no state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws.'

(*Plessy v. Ferguson*, 163 U.S. 537 (1896))

The prose of the 14<sup>th</sup> Amendment, coupled with Justice Harlan’s scathing dissenting opinion in *Plessy v. Ferguson*, could not overcome the untenable racial realities of the era. Blacks may have been considered “equal” under the 14<sup>th</sup> and



15<sup>th</sup> amendments, however, vigilante justice and mob rule led to the censure or possible death of those blacks who did attempt to exercise their constitutionally guaranteed freedoms (Waks, 2005). In his famous dissenting opinion in *Plessy v. Ferguson*, Justice John Marshall stated, "Our Constitution is color-blind, and neither knows nor tolerates classes among citizens" (Lopez, 2006). De facto segregation, the separation of races by custom or tradition rather than by law, and de jure segregation, evidenced by Jim Crow Laws and other official forms of segregation that evolved after the *Plessy v. Ferguson* decision, revealed an American society was anything but color-blind.

The doctrine of "separate but equal" codified in the Plessy decision led to inequalities in school funding, facilities, and teacher quality in black schools (Garibaldi, 1997). Laws were enacted across the nation to create segregated schools:

- 1) In Missouri, separate free schools shall be established for the education of children of African descent; and it shall be unlawful for any colored child to attend any white school, or any white child to attend a colored school.
- 2) In Florida, the schools for white children and the schools for Negro children shall be conducted separately.
- 3) In North Carolina, books shall not be interchangeable between the white and colored schools, but shall continue to be used by the race that used them first.
- 4) In Oklahoma, any instructor who shall teach in any school, college or institution where members of the white and colored race are received and enrolled as pupils for instruction shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined in any sum not less than ten dollars (\$10.00) nor more than fifty dollars (\$50.00)

for each offense.

- 5) In Texas, [The County Board of Education] shall provide schools of two kinds; those for white children and those for colored children. (Randall, 2001)

### ***Brown v. Board of Education***

The *Brown v. Board* decision was a watershed event in educational policy in the United States. The Supreme Court had to decide three pernicious issues pertaining to desegregated schools. The first was to overthrow *Plessy v. Ferguson*'s interpretation that "separate but equal" school buildings were permissible (Ascik, 1984). Second, the court had to decide whether "the physical facilities and other 'tangible' factors" were unequal (Ascik, 1984, p 6). Finally, the court decreed "separate educational facilities are inherently unequal," and the separation of children based on race created a "sense of inferiority" caused by the low esteem of black children, it affected "the motivation of a child to learn," and it slowed "the educational and mental development of Negro children" (Ascik, 1984, p 7). An explosion of education-related litigation and legislation followed the *Brown v. Board* decision. Though schools were to be desegregated "with all deliberate speed," presidential intervention was needed to force integration in some communities.

In September, 1957, Arkansas Governor Orval Faubus mobilized the National Guard in September 1957 in order to "keep the peace," but he also ordered the soldiers to bar the black students from entering Central High School (Central High 1957, 2008). Eventually President Eisenhower deployed 1,000

members of the 101<sup>st</sup> Airborne of the U.S. Army to protect the black students as they entered the newly segregated school. The drama of armed American soldiers escorting black students into school in order to comply with *Brown v Board* played out for the nation to see. Though the black students were allowed to attend an integrated school for the 1957-58 school year, the controversy continued to flare. On September 27, 1958, Little Rock voters disapproved of integration of the high schools by a staggering 129,470 to 7,561 margin. The school board decided to cancel the entire 1958-1959 school year for Little Rock high schools, and the city's 3,698 high school students had to find alternative schooling options (Central High 1957, 2008). The infamous "Little Rock 9" dramatized the complex struggles integration of black and white students would cause in communities across the nation. Congress began to enact legislation intended to create equitable educational opportunities for all of America's students, regardless of race, gender, etc. Following is an overview of the legislative and judicial efforts.

### **The 1960's**

The *Griffin v. County School Board* (1964) case in Virginia was representative of the subterfuge tactics utilized by various school boards in the wake of *Brown v. Board of Education* decision. Similar to the case in Little Rock, AR, the school board in the *Griffin* case attempted to avoid integration by shuttering the public high schools. Instead of offering public schooling to the high school students in the *Griffin* case, the school board attempted to issue

vouchers for private schools to the affected students. The Supreme Court ruled that the school board was not acting “with all deliberate speed” to integrate the public schools and ordered the public schools to be re-opened immediately.

President Lyndon B. Johnson’s initiatives included an emphasis on education reform. In 1964, Johnson signed the Civil Rights Act, which forbade segregation in public places, including public schools (U.S. Commission on Civil Rights [USCCR], 2007). If a school were to be in violation of Title VI, it would face forfeiture of federal funding (USCCR, 2007). Another prong of Johnson’s Great Society was the War on Poverty, with an emphasis on efforts to eradicate educational inequities in the U.S. The Compensatory Education for Cultural Deprivation posited that children of poor urban and rural families would benefit from early education. The Head Start program emerged as a comprehensive intervention that combined education, health care and social services for both parents and their children (Zigler & Muenchow, 1992). The Elementary and Secondary Education Act (ESEA) was passed in 1965. The ESEA of 1965 marked a dramatic shift from local to federal control of education funds, as Title 1 allowed the U.S. Department of Education to provide increased funding to school districts with high rates of students living in poverty (U.S. Department of Education, 2002).

The decision in the *Green v. County School Board* (1968) case affected school districts throughout the U.S. In a district evenly divided between white and black students, the county school board created a program in which each

student could choose which school to attend. Until 1968, the black students attended school on one side of the county, while the white students attended school on the opposite end of the county. Following the school board's school choice initiative, a group of black students chose to attend the formerly all-white school, while none of the white students chose to attend the all-black school. Ultimately a group of students and parents sued the school board, claiming true integration was not occurring under this plan (*Green v. County School Board*, 391 U.S. 430, 88 S. Ct. 1689, 20 L. Ed. 2d 716 (1968)). The unanimous decision rendered by the Supreme Court had a wide-ranging impact. Though local school districts were given flexibility in creating a school desegregation plan, the Supreme Court maintained the option to intervene if a school board did not "effectuate a transition to a racially nondiscriminatory school system" in a swift manner (*Green v. County School Board*, 391 U.S. 430, 88 S. Ct. 1689, 20 L. Ed. 2d 716 (1968)).

### **The 1970's**

Three landmark Supreme Court cases in the 1970's represented the high courts' conflicting and shifting attitude regarding desegregation of U.S. schools. The *Swann v. Charlotte-Mecklenburg Board of Education* (1971) decision focused on the plight of black students in urban areas (*Swann v. Charlotte-Mecklenburg Board of Education*, 402 U.S. 1, 91 S. Ct. 1267, 28 L. Ed. 2d 554 (1971)). The high court ruled that a desired ratio of 71% white students to 29% black students was advisable (the demographics of the district mirrored the 71-29

racial split). Significantly, the court declared the racial ratio was part of the solution, but not the only solution. Chief Justice Burger wrote for the court, “We see [however] that the use made of mathematical ratios was no more than a starting point in the process of shaping a remedy, rather than an inflexible requirement” (Hall, 1992, p 11). The *Milliken v. Bradley* (1974) case upheld the power of local school districts and highlighted the distinct differences in school organization between northern and southern states. Southern school districts were countywide educational systems, and schools that were previously desegregated could be efficiently integrated under the purview of the district leadership (Orfield & Eaton, 1996). School districts in northern states were not organized by county, and the irregular district boundaries served to ensure racial segregation (Orfield & Eaton, 1996). Housing segregation in the north led to far less school integration, especially in the suburbs of large urban cities. Suburban schools were reticent to integrate with sprawling urban school districts and their large minority populations (Orfield, 1997). The *Milliken* case focused on the integration efforts of the Detroit, MI, School District with 53 bordering school districts. The proposed school district would have included over 750,000 students, and extended bus rides worried many parents (Hall, 1992). Many believe “White Flight” accelerated as a result of this pivotal case. Indeed, the *Milliken* decision ensured suburban school districts would not be broken up for integration purposes.

“The world was made safe for white flight. White suburbs were secure in their grassy enclaves .... Official, legal segregation indeed was dead; but what replaced it was a deeper, more profound segregation ... Tens of thousands of black children attend schools that are all black, schools

where they never see a white face; and they live massed in ghettos which are also entirely black” (Friedman, 2002).

Henceforth, racial integration efforts could only occur within a school district’s boundaries. Suburban school districts were exempt from any obligation to integrate their schools with urban school districts. Coupled with overt and covert real estate practices that dissuaded black families from settling in primarily white neighborhoods, a system of segregated schools was destined to continue (Orfield, 2005). University of Minnesota Law Professor Myron Orfield (2005) asserted:

“Pervasive housing discrimination by public and private actors helped create, and now maintains poor, minority neighborhoods. Until the end of World War II, physical violence, racial zoning, and discriminatory real estate practices kept blacks closely confined to the ghetto. In many cities, white property owners attached restrictive covenants to deeds that forbade blacks from buying homes in their neighborhoods. Real estate agencies engaged in a variety of discriminatory practices, including racial steering of blacks and whites away from each other and blockbusting, which involves selling a few homes in a white neighborhood to black tenants, buying neighboring homes at lower prices from panicked white homeowners, then reselling the homes to middle-income blacks at a premium.”

As Orfield stated, housing discrimination existed both pre- and post- *Brown v Board of Education*. Black families were essentially trapped in “islands” of poverty, especially in the north (Orfield, 2005). The Supreme Court’s reticence to disband local school districts was also evident in the *Pasadena Board of Education v. Spangler* (1976) decision. The high court decreed that since Pasadena’s public schools were not segregated as a result of “intentionally segregationist policies,” there was no legal impetus to force the schools to

integrate (Hall, 1992).

The National Assessment of Educational Progress (NAEP) represented the emergence of educational accountability in the U.S. The priority of federal education funding was not focused on improving the education of the nation's poor and minority students. Students were tested yearly in reading, mathematics, science, writing, history, geography and the arts (Hombo, 2003). Since the initial tests in 1969, the goals of NAEP were to measure academic achievement at the national level as well as measure trends in academic performance (Hombo, 2003).

In the latter portion of the 1970's (1977-1980), Jimmy Carter's administration attempted to provide equitable education to an increasingly diverse cohort of students. Carter struggled to fund the expansive and expensive new programs that federal courts demanded. The President's efforts were further hampered by stagflation and the oil crisis of 1979. Dr. Sbrocco (2009) highlighted President Carter's efforts to highlight the efficacy of the various educational initiatives in an effort to legitimize continued financial investment (SIFEP, 2006). Finally, an emerging movement of program evaluation was used to analyze the effectiveness of educational programs receiving millions of federal tax dollars.

### **The 1980's**

When Ronald Reagan assumed the Presidency in 1981, he followed through on his campaign pledge of reducing taxes (Frenze, 1996). Federal categorical aid to the nations' school districts was slashed, resulting in a transfer of control of funding from the Federal level to the state and local level. The



*Educational Consolidation and Improvement Act* (ECIA) included a reduction of federal education funding of approximately one billion dollars (15%) in the 1982-83 school year alone (Hombo, 2003).

As part of the program evaluation effort, *A Nation at Risk: The Imperative for Educational Reform* was published in 1983. *A Nation at Risk* (1983) excoriated the current state of public schools as it cited declining scores on standardized tests. According to *A Nation at Risk* (1983), student achievement (as measured by standardized tests) in 1983 had dipped below the level of student achievement in 1957. The report continued to assail the U.S. educational system; "American students were not studying the right subjects, were not working hard enough, and were not learning enough. Their schools suffered from slack and uneven standards. Many of their teachers were ill-prepared" (Finn, 1989, p. 17). The *Nation at Risk* also criticized the supposed prevailing educational emphasis of access and equity for all students, instead of focusing on student achievement. Finally, the *Nation at Risk* also warned, "our social structure would crack, our culture erode, our economy totter, [and] our national defenses weaken" (Finn, 1989, p.17) if U.S. schools were not improved immediately.

### **The 1990's**

U.S. Secretary of Energy James Wadkins declared in 1990 that our nation must pick itself up by "its bootstraps and find a new mechanism to obtain science and math literacy ... Education reform is going to be a matter of mission" (Tanner, 1993). Educational reform emerged as a national issue, and the need for

enhanced mathematics and science literacy was paramount if U.S. students were to compete with Russians in a post-Sputnik world (Tanner, 1993). In 1994, President G.H. Bush commissioned a committee that created *Goals 2000*, a combination of educational goals and national standards that were to be implemented by the year 2000. Though an unfunded mandate, Goals 2000 served as a template for school districts in their effort to implement standards. The 1990's also gave rise to a national standards movement. Scope and sequences for school subjects, including mathematics and science, outlined "what" students were to learn during their K-12 educational experience.

### **The 2000's**

The *No Child Left Behind Act (NCLB)*, signed on January 8, 2002, represented an unprecedented adjustment by the Federal Government in terms of educational policy. A bi-partisan bill championed by influential Democratic Senator Ted Kennedy and Republican President George W. Bush, *NCLB* represented a federally mandated intervention into each of the nation's school districts (Fusarelli, 2007). One reason for the shift of federal involvement was the incongruous reality that despite a ten-fold increase in federal education spending since 1975, the achievement gap had actually increased between black and white students (Fusarelli, 2007). *NCLB* (2002) would now connect federal funding to the performance of every group of students in a school. The requirements set forth in *NCLB* for each school are as follows:

- 1) By the year 2014 all students must be performing at a proficient level in mathematics, reading, and science;

- 2) Each school, every year, must meet “adequate yearly progress,” at the necessary rate to reach 100% proficiency by 2014;
- 3) Annual rate of progress is not only for the aggregate student enrollment per school, district, or state, but also holds within disaggregated groups, based on income, race, gender, English language ability, and special education status (SIFEP, 2009).

An emphasis on accountability is the hallmark of *NCLB*. If one sub-group of students (e.g. special education students) does not meet the adequate yearly progress goal, the entire school is labeled as “failing.” In response to North Carolina’s accountability program, the U.S. Department of Education stated:

The difference is that NCLB judges school success or failure on student performance by subgroup—by race, family income, English proficiency, and so on; if any group does not meet the standard, the entire school is labeled a failing school, whereas North Carolina’s accountability system does not. By disaggregating data by sub-group, school officials cannot hide low subgroup performance within school, district, or statewide averages (U.S. Department of Education, 2003).

A failing school faces a progressive list of consequences. Early interventions include providing supplemental services (e.g., tutoring) or transportation for the student to a school that is making adequate yearly progress. A chronically failing school faces severe punishment, including a complete overhaul of school administration and/or teaching staff if adequate yearly progress is not met for several years (Boyd, 2003). If the school does not make improvement over a series of years, it may be forced to close (Boyd, 2003).

In 2007, the Supreme Court seemingly overturned *Brown v Board’s* endorsement of public school integration with the decision in *Parents Involved in Community Schools v. Seattle School District* (2007). The Supreme Court

decided by a 5-4 vote that the utilization of race as the sole factor in school placement was unconstitutional. Writing for the majority, Chief Justice John Roberts summarized his feelings thusly: “The way to stop discrimination based on race is to stop discrimination based on race” (Wilkinson, 2007). Justice Kennedy, concurring with the majority, cogently described his unease with race-based solutions: “Reduction of an individual to an assigned racial identity for differential treatment is among the most pernicious actions our government can undertake” (Wilkinson, 2007). Wilkinson (2007) utilized a Frederick Douglass quote in an attempt to explain the “odious” effect of organizing people simply by their race:

The American people have always been anxious to know what they shall do with us. . . . I have had but one answer from the beginning. Do nothing with us! Your doing with us has already played the mischief with us. . . . All I ask is, give him [the black man] a chance to stand on his own legs! Let him alone! (Frederick Douglass Papers, 1865)

In his dissenting opinion of *Parents Involved*, Justice Stephen G. Breyer indicated the decision would be one that, “the court and the nation will come to regret” (Barnes, 2007, p 41). “The lesson of history is not that efforts to continue racial segregation are constitutionally indistinguishable from efforts to achieve racial integration,” Breyer wrote (Barnes, 2007, p 42). Justice Breyer feared the decision of *Parents Involved* would irreparably harm public school integration efforts, which had stalled and even reversed in some communities in the past few decades (Kozol, 2005). Justice Breyer concluded, “Indeed, it is a cruel distortion of history to compare Topeka, Kansas in the 1950s to Louisville and Seattle in the

modern day" (Barnes, 2007, p 41).

### **Summary of Policies Contributing to the Academic Achievement Gap**

The United States has undergone a metamorphosis in terms of recognizing the citizenship of its inhabitants. Over the past century, there has also been a dramatic change in how children are educated, and there is an impetus to provide a quality education for all children. The *Plessy v Ferguson* decision held that black Americans, free or slave, could never claim the rights of white citizens. A “separate but equal” epoch was spawned. The Jim Crow Laws and de facto segregation were overturned in the *Brown v Board of Education* case. Black Americans were afforded the right to the same education their white counterparts received. The 1960’s were a decade of civil rights struggles, including the implementation of the promises of the Great Society agenda. The 1970’s represented an upheaval of education legislation, marked by Supreme Court decisions that some claim allowed a retrenchment of segregation in American schools. Accountability was the educational reform de jure of the 1980’s, buttressed by the scathing criticisms the *A Nation at Risk* report leveled at the current U.S. educational system. Movements to create a national standard curriculum in various disciplines arose in the 1990’s. The 2000’s featured the most comprehensive educational reform since the ESEA of 1965 in the form of the No Child Left Behind Act. Every group of students is expected to make adequate yearly progress and to become proficient by 2013-2014. Federal education funding is directly tied to the ability of school districts to ensure each

group of students is proficient in mathematics, reading and science. The *Parents Involved* Supreme Court decision has had widespread ramifications throughout diverse communities that have heretofore struggled to integrate their schools. Those districts must now work to integrate their schools, but they may not use race of students as the sole factor in their integration policy.

### **Differences in Social Class**

Socioeconomic status (SES) has long been identified as an indicator of potential academic success. Dr. Sbrocco (2009) explained that even if researchers controlled for SES, education level, and occupation, the achievement gap between minority and white students narrowed, but still existed (Jencks & Phillips, 1998). Additionally, a growing body of research has found children living in low-income families “display lower levels of academic self-efficacy and achievement relative to other children” (Dearing, Taylor & McCartney, 2004, p 8). Within low-income families, low levels of parental education place children at exceptionally high risk for academic failure (Rauh, Parker, Garfinkel, Perry, & Andrews, 2003). Students who live in poverty also have a substantially higher probability of child health problems that cause learning problems (Dearing, Taylor & McCartney, 2004). Dr. Sbrocco (2009) indicated that since National Assessment of Educational Progress (NAEP) testing began in 1969, a black-white achievement gap has existed, despite controlling for parent education and socioeconomic status (NAEP, 2000; Steele, 1997).

### **Test Bias**

The achievement gaps in standardized testing performance between minority and white students may be caused by tests that are either culturally or racially biased. According to Jencks (1998), there are five types of biases in terms of standardized tests—labeling, content, methodological, prediction and selection bias.

Labeling bias occurs when a standardized test is intended to measure one thing but actually measures something altogether different (Jencks, 1998). Tests that claim to assess “intelligence” imply that they are measuring something innate, and it is widely believed that intelligence is a genetic trait. Dr. Sbrocco (2009) found “psychologists now understand that a score on an intelligence test relies on both genetic makeup and environmental influences” (p. 28).

Content bias is comparable to labeling bias, as a test may claim to measure one skill, but actually measures a different skill. A test that suffers from content bias includes questions that favor one cohort (race, gender, etc.). A stark example of content bias can be seen in the case of English language proficiency differences between white and Hispanic students in California. A 2002 College Board report concluded that Hispanic students on average score 81 points lower than white students on the verbal section of the SAT I (Lee & Parthasarathy, 2002). In this case the white students may have been more comfortable with the English vocabulary on the test section than the Hispanic students. Hispanic students from families that have recently immigrated to the United States may not be as familiar with English words and phrases, English may not be the primary language of the

household, and Hispanic students may be in the process of learning English. This is an example of content bias as the white student's experienced favorable test content as compared to the Hispanic students.

Methodological bias exists when a test assesses mastery of some skill or body of information using a technique that underestimates the ability of one group relative to another (Sbrocco, 2009). Black students may record lower scores because of the method used to gather information, rather than the actual ability of the group of students (Jencks 1998). Dr. Sbrocco (2009) cited studies that have shown Black students receive lower test scores on a difficult test when they are told that it measures a specific ability than if no reference is made to ability (Steele & Aronson, 1998). The preponderance of white test administrators, most of whom are strangers to students, and the unfamiliar content of tests create an environment that may increase anxiety for black students (Jencks, 1998). To date there has not been a testing methodology that has reduced the achievement gap between black and white students, so the effect on test scores is uncertain (Sbrocco, 2009).

Prediction bias occurs when future performance is ostensibly foretold by the result on a standardized test. The SAT and ACT represent standardized tests that purportedly predict future grades (Sbrocco, 2009). If a black student and a white student earn the same SAT score, one would expect them to earn similar grades in college. Dr. Sbrocco (2009) examined studies that have shown, however, that white students outperform their black peers in terms of grades



earned in college (Kane, 1998).

Selection bias focuses on external factors rather than the test-taking methodology. Jencks (1998) explains that selection bias occurs when:

“Three conditions are met: (1) performance depends partly on cognitive skills and partly on other traits; (2) it is easy to measure cognitive skills but hard to measure the other traits that determine performance; and (3) the racial disparity in cognitive skills is larger than the racial disparity in the other, unmeasured traits that influence performance. When these three conditions hold, both educational institutions and employers have strong incentives to adopt a selection system that emphasizes test scores. Such a selection system is “unfair” to anyone whose competitive rank on the cognitive test is lower than their rank on the other unmeasured determinants of performance. As a result, it puts Blacks... at a greater disadvantage than a selection system based on actual performance” (pp. 57-58).

The difficulty of measuring “other” traits that determine performance has led many educational institutions to utilize an easily quantifiable standardized test in order to determine acceptance for prospective students. This reliance on standardized tests, and the reticence of utilizing a system based on actual performance, leads to a less qualified and less diverse student population (Jencks, 1998).

### **Heredity and Home Environment**

Heredity was a widely believed determinant of student success for over a century; however, it has been debunked as an explanation of the achievement gap. Sir Francis Galton espoused his theory of eugenics in 1883, building on his half-cousin Charles Darwin’s theory of natural selection (Sbrocco, 2009). He believed that the evolution of civilizations allowed the weak and disabled to survive,

thereby violating the natural elimination of inferior genes as explained in *Natural Selection* (Hawkins, 1997). Galton's (1883) ideas proved popular domestically, as one of the first nations to sterilize "defectives" was the United States, followed by similar programs in Canada, Belgium, Brazil, and Sweden (Hawkins, 1997). Adolf Hitler became the most famous supporter of the eugenics theory as he used it to buttress his ideas of the racial superiority of Aryans over others, including Jews, Gypsies, mentally and physically disabled people, etc. A supposed superiority of white skin to black skin was used for centuries to defend slavery in the United States and beyond (Sbrocco, 2009). The publication of *The Bell Curve* (Herrnstein & Murray, 1994) alleged that "blacks have a lower mean intelligence than whites because of genetic differences" (Sbrocco, 2009, p. 30). A comprehensive review of related literature reveals little to no evidence for genetic explanations of the intelligence quotient (IQ) difference between blacks and whites (Nisbett, 1998). Though correlations between genetics and IQ were argued in previous eras, such connections are not considered valid in present research.

Herrnstein & Murray believed that white people were genetically predisposed to have higher IQ's than black people. One confounding aspect of race-based IQ differences is the presence of European ancestry in the gene pool of approximately 30% of black Americans. If Herrnstein & Murray's theory were accurate, the IQ of blacks with more European genes would be higher than black students who had more black genes and no European genes (Nisbett, 1998). None

of Herrnstein & Murray's theories regarding IQ differences between blacks and whites has been proven by a legitimate study (Nisbett, 1998).

Dr. Sbrocco (2009) noted that parental involvement and home environment have emerged as important factors in student academic performance (Epstein, 1992; Jeynes, 2003). The more parents participate in their children's schooling as advocates, in decision-making and oversight roles, as fund-raisers, boosters and volunteers, the more improvement is evident in student achievement (Williams & Chavkin, 1989). Family participation in education is twice as predictive of students' academic success as family socioeconomic status, and some programs of parent participation have effects that are 10 times greater than other factors (Walberg, 1984). Increased parental involvement has been shown to narrow the achievement gap between black and white students. Dr. Sbrocco (2009) discussed the reality that parental involvement of white parents is considered to have a positive impact on student achievement by teachers, while the lack of black family involvement is viewed as negative and as a contributing factor in the lack of achievement of black students (Gavin & Greenfield, 1998; Fields-Smith, 2005).

A correlation between parents' educational achievement and their children's low educational attainment has existed in educational research for decades (Boocock, 1972). Children living in low-income families demonstrate lower levels of academic self-efficacy and academic achievement compared to other children according to several studies (Bandura et al., 1996; Taylor, Dearing,

& McCartney, 2004). A student in a low-income family with low levels of parental education is considered academically at-risk (Rauh, Parker, Garfinkel, Perry, & Andrews, 2003).

Using data from the Children of the National Longitudinal Survey of Youth (CNLSY) and National Longitudinal Survey of Youth (NLSY), Phillips, et. al. (1998) studied the effects of a student's home environment on achievement. Sbrocco (2009) found "home environment was determined by the mother's educational attainment and quality of schooling, family income, parenting practices, and neighborhood effects" (p. 32).

Another longitudinal study that clearly illuminates the impact of home environment on student achievement focused on professional, working class, and welfare families in Kansas City, MO (Hart & Risley, 1995). By four years of age, an average child in a professional family would have been exposed to almost 45 million words, an average child in a working-class family would have heard 26 million words, and an average child in a welfare family would have experience with 13 million words. At four years of age, an astonishing 30 million-word gap existed between professional children and welfare children (Hart & Risley, 1995). The study also focused on the type of interactions between parents and children in regard to behavior. By the time a child had reached four years of age, they would have heard 560,000 more instances of encouraging feedback than discouraging feedback if they were in a professional family and 100,000 more encouragements than discouragements if they were in a working-class family. The children who

grew up in a welfare family heard 125,000 more discouragements than encouragements (Hart & Risley, 1995). Furthermore, the children raised in impoverished conditions experienced an encouragement deficit, while their counterparts in the professional and working class family experienced substantial encouragement surpluses. Though word gaps and the proportion of encouraging comments to discouraging comments are not the only indicators of future student performance, parenting practices and involvement are important predictors of children's test performance (Berlin et al., 1995; Bradley et al., 1994).

### **Poverty Levels of Schools**

Richard Rothstein's *Class and Schools* (2004) outlines several studies that have demonstrated strong links between individual poverty, school poverty, race, and educational inequality. Rothstein maintains that poverty is irrefutably related to a host of development indicators, from the "child's physical development to the family's ability to stay in a neighborhood long enough so that a school might have an effect on the student" (Rothstein, 2004, p 14). His research also suggests that students receive a relatively weaker education in highly impoverished schools. Rothstein believes the NCLB-mandated "proficiency" movement has opened the door to incessant political machinations intended to obscure the intent of the law. Instead of students (and schools) held to account for their test results, academic benchmarks are often manipulated in order to claim students have attained their academic goals (Rothstein, 2004). Finally, Rothstein (2004) asserts meaningful school change is unrealistic if the issues related to poverty of students and their

families are not addressed.

High poverty schools often have less qualified and a less stable teaching staff than suburban schools. A less qualified teaching staff and a less stable teaching staff are two significant challenges facing high poverty schools. According to the 2004 U.S. Department of Education report, “at least 75% of the students were low-income, and there were three times as many uncertified or out-of-field teachers in both English and science” (Boger, 2005). Though the NCLB legislation mandates a highly qualified teacher in each classroom, high poverty schools are not able to fill their teaching positions, and thus must resort to hiring substitute teachers on a semi-permanent basis to fill the void. It is generally understood that teachers often become more effective with more experience, and that creating a high-functioning team of educators takes years of working together (Orfield & Lee, 2005). Constant turnover of the teaching force inhibits a school’s ability to cultivate high performance teams, and individual teachers are robbed of the opportunity to learn from their peers and mentors over the course of several years.

Schools with high poverty rates may also face variances in school funding, thereby leading to teacher instability. Teachers are usually released in inverse order of their arrival. The most recent hires are usually the first to be fired when districts face economic downturns. Despite the passage of several levy referendums, the Minneapolis School District has faced budget deficits for eight consecutive years, including a \$28 million shortfall for the 2009-2010 school

years (Johns, 2009). In response to an expected \$25 million deficit 2009-2010, St. Paul was forced to cut 117 teaching positions (Johns, 2009). A recent Star Tribune article revealed that Minneapolis, MN, is hemorrhaging 12,000 students per year; with an average loss of \$13,000 per student, Minneapolis is losing approximately \$154 million in state aid each year (Draper & Johns, 2009). Minneapolis schools must adapt to the student exodus, and as schools close or are reorganized, teaching jobs are either lost, or teachers must move to a new building in what Minneapolis Public Schools chief financial officer Peggy Ingison terms a “downward spiral” (Draper & Johns, 2009). In one glaring example of high teacher turnover, Charlotte, NC’s highest poverty schools lose nearly a third of their teachers every year. Nationally, teacher attrition has increased by 50% over the past fifteen years (National Commission on Teaching and America’s Future [NCTAF], 2007). Poor urban schools have experienced an accelerated teacher turnover rate that dwarfs the national average. Nearly 50% of all new teachers leave the profession within five years, but in urban schools of high poverty, the teacher attrition rate exceeds 20% per year (NCTAF, 2007; NEA, 2006).

### **Segregation**

Historically, the aim of desegregation efforts were described as “taking a black and Latino student from a high poverty school to a middle class school that often has better resources, more qualified teachers, tougher academic competition, and access to more developed social networks” (Orfield & Lee, 2005).

Orfield & Lee (2005) argue segregation is a complex issue and the simplification

of “segregation into purely a racial issue ignores the fact that schools tend to reflect and intensify the racial stratification in society” (p. 15). Usually, a school’s demographics will mirror the neighborhood demographics, and the differences in educational experiences for students of various races are stunning. The *Milliken* (1974) decision ruled that school districts could not combine integration efforts by judicial decree. However, school districts maintained the option to voluntarily enter into desegregation efforts with other school districts.

It is impossible to separate segregation of schools with the societal trends presently observed in the U.S. Orfield & Lee (2005) contend that “segregation has never just been by race: segregation by race is systematically linked to other forms of segregation, including segregation by socioeconomic status, by residential location, and increasingly by language” (Orfield & Lee, 2005, p.14). The movement of white families from urban cores to the suburbs has been dubbed “white flight”, and it has accelerated since the 1970’s. As a result of white flight, the demographics of the largest cities in the U.S. are skewed in relation to the demographics of the entire nation, especially as they pertain to the percentage of black and Latino students in their schools (Hauser, Simmons & Pager, 2004). Orfield & Lee (2005) found students in segregated schools have a much higher chance of living in “conditions of distress-housing inadequacy and decay, weak and failing infrastructure, and critical lack of mentors and shortage of jobs” (p. 14). Segregated schools also face issues that include high numbers of students who do not eat nutritional meals, gang violence that infiltrates the schools, and



unstable home environments (Knapp, et al., 1995). Schools devoid of more than a negligible percentage of white students are usually high-poverty schools, and thus deal with the raft of obstacles related to concentrated poverty (Orfield & Lee, 2004). Myron Orfield (2009) noted that in the Minneapolis metropolitan area, minority students are five times as likely as white students to attend schools with high percentages of students living in poverty. Students of color are nearly 18 times more likely than white students to attend schools in which more than 75% of the students are living in poverty (Orfield, 2009).

Segregated schools are a result of housing segregation, and when residential choices are limited, so is “access to opportunity” (Orfield, 2009). Access to opportunity is defined as “access to jobs, good schools, and decent economic prospects in life” (Orfield, 2009). In the Twin Cities, more than 75% of the people of color live in central cities and stressed suburbs. These regions offer few opportunities to the people living there as compared to suburban and exurban communities. Only 40% of white residents live in these types of neighborhoods (Orfield, 2009). Most white families (over 60%) live in areas deemed to have moderate or high levels of opportunity. This neighborhood segregation tends to lead to school segregation, denying students of various races the opportunity to learn to work with and from each other.

Recent studies have revealed positive effects for students who attend an integrated school. Minority students who attend racially integrated schools demonstrate increased academic achievement on standardized tests (Orfield &

Lee, 2005). In addition to the academic benefits of attending an integrated school, minority students also experience more stable interracial friendships (Halinan and Williams, 1987; Kahlenberg, 2001), have expanded access to friendships and contacts associated with opportunity (Granovetter, 1986), and are more likely to live, work, and attend college in more integrated settings (Braddock & McPartland, 1991). Without positive peer role models in the classroom, academic achievement may suffer. According to the *Coleman Report* (1966), peer influence was cited as the second most important factor (second to family background) as it relates to student achievement. Similarly, a 2003 study focusing on southern schools with high poverty found that “the absence of a strong positive peer influence” had a significant negative effect on student achievement (Orfield & Lee, 2005).

### **Within School Factors That Contribute to the Gap**

Though research has shown pre-school experiences, home life and parental background impact student preparedness, opinions vary on the extent of the impact (Phillips, Crouse & Ralph, 1998). Dr. Sbrocco (2009) found some education reformers contend that black and white students begin their educational experience with roughly the same skills and motivation, but the strictures of the educational system and teacher preconceptions are responsible for the achievement gap (Phillips, Crouse & Ralph, 1998). On the other hand, researchers point to studies that indicate elementary age minority students have less developed academic skills than white students, and the achievement gap has

begun well before they begin school (Phillips, Crouse & Ralph, 1998). Following is an explanation of factors that occur within school that tend to perpetuate the achievement gap between groups of students.

### **Institutional Racism**

Dr. Sbrocco (2009) indicated that both former President George W. Bush and former Secretary of Education Rod Paige stated students and schools accountable via *No Child Left Behind*-mandated testing would help eliminate the “soft bigotry of low expectations,” and thus eliminate achievement gaps among groups of students (U.S. Department of Education, 2003; 2004). One key component of NCLB is the expectation that every classroom will have a “highly qualified teacher” (NCLB, 2001). Of all the factors that affect student achievement, teacher quality has consistently been proven to be the most important (Kane & Staiger, 2008). In Tennessee, one study indicated a significant difference in achievement of 50 percentile points on standardized tests between students who attended classes taught by high-quality versus those taught by low-quality teachers (Sanders & Rivers, 1996). Students enter into a learning contract with their teachers, no matter school demographics, school resources, or how children are organized for instruction (Ferguson, 1998). The significance of the relationship between students and their teacher cannot be overstated. If a student believes their teacher has diminished expectations regarding her or his capabilities, their educational experience and efficacy are adversely affected (Ladson-Billings, 1994). Racism affects life for all students both outside and

inside school, and the difficult task of diminishing the negative impact of stereotypes regarding the ability and motivation of black students necessitates adjustments in curriculum and in teaching methods (Steele, 1992).

### **Pre-school experiences**

Lyndon Johnson's War on Poverty attempted to reverse the negative effects of growing up poor in the U.S. Pre-school instruction, now known as Head Start, began in the summer of 1965 with 561,000 children, most of whom were black. Head Start continues to this day as a legacy of the 1960's attempt to close the achievement gap. Sbrocco (2009) stated that Head Start's intent was to ensure kindergartners living in poverty were prepared for elementary school (Ferguson, 1998). Studies have shown that participation in Head Start is associated with short-term benefits as indicated by improved test scores (Barnett, 1995). Long-term benefits of participation in *Head Start* include the reduced likelihood black students will be convicted of a crime as well as the increased probability that black males will graduate from high school and to participate in the work force (Garces, Thomas, & Currie, 2000).

### **Tracking**

A common argument endorsed by educators and parents is that the creation of low-tracking and high-tracking classes will benefit high achievers (Burriss & Welner, 2005). Parents of high achievers believe that heterogeneous grouping of all ability levels will result in "lowered learning standards" for their children (Burriss & Welner, 2005, p. 8). No matter how schools determine

placement of students, tracking has a negative effect on the education of black students. According to Dr. Sbrocco (2009), “white students are disproportionately enrolled in more advanced curriculum tracks (e.g., Advanced Placement classes), and black students are not proportionally represented in advanced classes or in high ability groups” (p. 35). Though black students are overrepresented in low-track classes and underrepresented in high-track classes, and the ineffectiveness of low-track schools has been demonstrated (Oakes, Gamoran & Page, 1992), schools still create tracked classes (Mickelson & Heat, 2008). Sbrocco (2009) posited that while student placement in high and low tracks may or may not be attributed to racial bias, schools that utilize teacher recommendations to determine placement in tracked classes do tend to show a racial bias (Braddock & Slavin, 1993). Ferguson (1998) discovered “when schools track students based on differences in academic proficiencies as determined by quantifiable measurements such as test scores or grades, classes will represent a racial imbalance” (Sbrocco, 2009, p. 35). Though a racial imbalance may exist, the research does not conclusively prove that a racial bias lead to the differences in representation of black and white students in high and low tracked classes (Ferguson, 1998). Despite the research that indicates tracking negatively impacts the progress of black students, segregated classes ostensibly based on academic ability continue in thousands of schools.

### **Weak or Inappropriate Instruction**

Sbrocco (2009) stated that measuring individual teacher effectiveness has

proven elusive, and many schools identify teacher effectiveness based on years of teaching experience, degrees earned, and the standardized test scores earned by teachers (Greenwald, Hedges, & Laine, 1996). Students fortunate to have an educational experience with competent teachers have shown marked improvement in one school year. Dr. Sbrocco (2009) indicated the difference between having an effective teacher and an ineffective teacher can lead to as much as one grade level of student achievement improvement per school year (Hanushek, 1992). In the U.S., black students are more likely to have teachers with limited experience, lower competency scores, and diminished effectiveness compared to their white peers (Ferguson, 1998). In order to overcome the test bias effect, teacher certification testing might be able raise the level of teacher academic achievement, and consequently, raise the achievement of students (Ferguson, 1998).

Haycock, Jerald, and Huang (2001) found, “students in predominantly minority schools are also about twice as likely as students in other schools to be taught by inexperienced teachers... We take the kids that are most dependent upon teachers for academic learning and systematically assign them teachers with the weakest academic base” (p. 16-17). The North Carolina Education Research Council reviewed a study on teacher quality compared to student achievement in the current year and to that of the previous year. The results were disconcerting as they pertained to student achievement: “The effects of even a single ineffective teacher are enduring enough to be measurable at least four years later. Good

teachers in subsequent grades boost achievement, but not enough to compensate for the effects of an earlier ineffective teacher” (Thompson & O’Quinn, 2001, p. 45). Effective teachers are able make inroads in terms of remediation, but the adverse effects of an ineffective teacher are nearly insurmountable for a student to overcome in their educational experience.

A few studies indicate that “students will learn more in a ‘culturally congruent school’ in which a student’s home and school environment are similar” (Sbrocco, 2009, p. 36). However, the research is unclear when it comes to determining whether the academic performance of black students improves when black teachers teach them (Sbrocco, 2009). One study found revealed that black 7<sup>th</sup> and 8<sup>th</sup> graders’ truancy rates declined when they were instructed by black teachers (Farkas, et al., 1990; Sbrocco, 2009). In another study, Ehrenberg, Goldhaber, and Brewer (1995), utilizing National Educational Longitudinal Study (NELS, 1998), were not able to find statistically significant effects of teacher race on test scores for black and white students (Sbrocco, 2009). Remarkably, black teachers of low socioeconomic status and white teachers of high SES were the only groups of teachers that displayed marginally positive effects on black student mathematics tests (Ferguson, 1998). This paradoxical finding does not support other studies that claim a teacher’s race has a significant impact on student achievement.

### **Class size**

Several studies have shown that smaller class size leads to higher test

scores (Jencks & Phillips, 1998), though the results of other studies indicate class size may not have a lasting impact after students leave these smaller classes (Slavin, 1989; Greenwald, Vedges & Laine, 1996). A 1999 review of Tennessee's STAR (Student/Teacher Achievement Ratio) program revealed that students who were in small classes in early grades tended to have higher grades than students who were in larger classes in early grades (Krueger & Whitmore, 2002). Black students who had participated in the small classes demonstrated "twice the improvement in math and reading as white students in the STAR program" (Sbrocco, 2009, p. 37). Though the improvement on test scores dissipated for white students as they matriculated, the advantage was evident until seventh grade for black students (Krueger & Whitmore, 2002). The effects of small class size were visible in high school as well as black students who attended small classes in the early elementary years were more likely to take the college board tests in high school, reducing the black/white gap in SAT and ACT participation by 60% (Krueger & Whitmore, 2002).

However, research of the effects of class size on academic achievement is mixed. Konstantopoulos (2007) discovered that reductions in class size did not reduce the achievement gap between low and high achievers (Sbrocco, 2009). Other researchers have focused on classes that maintained a lower class size for an entire school year (Slavin, 1989). Though there was a slight improvement in academic achievement for the current year, students did not display higher test scores in subsequent years in which they were not part of a small class size



(Slavin, 1989). After analyzing standardized test trend data between 1950-1986, Tomlinson decided the soaring costs for reduced class sizes were not justified by negligible increases in test scores (Tomlinson, 1988).

### **Mobility**

Student mobility is defined as the movement of a student from one school to another for any reason besides grade promotion. Students who move from school to school in a non-normative fashion often encounter increased academic and behavioral issues (Hartman, 2002). Several researchers have found student transitions between school districts do not always lead to diminished academic achievement, and such transitions may benefit students in terms of adjustment to shifting circumstances (Reynolds, Chen, & Herbers, 2009). For the most part, mobility is associated with lower average school achievement (Alexander et al., 1996), increased risk of school dropout (Rumberger & Larson, 1998), increased need for remedial education (Alexander et al., 1996), and social and psychological difficulties (Rumberger, 2003; Swanson & Schneider, 1999). There is a disproportionate racial difference evident in student mobility as children who experience non-normative school changes are “more likely to be ethnic minorities, reside in low-income and in single-parent households, and have home languages other than English” (Reynolds, Chen, & Herbers, 2009, p 4). Approximately 66% of residential moves are within the same counties while one-third are between counties or from abroad (U. S. Census Bureau, 2000). Despite the majority of residential moves within the same county, students often

experienced a non-normative school change as a result (Reynolds, Chen, & Herbers, 2009). According to the U.S. Government Accountability Office (1994) report of the U. S. Department of Education's Prospects study of 15,000 children, 41% of third graders attended a different school from first grade, and 17% attended three or more schools since first grade (Reynolds, Chen, & Herbers, 2009). While 25% of inner-city third graders changed schools three or more times, this was double the rate that rural and suburban children changed schools (Reynolds, Chen, & Herbers, 2009).

Several studies focusing on the urban cores of American cities revealed the frequency in which students change schools. Since student mobility has been found to lead to discontinuities in learning environments and weaker connections between mobile students and their peers and teachers (Reynolds, Chen, & Herbers, 2009), the impact on public school systems attempting to educate a mobile population is immense. Heinlein and Shinn (2000) found that over 40% of students had two or more moves from kindergarten to sixth grade and 25% of students had at least three moves in one low-income New York City school. Alexander, et al. (1996) found in their first-grade Baltimore City sample that 56% changed schools over the next five years while 43% of students remaining in Baltimore schools eventually transferred to other schools. An examination of Texas public elementary schools revealed that more than 60% of all students changed schools at least once (normative or non-normative) over a four-year period while 33% of students in fourth through seventh grade had non-normative

moves (Mao, Whitsett, & Mellor, 1997; Rivkin, Hanushek, & Kain, 2005). Chicago's alarming mobility rate is evident in de la Torre and Gwynne's (2009) meta-analysis of first grade students in 2000. Only 25% of students in K-8 schools stayed in the same school until eighth grade. Mobility rates of sixth graders (66%), seventh graders (72%) and eighth graders (75%) illustrate the constant churning of student cohorts. Students in Chicago Public Schools doubled the rates of mobility found in most other areas of the United States (de la Torre & Gwynne, 2009).

When a student changes schools, they are subject to differing behavioral policies, class choices and curriculums, and expectations of teachers in the classroom. Since these aspects of the educational experience can differ dramatically amongst schools, learning is often compromised for mobile students (Reynolds, Chen, & Herbers, 2009). Entwisle, Alexander, & Olson, (1997) found that teachers in schools serving many high-risk children "find it necessary almost continuously to 'reteach,' 'backtrack,' or in other ways try to catch new students up to the class" (p. 7). When students change schools, their new reality "requires adjusting to a new school, new teachers, and new peer groups that may hold different attitudes and expectations about school life which lead to a different school climate than what the student is used to" (Reynolds, Chen, & Herbers, 2009). Research indicates that students who are highly mobile acquire basic skills at a slower pace, have an increased chance of school failure and dropout, and are more likely to experience behavioral and interpersonal problems than their non-

mobile peers (Hartman, 2002). In fact, students who have moved more than three times over a period of six years are likely to “fall a full academic year behind their peers” (Hartman, 2002). Without intentional institutional policies to ease such transitions for students, parents, and staff, performance deficits often develop for mobile students (Reynolds, Chen, & Herbers, 2009).

### **Student Engagement**

Dr. Sbrocco (2009) noted that although schools have made myriad attempts to close the achievement gap amongst groups of students, their efforts may actually contribute to the widening of the gap (Phillips, Crouse & Ralph, 1998). Dr. Tyrell of Miami of Ohio University refers to the “7/17” principle to explain the limitations a school faces when working with students. A student is completely under the purview of a school for a maximum of seven hours, while the other 17 hours are spent with family or friends in an environment that is often much different than school. Parenting practices, parents’ education levels, and parental income, are outside of a school’s control, therefore Dr. Tyrell urges schools to focus on policies that will help their students close the achievement gap, and that can be completely controlled during school hours. Schools are utilizing an assortment of strategies to increase student engagement, hopefully leading to increased student achievement.

Though the future of a school and staff depends on the test scores of their students, it is debatable that students who are neither motivated nor engaged will suddenly try their best on standardized tests. In educational parlance, “testing

season” in schools generally takes place in the spring of each school year and is met with a mix of trepidation, fear, and angst by teachers and students. Wayne Au’s (2008) *Teaching in Dystopia* is a withering attack on the proliferation of standardized tests, and he claims students in the U.S. are “tested to death, and the curriculum is deformed by the test-score chase, especially in schools with large amounts of low income and students of color” (RSO, 2008, p. 3). Though most schools depend on students to think and act altruistically (i.e., to “learn for learning’s sake”), some schools have begun to reward students and teachers who have displayed gains in standardized test scores. In a 2008 *New York Times* article, Javier Hernandez highlighted the efforts of Roland Fryer and his Educational Innovation Laboratory. The laboratory, which combines the efforts of economists, educational researchers, and marketing experts, has begun a controversial program in New York City that rewards students in grades 4-8 with cash payments ranging from \$25 to \$50 for gains on their standardized tests. Similar financial reward programs are already in place in Chicago and Washington D.C. California Governor Grey Davis trumpeted the Academic Performance Index award system as a way to ostensibly reward teachers for working in the most difficult school districts. Though \$350 million was distributed to teachers in 4800 schools, there was a backlash of resentment from teachers who saw the financial incentives as demeaning and as a “back-door merit pay system” (Bacon, 2002). Reva Kidd was one such teacher: “We've had to fight hard for adequate salaries, but this money is a bribe, to make us complacent in the

face of changes that are hurting students and teachers alike" (Bacon, 2002).

Students who are engaged in their education and are challenged with a rigorous and relevant curriculum tend to fare well on standardized tests

Student engagement may be the answer to the pernicious issues of anemic levels of academic motivation and the accompanying decrease in achievement (Fredricks, Blumenfeld, & Paris, 2004). The interconnected and technologically advanced world students experience 2012 outside of the classroom is often at odds with the experience of sitting in rows and listening to teachers speak for long periods of time in school. Some educators are reticent to include emerging technologies in their classroom lest they be seen as entertaining students instead of educating them. Dr. Sbrocco (2009) referenced the trend that researchers have detected that student respect for authority in school settings has diminished (Fredricks, Blumenfeld, & Paris, 2004). School officials now must grapple with the increasingly volatile situation of students who often do not tacitly conform to the rules and regulations governing behavior and academics (Modell & Elder, 2002). Engagement becomes more important in a time when authority is less respected. Minority students, who disproportionately suffer through the worst school environments, tend to be affected the most of any racial group by disengagement (Voelkl, 1997). Sbrocco (2009) stated that disengagement of minority students compounds the issues for a group of students who score the lowest on standardized tests and have the highest school dropout rates (Voelkl, 1997).

## **Types of Student Engagement**

Fredricks, Blumenfeld, and Paris (2004) divided the existing research into three engagement categories: behavioral, emotional, and cognitive (Sbrocco, 2009). Instead of examining the categories together, there is value to exploring each category individually. Dr. Sbrocco (2009) highlighted Fredricks, et al's explanation regarding the decision to examine engagement: "The fusion of behavior, emotion, and cognition under the idea of engagement is valuable because it may provide a richer characterization of children that is possible in research on single components" (Fredricks, Blumenfeld, and Paris, 2004, p. 61). Engagement does not occur in isolation, as personal beliefs, previous school experiences and the student's ability and motivation in their educational environment all affect student achievement. Sbrocco (2009) stipulated that schools that offer opportunities for students to participate in a variety of clubs, to play sports, and to develop interpersonal relationships and engage in critical thinking activities often experience an increase student engagement (Fredricks, Blumenfeld, and Paris, 2004). Depending on teaching methods and learning activities, educators have the ability to increase or decrease student engagement in their classroom. Skinner, Wellborn, & Connell (1990) believe that teachers' support and involvement plays a crucial role in enhancing student engagement in school (Sbrocco, 2009).

Behavioral engagement includes both academic and nonacademic school behavior, and research indicates that it has a significant impact on academic

achievement (Sbrocco, 2009). Following the rules in the classroom and demonstrating behaviors that do not disrupt the learning environment are indicators of behavioral engagement (Finn, 1993; Finn, Panno, & Voelkl, 1995; Finn & Rock, 1997). Another indicator of behavioral engagement is a student's involvement in the daily routines on a classroom. Sbrocco (2009) explained behavioral engagement may be observed in the effort students display during class, the amount and depth of questions asked, as well as their concentration on various learning activities (Finn et al., 1995; Skinner & Belmont, 1993). Research shows that positive behaviors such as completing homework and complying with school rules indicate behavioral engagement (Finn et al. 1995; Sbrocco, 2009).

Cognitive engagement is dependent on the commitment that a student invests in the learning process (Fredericks, Blumenfeld, & Paris, 2004). Students who demonstrate a commitment to learning attain higher grades and test scores and are less likely to be disruptive, truant, or drop out (Klem & Connell, 2004). Newmann, Secada, & Wehlage (1995) define engagement in academic work as "student's psychological investment in and effort directed toward learning, understanding, mastering the knowledge, skills, or crafts that the academic work is intended to promote" (p. 12). Students that exceed the expectations of a task and seek academic challenges display high levels of cognitive engagement (Connell & Wellborn, 1991). Students are cognitively engaged when they use meta-cognition, when they can think about their thinking in an effort to assess



their learning and decision-making as it relates to an educational experience (Zimmerman, 1990).

Emotional engagement encompasses student actions and emotions related to their classrooms and school. Positive school identification is an integral characteristic of emotional engagement (Finn, 1989; Voelkl, 1997). Sbrocco (2009) indicated boredom, sadness, and anxiety are a few of the indicators of emotional engagement (Connell & Wellborn, 1991, Skinner & Belmont, 1993), while feelings related to school safety and connectedness with peers and staff also demonstrate a student's level of emotional engagement. One limitation of measuring emotional engagement is the difficulty to focus on one of multiple academic factors that impact the educational experience (Fredericks, Blumenfeld, & Paris 2004).

### **Developmentally Appropriate Schools, Teacher Support, and Disengagement**

Standardized tests are the most expedient measure of academic achievement, and *NCLB* is an example of the increased use of national standards and high stakes assessments has transformed the educational landscape (SIFEP, 2006). The *NCLB* legislation's goal is for every child (gender, race, disability notwithstanding) in the nation to attain proficiency in math, science and reading by 2014 (U.S. Department of Education, 2001). However, research indicates that implementation of high stakes testing proves to be an insufficient academic intervention unless students are motivated to do their best (Melaville, Berg, &

Blank, 2005). A growing body of research explores the impact of engagement on student achievement, with data consistently indicating that increased engagement enhances student academic attainment. The act of learning requires an individual student to be conscious and purposeful in the learning process (National Research Council and Institute of Medicine, 2003), and classes that allow students to explore answers to their own questions demonstrate higher student achievement (Bransford, Brown, and Cocking 1999). Since the Dewey (1938) era, several learning theorists have discussed the significance of engaging students in authentic or real-world experiences that allow for dialogue, taking action, and reflection. (Kolb, 1984; Rogers, 1969). Teacher behavior and attitude, school climate and removal of racist beliefs in a school all have a positive impact on student achievement (Finn, 1993; Marks, 2000, Ogbu, 2003). Since engagement depends on an individual student and their educational situation (classroom, teacher, school, etc.), adjustments in a school environment may impact engagement level (Connell, 1990; Finn & Rock, 1997; Fredricks, Blumenfeld, and Paris, 2004).

### **Developmentally Appropriate School Model (DASM) at the Middle Level**

The middle school level is a unique and challenging time for students. The seminal *Turning Points 2000* outlines a Developmentally Appropriate School Model (DASM) for 10-14 year-olds, as well as provides recommendations for increasing student engagement and academic achievement (Jackson & Davis,

2000). Teacher support is defined by a teacher's ability to deliver authentic curriculum and instruction in addition to cultivating a classroom environment in which students interact appropriately with their teacher and with each other. The last segment analyzes the particular issues faced by black students in an educational setting. Jonathan Ogbu (1978) focused on the societal and school forces, as well as community and individual-level forces that impact the academic achievement of minority students in the U.S. In addition, the academic achievement of black students may be affected by the stereotype threat resulting from oppressive and widely perceived negative stereotypes (Jencks & Phillips, 1998; Ryan & Ryan, 2005; Steele & Aronson, 1995). Each of these concepts will be explained in-depth in the following paragraphs.

Dr. Sbrocco (2009) explained the Carnegie Council on Adolescent Development defines the time period of 10- to 14- years of age for adolescents as a period of physical, intellectual, and social development (Carnegie Council on Adolescent Development, 1989). Before middle level education evolved, students matriculated from elementary schools to junior highs to high schools. The junior high school was essentially a mini-high school, and the less-supportive environment has been linked to a decrease in student self-esteem, academic self-esteem as well as a decline in school identification (Jackson & Davis, 2000). Middle schools are usually arranged into teams of teachers and students, and are able to create conditions that foster student engagement via interdisciplinary projects, service learning opportunities, and a balanced curriculum (Lee & Smith,

1993). Dr. Sbrocco (2009) found when students feel as if their voice is both heard and respected, their engagement tends to increase as well (Marks, 2000). Student council, athletics, school band, choir, musical, after school study table and any number of intramural clubs are all examples of how middle schools create opportunities for students to identify with their school. Studies have shown that students who feel they have adult advocates in the building that care about their well-being and hold them accountable for their academic achievement, engagement will increase (Yair, 2000). One way schools can increase student engagement is to discontinue tracking of students into high and low classes.

A teacher plays a vital role in the creation and cultivation of a positive school climate. Research has shown that teachers are the most crucial factor in terms of influencing achievement of their students (Hammond & Young, 2002). Approximately seven percent of the difference in student test scores can be attributed to the differences in teachers (Rivkin, Hanushek, & Kain, 2005). The impact of teachers on student achievement indicates that there are teaching methods and student activities that lead to substantial gains in student achievement. Beyond teaching methods and assessment, the significance of a positive connection with an adult in the building is a crucial factor in student success.

Teacher support can be defined as academic or interpersonal support for students (Fredricks, Blumenfeld, Paris, 2004). Classroom structure is observed in the rules and procedures utilized by each individual teacher in their classroom. An

example of classroom structure is the clarity of teacher expectations, the ability to communicate those expectations to students, and the well-defined consequences for students if they do not comply with those expectations (Connell, 1990).

Authentic pedagogy refers to a type of instructional planning and assessment used by a teacher. Finally, students at the middle level are at a crossroads in their academic, social and behavioral development. Middle School students have unique needs as compared to elementary and high school students.

### **Teacher Support and Classroom Structure**

Though teacher support has been shown to impact student academic engagement at all levels, most assume the influence wanes in secondary schools. Students tend to spend less time with each individual teacher in the middle and high school level as compared to their time spent with elementary teachers. The middle level model calls for more interpersonal support for students (Jackson & Davis, 2000). Many schools that have had success in closing the achievement gap have placed an emphasis on teachers creating substantive connections. These connections between staff and students occur via advisory programs, personalized education plans for each student that takes into account their academic strengths and weaknesses, and by cultivating an environment safe for learning, inclusive of trust, respect, and encouragement (McNulty & Quaglia, 2006). Dr. Sbrocco found that a strong relationship has been found between the initial behavioral engagement of a student and the resulting positive relationship with a teacher (Ladd, 1999). Emotional engagement has also been found to be positively

associated with teacher support (Skinner & Belmont, 1993), while students are more likely to remain in school if they feel they have a strong relationship with an adult advocate (Wehlage et al., 1989). The positive effects of strong relationships between students and their teachers cannot be underestimated, especially when one considers the consequences of high school dropouts on society. The economic stratification in our society will only intensify when one considers that over 55% of minority students fail to graduate high school (Orfield, 2009).

Teacher support is not simply being nice to students. By providing a rich and rigorous curriculum in which students are challenged to develop solutions and to ask questions, teachers will experience fewer disruptions and more engaged students (Newmann, et al., 1995). Fredericks, Blumenfeld, & Paris (2004) observed that engagement increases in middle school classrooms where teachers create an atmosphere that emphasized academic challenge and student understanding of classroom content. Dr. Sbrocco (2009) discovered that the teachers who had high academic expectations for their students and who supported students to create and defend their own opinions also experienced higher student engagement (Stipek, 2002).

### **Authentic Pedagogy**

Authentic pedagogy challenges students to participate in intellectual accomplishments that are significant and connected to the real world (Newmann, Secada, & Wehlage, 1995). Wehlage et al., (1989) identify that student participation in authentic tasks will be more likely to motivate students to work

hard in academics and therefore be more engaged. Students who are not mired in low-level and menial academic tasks, and instead are challenged to confront real world issues, demonstrate a positive attitude towards school (Newmann, Secada, & Wehlage, 1995). Dr. Sbrocco (2009) revealed that middle school students who participate in authentic learning activities are likely to be more engaged in school, however, authentic learning opportunities are limited in U.S. secondary schools (Louis & Marks, 1998).

Authentic academic achievement is defined as the “construction of knowledge, disciplined inquiry, and value of learning beyond the school” (Sbrocco, 2009, p. 50). When a student actively builds their own knowledge, they are challenged to produce original expressions of knowledge, rather than regurgitating the thoughts and ideas of their teacher or textbook (Sbrocco, 2009). Disciplined inquiry requires students to consider what they already know and to begin to create connections between their prior knowledge and the new content they interact with. As Tony Wagner (2008) describes in *The Global Achievement Gap*, “we need to approach problems and challenges as a learner as opposed to a knower. We need to be curious versus thinking ‘I know the answer.’ Yesterday’s solution doesn’t solve tomorrow’s problem” (p. 17). Dr. Sbrocco (2009) found that when students share their construction of knowledge with people who are not their classmates or teacher, motivation surges and students are more apt to experience value beyond school (Wagner, 2008; Newmann, Secada, & Wehlage, 1995; Jackson & Davis, 2000).

Authentic instruction is vitally important in the effort to close the achievement gap as the use of authentic pedagogy produces student achievement at high levels, regardless of student background (Newmann et al., 1996). Dr. Sbrocco (2009) discovered that engagement levels (behavioral, emotional, and cognitive) are increased for students who have teachers who utilize authentic pedagogy (Fredricks, Blumenfeld, & Paris, 2004). Authentic pedagogy strives to shift the emphasis of schools from simply learning facts to striving for deep understanding of issues and using an inquiry based protocol to increase knowledge. If students believe their work is important, that it is related to “real world” issues, they will become more engaged in their educational activities (Marks, 2000).

### **Disengagement**

Students who are not engaged in their education often earn lower grades and test scores, are absent more often, and dropout from school more often than students who are engaged. Minority students usually fare worse than their white counterparts, evidenced by higher dropout rates, lower grades, not completing as many years of school, and by not taking as many advanced placement classes (Gay, 1989; Shapiro, Loeb, & Bowermaster, 1993). Researchers have found overwhelming evidence that racial minorities in U.S. schools are victimized by negative stereotypes and diminished expectations regarding their academic ability, and do not perform to the best of their ability as a result (Birenbaum & Kraemer, 1995). By 2001, minority students represented the majority of public



school students in 23 of 25 of the largest cities in the U.S (Landsman, 2001). The concentration of minority students in our largest public school systems, and the attenuating issues regarding student engagement, may be exacerbated by the dearth of minority teachers, administrators and support staff in many U.S. schools.

Since the *Brown v. Board of Education* decision in 1954, the majority of U.S. teachers, administrators, and support staff have been white, even in schools that primarily serve minority students (Landsman, 2001). According to one study in 2005, 85% of teachers in the U.S. were white (Feistritz & Haar, 2005). Gary Landsman (1992) predicted the percentage of minority teachers would actually decline over the next few decades as college educated people of color would choose professions other than teaching. The decline in minority teachers will occur simultaneously with the unprecedented demographic shift of minority students emerging as the majority of students in the U.S. (Parker, 2003).

The preponderance of white teachers in U.S. schools often view minority students as “foreign” to the school environment and believe their role is to “help minority students to be more like whites” (Bolgatz, 2005). In many schools, students believe that “white is right”, which may contribute to the disengagement of minority students. Studies have shown that perceived racism leads to the creation of an oppositional culture. Ogbu’s controversial finding that black students eschew the white dominant culture often present in educational settings has been debated for the past two decades. Dr. Sbrocco (2009) described the

oppositional culture theory that students who try their best in school and who demonstrate academic achievement are “acting white” (Fordham & Ogbu, 1986). Ogbu based his hypothesis on his analysis of 5,000 black students in the affluent Cleveland suburb of Shaker Heights, OH. Ogbu found that even though black students understood what was needed to earn A’s in school and could thoroughly explain the effort necessary to earn high grades, most black students nonetheless earned sub-par grades (Fordham & Ogbu, 1986). Ogbu was also surprised to learn black students often failed to recognize the role models in their own homes, as their parents were often working two and three jobs to provide for their children. Black students instead focused on entertainers, specifically rappers, as their role models; role models who did not seem to reinforce the importance of education (Fordham & Ogbu, 1986). Even black students whose parents were doctors or lawyers struggled in the Shaker Heights educational system, and many of them were unable to correlate educational success with job opportunities in the future (Fordham & Ogbu, 1986). Dr. Sbrocco (2009) explained that Ogbu discovered the same phenomenon many other researchers have found; black students often view academic success as incompatible with black identity (Steinberg, 1996; Jencks & Phillips, 1998; Peterson-Lewis & Bratton, 2004).

Ogbu also found similarities in the educational attitudes of both black parents and black students with low-status minorities in other nations he had studied as an anthropologist. Ogbu (1978) believes that “involuntary immigrants” in a particular society accept an oppositional culture in which the dominant

culture's educational goals are resisted. In the U.S., black Americans whose ancestors experienced the evils of slavery would represent involuntary immigrants, and they are found to suffer in much the same way minority cultures are oppressed in nations abroad (Ogbu, 1978). Black students who do well academically experience "achievement dissonance," believing their academic achievement is out of the ordinary for black students (Fordham & Ogbu, 1986). As Professor Fordham offered in a 2002 interview with Felicia Lee of the *New York Times* (2002), "black kids don't get validation and are seen as trespassing when they exceed academic expectations."

Sbrocco (2009) described the conundrum thusly: Black students find themselves in an educational vortex in which they can choose to "act white" and ignore their cultural identity, or they can reject academics in an attempt for social acceptance from their black peers (Ogbu, 1985). This self-destructive choice affects both academics and self-identification. One vestige of the pattern of discrimination against black students in U.S. schools is revealed in the propensity of black students to believe they have inferior thinking skills (Fordham & Ogbu, 1986). If a black student attempts to do their best in school, they are seen as emulating their white oppressors (Ogbu, 1994). Black students may also unwittingly exert peer pressure on fellow black students, as those who are trying their best in school are "acting white" (Fordham & Ogbu, 1986).

Stereotype threat is also a threat to the success of minority students (Sbrocco, 2009). Negative stereotypes affect minority students' academic

achievement (Jencks & Phillips, 1998). The stereotype threat is defined as being placed in a situation where a stereotype about your group could apply (Steele, 1997). Black students operate in an environment in which negative stereotypes related to academic ability has a corrosive impact on their confidence. A few of the stereotypes are that black students may be on campus only as a result of Affirmative Action, or that the black-white achievement gap will affect their achievement, or the relatively miniscule representation of black students on campuses reflects the intelligence levels of blacks. Dr. Sbrocco (2009) summarized research that revealed the stereotype threat most often affects academically successful blacks (Jencks & Phillips, 1998; Ryan & Ryan, 2005) because getting a low score on a test will confirm the stereotype that all black people are deficient in innate intelligence (Jencks & Phillips, 1998; Steele & Aronson, 1995; Steele, 1999).

Stanford Psychology Professor Claude Steele's 1995 study captures the stereotype threat experienced by blacks. Steele chose a section of the rigorous verbal section from the Graduate Record Examination (GRE) because he knew it would cause frustration in his undergraduate students. If black students were told the test measured diagnostic ability, they would be under stereotype threat when they took the test because they believed their personal intelligence was to be measured (Steele, 1997). White students may have personal issues with standardized tests (e.g., test anxiety), but since they are not at risk of confirming negative stereotypes about their entire race, they do not face the added pressure

experienced by black students. When students were told the test was a measurement of their intelligence, white student performance was unaffected, while black student performance dropped precipitously (Sbrocco, 2009). A second group of students took the same test, albeit with different instructions. The instructions for the second group conveyed that the test did not measure their intelligence, rather that the test would help students develop their problem solving ability. Black and white students performed the same on the second test because the stereotype threat was removed (Steele & Aronson, 1995). The advent of disaggregated scores for *NCLB* legislated tests presents an added layer of stereotype threat. If black students are aware of the black-white achievement gap shown in every state's standardized tests (Nation's Report Card, 2009), they may feel increased pressure to perform when they take the state tests.

### **Oppositional Peer Culture and Stereotype Threat**

Though research directly connecting oppositional culture and stereotype threat with middle-level students is rare, a few studies have discovered a link (Sbrocco, 2009). Similar to the stereotype threat research at Stanford, studies have shown black middle school students also face diminished scores if they believe the tests evaluate their innate intelligence (McKown & Weinstein, 2003). Dr. Sbrocco (2009) indicated Middle school students are also able to understand racial stereotypes, and research shows black students confront negative academic stereotypes more often than white students (McKown & Weinstein, 2003). Jackson and Davis (2000) found identification development is a crucial

development for adolescents as they learn their roles in their social groups as well as adopt their morals and values.

Dr. Sbrocco (2009) explained that black students often disidentify with school in an effort to preserve their identity (Steele, 1992; Jencks & Phillips, 1998, Steele & Aronson, 1995; Osborne, 1995; Osborne, 1997). Disidentification by black students represents the tenuous connection between self-esteem and academic achievement (Steele, 1992). Dr. Sbrocco (2009) explained the counterintuitive situation in many schools; though black students often earn lower grades in classes and on standardized tests, they report higher levels of self-esteem than white students (Osborne, 1995; Rosenberg, Schooler, Shoenback & Rosenberg, 1995). Steele, et al, were cited in the Sbrocco (2009) research because “the negative cycle is perpetuated in schools as black students disidentify with their school in an attempt to retain or even enhance their self-esteem” (p. 55). Multiple studies have found a strong correlation between school identification and academic engagement, and resultant success in school (Finn, 1989; Steele, 1992; Voelkl, 1997). The stereotype threat evidenced by the Stanford experiments reveals a loathsome psychological struggle for black students. Convinced they lack innate academic ability, or have diminished intelligence, black students may become anxious on tests because they desperately want to avoid confirming the prevailing negative stereotypes (Steele & Aronson, 1998). Faced with the stereotype threat for years, some black students may disidentify with school and their educational environment (Sbrocco, 2009).

## **National and Local Integration Plans**

One solution to closing the achievement gap may be voluntary desegregation efforts. The Choice is Yours (TCIY) Program involves students in Minneapolis and nine participating western suburban school districts. The positive academic achievement of participating students, as well as overwhelming satisfaction evidenced by parent surveys (Aspen Associates, 2009), indicate The Choice is Yours Program holds promise in the quest to integrate hyper-segregated schools in Minneapolis, MN. Families residing in Minneapolis are provided school choice with a reduction of traditional barriers (e.g., free transportation for participating students, family information centers, etc.). The following paragraphs will provide an overview of major national voluntary desegregation plans, explain the genesis of The Choice is Yours Program, and provide data relevant to the evaluation of The Choice is Yours Program.

### **Open Enrollment and Voluntary Desegregation Programs**

Open enrollment inter-district choice plans reflect the recent trend of framing solutions in market terms, and fierce competition results between school districts as they try to attract students and their accompanying state funds (Holme & Wells, 2008).

Lack of transportation reimbursements for participating families, especially low-income families, affects involvement in open enrollment programs. Suburban school districts determine the number of students they will accept, and with little administrative oversight and lower per pupil funding allocation in many

states, there is a disincentive for suburban schools to accept students via open enrollment programs (Holme & Wells, 2008). As a result, open enrollment programs have not substantially benefitted what William Julius Wilson (2006) terms “the truly disadvantaged” (Holme & Wells, 2008). The Wisconsin Chapter 220 program, when compared to the Wisconsin open enrollment program, demonstrates the extreme difference in racial involvement in the two initiatives. In the Chapter 220 program, 72% of the participating students are black, while 85% of the Wisconsin open enrollment program participants were white in the 2001-02 school year (Holme & Wells, 2008). Furthermore, 63% of the white students came from Milwaukee Public Schools, which only had an overall 18% white enrollment (Holme & Wells, 2008). The Wisconsin open enrollment program was actually decreasing diversity in Milwaukee and the suburbs.

### **Interdistrict Voluntary Desegregation Plans**

The significance of voluntary desegregation programs increased after the Supreme Court’s *Parents Involved in Community Schools v. Seattle School District* (2007) decision. The majority opinion decreed race could not be used as the sole factor in school desegregation plans. Nearly every state now has an open enrollment school choice plan. Another option to increase diversity in school districts is interdistrict voluntary desegregation plans. The following paragraphs will outline studies regarding parent understanding of NCLB legislated options as well as explain the strengths and weaknesses of open enrollment school choice plans and interdistrict voluntary desegregation plans.



NCLB legislation includes a progressive set of penalties if public schools do not meet adequate yearly progress for all segments of their student body; however, the reality is that many parents are not aware of a failing school's responsibility to provide tutoring or transportation to a non-failing school (Snell, 2004). A 2004 Harvard study of ten school districts found only three percent of students in a failing school requested a transfer to a school that was making adequate yearly progress (Snell, 2004). In Buffalo, NY, 75% of parents of students in failing schools were oblivious their children's school offered transfers to students because they had not met adequate yearly progress (AYP) for two or more years. Once parents were aware of their option for their children to transfer to a non-failing school, 92% indicated they would like to utilize the transfer option (Snell, 2004). Clotfelter's (2004) research revealed the more likely a district has one or more failing schools, the less likely that the district will have many non-failing schools. The burden often falls on parents and students to research school options, to arrange transportation, and to make arrangements for school transfers (Holme & Wells, 2008).

The goal of an Interdistrict Desegregation Plan is to achieve racial and socioeconomic status diversity in both suburban and urban schools (Holme & Wells, 2008). Factors that affect the success of interdistrict desegregation plans include free transportation, administrative assistance for families who are transferring schools, programs that assist urban school districts (e.g., magnet schools), as well as continued support and oversight from the state (Holme &

Wells, 2008). There are eight major voluntary interdistrict desegregation plans in the U.S. The St. Louis integration plan involves more than 14,000 students. Holme & Wells (2008) maintain there are two significant reasons that explain the success of the St. Louis program: strong guidelines for participation and a financial commitment in the form of \$8,000 in per pupil funding. Freivogel (2002) believes the St. Louis transfer plan meets the goals of NCLB and could serve as a template for present and future voluntary desegregation plans. The St. Louis interdistrict transfer plan “permits parents of children in failing schools to send their children to more successful public schools. And it reconstitutes failing schools with new principals and educational programs... As a notable example of the last century’s great educational experiment of desegregation and as an example of this century’s educational reform model, St. Louis has lessons to offer the rest of the nation” (Freivogel, 2002, p. 1).

Despite the fact that most of the interdistrict desegregation plans were borne of a court case, a number of positive outcomes are associated with these plans. Transfer students have experienced greater academic achievement, matriculation to college is increased for transfer students, and evidence exists that racial attitudes were improved as a result of these integration programs, especially for participating transfer students (Holme & Wells, 2008).

### **The Choice is Yours (TCIY) Program**

The diversity of Minneapolis Public School (MPS) students has shifted dramatically over the past 50 years, mirroring the trend of many of the urban

centers in the U.S. In 1964, black students made up only 6.2% of Minneapolis Public School (MPS) enrollment (Reinhardt, 2004). By the 2008-09 school year, black students comprised 39.2% of MPS students (MPS, 2008). Though the emergence of black students as the largest racial group in MPS is a recent development, the existence of racially isolated schools within the district is not. A Federal Court decided in the 1972 *Booker et al. v. Special School District No. 1* case that Minneapolis schools were unlawfully segregated. U.S. District Court Judge Earl Larson decreed Minneapolis schools had "intentionally and deliberately" kept students segregated within district schools (Boyd & Hopkins, 2008). In 1973, the state of Minnesota adopted a statewide desegregation rule with the intent to integrate schools across the state.

The desegregation rule proved ineffective, especially in Minneapolis. Minorities made up 13% of the population in Minneapolis in 1980. By 1990, minorities comprised 22% of Minneapolis citizenry. In the same ten-year period, people living in poverty increased from 14% to 19% (U.S. H.U.D., 2006). The suburbs had a 2% racial minority population in 1980, and minority presence in the suburbs doubled to 4% by 1990. Meanwhile, the poverty rate in the suburbs hovered at 5% during the 1980's (U.S. H.U.D., 2006). MPS and neighboring suburban schools continued to diverge in diversity, poverty level and in educational opportunities available to students.

Demographic changes in MPS accelerated in the 1990's. By 1995, the poverty level of MPS students soared to 55%, and approximately 66% were

minorities (*Minneapolis Branch of NAACP v. State of Minnesota*, 1995). MPS made a controversial decision in 1995 to create neighborhood (or community) schools. MPS students would now go to schools that were closer to their homes, and the move was approved by nearly 66% of MPS parents (Hotakainen, 1995). However, Myron Orfield of the University of Minnesota's Institute on Race & Poverty, along with the Minneapolis NAACP and the Urban League, decried the MPS decision to institute community schools (Orfield, 1997). Though Minnesota schools were bound by the state desegregation rule to keep each school's minority population within 15% of the overall district minority population, MPS was allowed to ignore this rule as neighborhood schools were implemented (MN Department of Children, Families & Learning, 1998). Furthermore, the MPS school board had a goal that no school would achieve hyper-segregation by ensuring no school would surpass 70% of any one racial group (MPS, 1995). This rule was also overlooked, and hyper-segregated schools would proliferate in MPS as a result.

The Minneapolis NAACP filed a lawsuit in late 1995 against the state of Minnesota, arguing that MPS students were not receiving an adequate education. The NAACP's lawsuit alleged the high levels of minority and low-income students in MSP diminished their educational experience as compared to suburban students. The Minnesota Constitution requires the legislature to "establish a general and uniform system of public school for all students" (Minnesota State Constitution, Article XIII). The tactic of utilizing state constitutional law to

argue for equitable educational opportunities for all students was first successfully utilized by plaintiffs in the *Sheff v. O'Neill* (1989) case (Orfield, 2005). Using the Minnesota Constitution as the foundation for their argument, the NAACP produced desultory statistics that demonstrated MPS students lagging behind their suburban peers in graduation rates, standardized test scores, and matriculation to college (*NAACP v. Minnesota*, 1995). In 1998, the NAACP filed the *Xiong et al v. State of Minnesota*. The numerous plaintiffs represented the growing dissatisfaction with the limited educational opportunities of MPS (Orfield et al, 2007). The lawsuit was settled in 2000, and there were several specific outcomes.

The Choice is Yours (TCIY) Program is one outcome of the lawsuit settlement from the *NAACP v. State of Minnesota* case. The NAACP contended that Minneapolis magnet schools and the schools in the suburbs were far superior to the schools located in poor Minneapolis neighborhoods. The TCIY Program offers school choice to all Minneapolis students who qualify for free and reduced price lunch. As a result of the lawsuit settlement, eligible parents were offered both inter- and intradistrict options for their students (Aspen Associates, 2009). Impoverished families, defined as a family of four that less than \$35,798 a year, may opt for interdistrict transfers to desirable magnet schools within the Minneapolis school district, or they may select an intradistrict transfer to one of the participating western suburban school districts. Per the lawsuit settlement, the suburban choice school districts offered a minimum of 500 seats in the first year (2001-2002), and increased the allotment of 500 seats per year for an additional

three years for total of 2000 seats by 2004-05 (Settlement Agreement, 2000). Following the 2004-05 school year, the participating districts agreed to continue the voluntary desegregation effort. A crucial facet of the TCIY Program is free transportation. Participating students are given free transportation via bus or taxi, regardless of the western suburban school district or Minneapolis magnet school they choose to attend. The West Metropolitan Education Program (WMEP) was also formed to assist with staff development for MSP and the western suburban districts, and two Fine Arts Interdisciplinary Resource (FAIR) schools were created for suburban students who wished to attend school in Minneapolis or Crystal (Aspen Associates, 2009). For the purposes of this paper, the Choice is Yours (TCIY) program will exclusively refer to the western suburban choice program.

By many measures, the TCIY program has been a success. Liz Palmer (2003) revealed in her two-year evaluation of TCIY that of the major voluntary desegregation efforts in the U.S., TCIY was found to be the best of nine programs (Orfield, 2006). Participation has increased from 472 students in the inaugural 2001-02 school year to approximately 2100 students in the 2008-09 school year (MPS, 2009). The more than four-fold increase in student participation is coupled with high approval ratings from parents of TCIY students (Aspen Associates, 2009). In a 2007-08 survey, 96% of parents indicated they would recommend the TCIY Program to their friends (Aspen Associates, 2009). This level of parent satisfaction is consistent with previous survey data (Orfield, 2006). Though their

children are subjected to extended bus rides as well as the prospect of experiencing racism in schools, parents overwhelmingly approve of the TCIY program (Orfield, 2005). Nearly 66% of students returned to the suburban choice school each year through the programs first seven years (Aspen Associates, 2009). Though students involved in other desegregation programs have been targets of hostility, TCIY students and parents report satisfaction with the racial climate of the western suburban schools (Orfield, 2006).

The research on the impact of TCIY on student achievement is mixed. In the first four years at the pilot stage (2001-2005), TCIY students outperformed their non-participating peers who remained in Minneapolis (Orfield, 2006). Between 2005 and 2008, students who attend schools in the western suburbs have continued to demonstrate academic gains over their non-participating peers who remained in Minneapolis schools (Aspen Associates, 2009). Students in the TCIY program outperformed their non-participating peers in 2004-05 and 2007-08. In 2005-06, TCIY students were outperformed by their non-participating peers, and in 2006-07, the academic achievement of TCIY students and non-participating peers were virtually the same (Aspen Associates, 2009). One limitation to the evaluation of academic performance in the TCIY program is student mobility. Though the TCIY student participation has increased each year, there are different TCIY students from year to year as 33% do not return to their same school (Aspen Associates, 2009). Though students who qualify for free and

reduced price lunch can still be compared, the same cohort of TCIY students does not exist from year to year.

One intended goal of the TCIY program is to increase integration in the western suburban schools through voluntary desegregation methods. The majority of students participating in the TCIY program live in two mostly black zip codes in north Minneapolis, and their exodus to western suburban schools has diversified the schools the Minneapolis students attend (Aspen Associates, 2009).

### **Summary**

This chapter has reviewed the evolution of the achievement gap in U.S. schools. The historical record of the legislative policies and judicial decisions related to efforts of closing the achievement gap spanned three centuries. Studies have found student engagement has a positive correlation in terms of increasing school identification and achievement.

Researchers have focused on what middle level schools and their teachers are able to control as they look to enhance student engagement, positive school culture, and authentic curriculum and instruction. Oppositional culture, stereotype threat, and disidentification all contribute to disengagement of minority students in their academic environments. Finally, open enrollment policies and voluntary desegregation programs, notably Minneapolis' The Choice is Yours program, were assessed in terms of their goals, organization, and results.



## **Chapter Three**

### **Research Methods**

The overarching purpose of this research is to analyze the relationship between the achievement of 8<sup>th</sup> grade students and their behavioral, cognitive, and emotional engagement. Each 8<sup>th</sup> grade student in Wakta was invited to participate in an online survey regarding their 8<sup>th</sup> grade experience in one of the three district middle schools. The responses of each student were matched with demographic and academic achievement data (e.g., MCA and MAP scores). A quantitative analysis of the data provided an answer to the question of whether increased engagement leads to a decrease in achievement gaps between groups of students.

There are five sections in this chapter. Section one details the rationale for the research design for this study. Section two describes each of the three research sites involved in this study, as well as an overall description of the Wakta School District. Section three provides information about the sampling frame of this study. The survey instrument is discussed in section four. Section five describes both data collection and data analysis utilized in this study. Finally, section six details the limitations experienced in this research.

### **Rationale for the Research Design**

Postpositivist theory guided this research project. A postpositivist researcher “assumes a learning role rather than a testing one” (Agar, 1988, p 12). Though administrators and teachers are viscerally aware of an academic achievement gap between groups of students (e.g., black and white students) in Wakta, there is not a

consensus on the reasons “why” the gap persists, or “how” to close the gap in achievement. The intent of this study is to determine if engagement does indeed have an impact of narrowing the academic achievement gap between groups of students. Researchers who employ a postpositivist approach view themselves as “people who conduct research *among* other people, learning *with* them, rather than conducting research *on* them” (Wolcott, 1990, p 19).

Postpositivist research is often exploratory, and explanations for problems “sometimes have to be discovered” (Hammersley, 2000, p 456). Students who participate in this study were provided an opportunity to include their comments regarding the reasons they feel they are engaged (or disengaged) in their education. This research is “postpositivism in nature because it will begin with a theory and data will be collected that will *either* support or disprove the theory” (Sbrocco, 2009, p 88). Dr. Renee Sbrocco conducted the exact same study in Bloomfield, MN in 2007, and her research revealed a positive and significant correlation between increased engagement and increased academic achievement for black students (Sbrocco, 2009).

A post-positivism orientation lends itself to a variety of specific types of methodology, including both qualitative and quantitative, as long as the purpose is to look for regular and predictable associations among subjective phenomena (in this case, attitudes/subjective experiences and achievement). Ryan et al outlined the benefits of a quantitative study in 2006. According to Ryan et al, quantitative studies:

- provide a broad familiarity with cases;
- examine patterns across many cases;
- show that a problem is numerically significant;
- provide readily available and unambiguous information.

This study was cross-sectional, as students were assessed at a single point in time (Sbrocco, 2009). Additionally, this study was correlational. Researchers utilize correlational studies to address the relationship of one variable when another variable changes (Thomas, 2003). One advantage of using a correlational study is the use of statistical techniques for calculating the degree of a relationship between two variables. The major limitation of a correlational study is the input data. If a researcher collects faulty data, the correlation is compromised (Thomas, 2003).

### **The Site**

Wakta is an affluent and growing school district located in the suburbs of Minneapolis, MN. Wakta Public Schools currently educate approximately 10,000 students from several surrounding communities. Approximately 250 students enroll in Wakta schools as part of *The Choice is Yours* program, and hundreds of students attend via other open enrollment options. Wakta Public Schools include seven elementary schools (K-5), three middle schools (6-8) and one high school (9-12). These 11 schools employ 1,287 people, including 697 teachers (Wakta Fact Sheet, 2010-11).

In September 1997, Wakta transitioned to a school reorganization that would include 9<sup>th</sup> graders for the first time in district history. The creation of a 9-12 high school allowed Wakta to transition from a junior high model to a middle school model. Before 1997, there were two junior high schools (grades 7-9), MS #1 and MS #2. The emergence of the 9-12 high school occurred simultaneously to the creation of three middle schools that would serve sixth, seventh, and eighth graders. The three middle schools were named Middle School #1 (“MS #1”), Middle School #2 (“MS #2”), and

Middle School #3 (“MS #3”). Though there are differences among the three middle schools in terms of student demographics and in the physical plant of each school (e.g., MS #3 is the former high school and has a full-size auditorium, a hockey rink, and a sprawling campus, MS #1 School was constructed in 1951 sans air conditioning, etc.), the achievement results are similar when the schools are compared to each other.

In terms of student enrollment (grades 6-8), MS #3 serves 945 students, MS #2 has 758 students, and MS #1 has 715 students. MS #3’s 8<sup>th</sup> grade class has 311 students, while MS #2 (256 eighth graders) and MS #1 (230 eighth graders) have noticeably smaller 8<sup>th</sup> grade enrollments. MS #2 serves the highest percentage of black students (12%), while MS #3 educates the most Asian students (14%). Hispanic students make up 4% of the MS #2 8<sup>th</sup> grade enrollment, while they comprise 2% of both MS #1 and MS #3’s 8<sup>th</sup> grade student body. MS #2 is the only Title I middle school in the district, and it has more than twice the number of students who qualify for free/reduced price lunch (22%) than MS #1 (10%). MS #3 has 12% students that qualify for free/reduced price lunch. Each middle school’s 8<sup>th</sup> grade class has at least 74% white students.

Appendix G includes the demographic information for each Wakta middle school. Adequate Yearly Progress (AYP) is “an individual state’s measure of yearly progress toward achieving state academic standards” (www2.ed.gov, 2004, p. 1). This chart indicates if demographic groups, schools and the district are making AYP progress. Safe Harbor (SH) occurs when at least a “10% reduction in the number of students (in each group) deemed to be non-proficient and makes improvement in one other indicator” (www2.ed.gov, 2004, p. 7).

## **Sampling Frame**

The sampling frame for this study included all 786 eighth grade students who attended one of the three middle schools (MS #1, MS #2, or MS #3) in the Wakta Public School District. This sampling frame is considered purposive for several reasons. Eighth grade students are on the cusp of their high school experience, thus their perceptions of their educational experience are highly valuable for teachers, parents, and administrators whose charge is to create appropriate and engaging educational programming. Dr. Sbrocco cited Merriam's as she explained purposive sampling "is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned" (p. 61). The researcher was able to obtain demographic and achievement data for all students in the 8<sup>th</sup> grade cohort from the Wakta Teaching and Learning Department. Finally, the 8<sup>th</sup> grade cohort was chosen as several national engagement surveys (e.g., NAEP, NELS:88, NHES, etc.) include responses from 8<sup>th</sup> grade students.

## **Data Collection Tools**

### **Survey Instrument**

This research is a replication of Dr. Renee Sbrocco's study in 2009. An online survey was used to collect data for this quantitative research. In the Sbrocco (2009) study, an online survey was used to measure eighth grade students' perceived academic engagement.

There are several national surveys that provided a template for this research. The National Education Longitudinal Study of 1988 was taken by a nationally representative

sample of 8<sup>th</sup> graders in the spring of 1988 (Sbrocco, p. 66). These students subsequently completed the NELS survey in 1990, 1992, 1994, and 2000. The NELS survey included statements related to behavioral engagement, cognitive engagement, and emotional engagement. Dr. Sbrocco's research revealed that NELS items included "school, work, and home experiences; educational resources and support; the role in education of their parents and peers; neighborhood characteristics; educational and occupational aspirations" (NELS, 2008). Several researchers have used the NELS survey data to buttress their engagement studies. Finn and Rock (1997) utilized NELS data to as they analyzed behavioral engagement in school and the classroom (Sbrocco, 2009). In 1993, Finn and Voelkl (1993) used NELS data to study overall school engagement, behavioral engagement, and emotional engagement. The survey utilized in this research includes several questions from the NELS survey, specifically behavioral, cognitive, and emotional engagement questions (Sbrocco, 2009). Appendix F includes the survey questions as well as the four-point Likert (1932) scale utilized in this study.

Another national survey that provided information for this research was the Educational Longitudinal Study (ELS) of 2002. The ELS survey focused on the educational experience of 10<sup>th</sup> graders that matriculated high school and moved on to work or postsecondary options (ELS, 2008). The researcher found the ELS survey included questions that could be adapted for an engagement survey for 8<sup>th</sup> graders. One focus of the ELS survey was an analysis of the correlation between academic achievement (measured by test scores) and student recollections regarding their educational experience. Lee and Smith (1993, 1995) cited NELS data to support their

finding that students in schools with more elements of a community organization showed higher engagement and greater gains in engagement over time (Fredricks, Blumenfeld, & Paris, 2004). Sbrocco (2009) used items from the both NELS and ELS as she created the instrument that measured behavioral, emotional, and cognitive engagement of 8<sup>th</sup> grade students.

In addition to the NELS and ELS, the High School Survey on Student Engagement 2005 (HSSSE) was used to help create the instrument for this study. The HSSSE was developed by the Indiana University School of Education and has been completed by nearly 300,000 students from high schools across 29 states. The survey is intended to assess the extent to which high school students engage in educational practices associated with high levels of learning and development (HSSSE, 2008). Although few studies have been completed on data collected on HSSSE, the survey articulates all areas of engagement and was written using the current cannon of knowledge on engagement, so items from it are included on the Bloomfield instrument as well.

Renee Sbrocco created a survey that “measures students’ perceived thoughts on how well teachers and schools utilize a developmentally appropriate school model and authentic instruction” (Sbrocco, 2009). Several questions were created to assess student perceptions regarding their 8<sup>th</sup> grade experience as well as the real world implications of their education. Sbrocco (2009) created these questions by utilizing *Turning Points 2000*, the seminal work of Jackson & Davis. *Turning Points 2000 (Jackson & Davis, 2000)* outlines a host “of recommendations for schools to implement” (Sbrocco, 2009). The

recommendations included in *Turning Points 2000* were tailored to the middle-level experience (usually students in grades 6-8). The researcher utilized the framework of *Turning Points 2000* to create statements for the survey instrument. In the final survey, fifteen of 83 questions are specifically related to the developmentally appropriate school model (Sbrocco, 2009).

Authentic Pedagogy was a focus in this research. Fred Newmann et al (1995) have found that authentic pedagogy is one way to engage students in their educational environments. Wehlage (1989) found “participation in authentic tasks will motivate students to work hard in academics, and therefore be more engaged” (Sbrocco, 2009). Newmann, Secada, and Wehlage (1995) coined authentic pedagogy in their work, and found the following aspects lead to increased student engagement:

- 1) Higher Order Thinking
- 2) Deep Knowledge
- 3) Substantive Conversation
- 4) Connections to the World Outside the Classroom

Dr. Sbrocco measured authentic instruction with statements that included the four components outlined by Newmann et al. Students were asked to respond to five authentic pedagogy-related questions on this survey. Sample items included, “What I’m learning in my classes will help me in the real world,” and “I’m required to talk with my classmates about the subject we are learning during class” (Sbrocco, 2009).

Students were also queried about their perception of teacher support and school climate. Teacher support of students has long been connected to increased engagement.



In the study entitled *Relationships Matter* (2004), Klem & Connell found “students with caring and supportive interpersonal relationships in school report more positive academic attitudes and values, and more satisfaction with school.” The DASM posits that young adolescents will be more successful in school if teachers infuse “interpersonal support into regular classroom instruction” (Sbrocco, 2009). In the survey instrument, students indicated their level of agreement with fourteen statements related to teacher support. A Likert Scale was used, and students had four choices for each statement: strongly agree, agree, disagree, and strongly disagree. A few examples of teacher support statements were, “My teachers believe I can do well in school,” and “My teachers really listen to what I have to say.” Researchers have found a positive correlation between school climate and student achievement. Adelman & Taylor (2010) state “a positive climate can have a beneficial impact on students and staff; a negative climate can be another barrier to teaching and learning” (p. 16). Seventeen school climate-related questions were included in the survey instrument. Examples included “My school honors academic achievement,” and “Discipline rules at my school are fair” (Sbrocco, 2009).

Survey research was used in this study for several reasons. First, surveys can be administered confidentially and are useful for collecting information on sensitive matters. Surveys also provide an efficient means to collect and analyze data. A summary of the types of questions are listed in Table 3.1.

Table 3.1 *Survey Instrument*

Factors	Sample Questions	Number of Questions
Behavioral Engagement	I participate in class discussions.	8
Emotional Engagement	I like coming to my school.	10
Cognitive Engagement	I like when I have to think really hard about an academic problem.	14
Overall Engagement	I have been sent to the office/quiet room because I was misbehaving.	8
Teacher Support	When I work hard on schoolwork, my teachers praise my effort.	14
School Climate/Culture	At my school students are expected to do homework.	17
Authentic Pedagogy	I'm required to talk with my classmates about the subject we are learning during class.	5
Developmentally Appropriate School Model	My teachers are preparing me to be a lifelong learner.	15

*Source: Sbrocco (2009) survey*

### **Potential Limitations of the Survey Instrument**

A limitation of this study is generalizability. The use of a convenient sample instead of a simple random sample of eighth grade students prevents the use of sampling error statistics. Since the unit of analysis is limited to one district, the results may not be generalizable to other public school districts. Another limitation of this study is the scope of the study. The subjects of the study are exclusively Wakta eighth graders, and there will not be an attempt to survey other eighth grade students from around Minnesota or the United States (Sbrocco, 2009).

Renee Sbrocco (2009) was the first researcher of record to create a survey instrument that merged student engagement (behavior, cognitive, and emotional), DASM, teacher support, authentic pedagogy, and school climate questions. When using an instrument that has only been utilized once before “an important limitation is that both the validity and the reliability of the instrument has not been established when measuring the perceptions of eighth-grade students” (Sbrocco, 2009). Nationally normed surveys (NELS, ELS, HSSE) have proven to be both reliable and valid, and several questions on this survey instrument were taken directly from these surveys. Another limitation is multicollinearity between the types of engagement found in previous research (Fredricks, Blumenfeld, & Paris, 2004). This intercorrelation of variables is a severe threat to validity as “predictors are confounded due to the correlations among them” (Stevens, 2002).

### **Achievement Data**

In addition to the data collected from the students' surveys, demographic and achievement data was collected for all 8<sup>th</sup> grade students. Barbara Smith, the director of Research and Evaluation for Wakta Public Schools, provided the demographic and achievement data for each 8<sup>th</sup> grade student. The researcher requested and received achievement data for the 786 students, including 7<sup>th</sup> grade MAP math and reading scores, 7<sup>th</sup> grade MCA-II math and reading scores, 8<sup>th</sup> grade MAP math and reading scores, 8<sup>th</sup> grade MCA-II reading scores, and 8<sup>th</sup> grade MCA-III math scores. Following the survey, the achievement data will be linked with the demographic and survey responses for each student. The MAP tests are created and administered by Northwest Evaluation Association (NWEA). The NWEA website offers this summation:

Created by educators for educators, MAP assessments provide detailed, actionable data about where each child is on their unique learning path. Because student engagement is essential to any testing experience, NWEA works with educators to create test items that interest children and help to capture detail about what they know and what they're ready to learn. It's information teachers can use in the classroom to help every child, every day. (nwea.org)

The MAP also allows "schools and the district to compare individual and aggregate student growth in learning to national norms" (Sbrocco, 2009, p. 73). The MAP test "dynamically adapts to a student's responses-as they take the test" (nwea.org, 2011). If a student answers a question correctly, the test will automatically ratchet up the rigor of the next question. If a student answers incorrectly, the MAP test will offer a simpler item in the future.

The MCA-II (Reading) and MCA-III (Math) "is a criterion-referenced test that aligns with the state of Minnesota's current academic standards" (Sbrocco, 2009). In Minnesota, students in grades 3-8 take the MCA-II in reading and the MCA-III in math.

A requirement of the *No Child Left Behind* (2001) law is for each school district to assess and communicate the achievement level of all students. The analysis will reveal student achievement in relation to district, state, and national standards. Another facet of *NCLB* is the Adequate Yearly Progress report. Students are divided into ethnic, socioeconomic status, language, and special education categories (or “cells”) for purposes of comparison. If one of the cells (there are 33 in all) is determined to be not making Adequate Yearly Progress (AYP), the entire school is deemed to not be making AYP. The AYP for each category of students is based on averages of past performance of students in that particular cell in that particular school and district. Once the MCA and MAP achievement data was gathered, the data was merged with the demographic information for each student.

Mobility emerged as an issue in data collection. If a student moved into the Wakta school district mid-year, achievement data may not have been on file. There were other students who had achievement data on file who had moved out of the district before a student took the survey. Approximately a dozen students completed the survey, but did not have the MCA or MAP achievement data available for analysis. Similar to Renee Sbrocco’s (2009) study, students must have survey responses and achievement data recorded to be included in the research.

### **Overview of the Data Collection Process**

#### **The Survey**

An online survey served as the data collection instrument. A pilot involving three reading classes of 7<sup>th</sup> graders (72 students overall) allowed the researcher to refine

instructions, ensure vocabulary was appropriate for middle school students, as well as test the online survey log in and passwords. The 7<sup>th</sup> grade students participated in the pilot study in December 2010, during their reading class. The pilot survey revealed potentially catastrophic programming errors. For example, every student in the second pilot class on December 22, 2010, experienced a paralyzing “white screen.” Once this screen appeared, students were unable to complete their survey, to observe their responses, etc.

Consultation with Wakta Webmaster Francois Thompson allowed the researcher to locate the issue and to set up a third pilot opportunity on January 21, 2011. This third pilot session was a complete success in terms of student ability to access the survey, ability to complete the survey, and ability of the researcher to analyze the results. Appendix A includes student comments, student suggestions and subsequent revisions to the online survey. Appendix B includes response data from the first pilot survey.

Approval from the Institutional Review Board (IRB) at the University of Minnesota was secured on March 14, 2011. Upon receipt of IRB approval, the researcher was able to commence data collection. The data collection process will be described in the remainder of this section.

### **Use of a Modified Tailored Design Method**

Dr. Sbrocco collected survey responses via “an online, web-based, survey data collection process” (Sbrocco, 2009, p. 75). Don Dillman (2007) outlines five elements necessary to create an effective survey. Dillman’s “Tailored Design Method” served as the foundation for both Dr. Sbrocco’s and this researcher’s study. Upon analysis, this

study satisfies four of the five elements of the “Tailored Design Method.” The “Tailored Design Method” calls for implementation of the following conditions:

1. a respondent-friendly questionnaire,
2. up to five contacts with the questionnaire recipient,
3. inclusion of stamped return envelopes,
4. personalized correspondence, and
5. a token financial incentive that is sent with the survey request.

Upon analysis, this study satisfies four of the five elements of the “Tailored Design Method.” This research did not necessitate the use of stamped return envelopes (#3) as the all communication was transported by student, staff member, or via email. As Dr. Sbrocco (2009) states in her research, a researcher who institutes the above methods of survey implementation should achieve good results.

The researcher strived to create a respondent-friendly questionnaire. The pilot study with 7<sup>th</sup> grade students allowed the researcher to observe student completion of the survey. Furthermore, the researcher was able to collect data related to ease of use, vocabulary, and comprehension of questions. A web-based survey was created with Wakta Webmaster Francois Thompson, whose experience in survey creation and data analysis aided the researcher throughout the data collection process. The final survey included 90 questions. Though there were a substantial number of questions, the efficiency of the survey resulted in an average completion time of 15 minutes. Students were encouraged to share their views regarding their educational experience. Furthermore, students were reminded that their identity would be protected. Responses

would not be released with identifying information attached. Eventually, 692/786 (88%) Wakta 8<sup>th</sup> grade students completed the survey between March and June 2011. If students were absent when their class took the survey, they were able to access the engagement survey on each subsequent trip to the computer lab. A few students completed the survey on the last days of school in June 2011.

The second of Dillman's items calls for "up to five contacts with each respondent" (Dillman, 2007). Multiple contacts with respondents were not deemed necessary for this particular study. Students took the survey in school under the supervision of their geography teacher. This study was approved by both the Wakta School District and the University of Minnesota. Full parental consent was mandated for student participation per the University of Minnesota's IRB approval of this study. Parents of each participant as well as each potential participant received several informational reminders regarding participation in the study. Appendix D includes the introductory information each student and family received.

Parents and guardians received a second, more thorough letter three weeks before students were to take the engagement survey (see Appendix C). This parental consent letter satisfied several of Dillman's tenets of effective communication, including background information of the study, background information of the researcher, the University of Minnesota's research policies, the procedures of the study, the risks and benefits of participation, confidentiality of the study, and contact information for both the researcher and the advisor (Dillman 2007). The final point of contact involved the student assent letter (Appendix E). Students were provided a brief overview of the study,



an option to withdraw from the study at any time, and instructions on how to complete the survey if they wished to participate.

Neither step 3 nor step 4 of Dillman's Tailored Design Method was fully realized in this research project. Step 3 calls for inclusion of "stamped return envelopes" (Dillman, 2007); however, all communication for this research required the participant to transfer documents between school and their home. Dillman's 4<sup>th</sup> step requires a researcher to include "at least one personalized communication" during the study (Dillman, 2007). In terms of introduction of the survey, the researcher relied on the geography teachers to pass out materials, collect parental consent forms, answer questions, and proctor the survey. Each geography teacher had a personalized connection with students in their class, a connection a researcher would not be able to replicate for the sampling frame of nearly 800 students. The results of the survey were confidential, but not anonymous. Students used their unique "network folder" username and password to log in to the survey. The use of the network folder information provided a level of personalization in the survey process. Students were able to log in comfortably and without perturbation (i.e., they did not need to utilize an unfamiliar username and password), and the researcher was able to seamlessly merge survey response data with demographic and achievement data.

Dillman's 5<sup>th</sup> step of the Tailored Design Method requires a token financial incentive for survey participation. The researcher consulted with the geography teachers, building principals, his Doctoral Advisor, and parents in creating an incentive that would fit within the confines of the budget. The financial incentive was tied to the return of

parental consent forms. There were six geography teachers involved in this study. Each teacher would reward their class with the highest return percentage of parental consent forms. The class with the highest return percentage would hold a drawing for three \$25 gift certificates.

### **Online Web Based Survey Limitations**

Renee Sbrocco detailed two limitations to online surveys outlined by Dillman (2007) in her dissertation: participant access to computers and assumption that participants are computer-literate (Sbrocco, 2009, p 79). Access to computers was not a limitation in this particular study as the survey was taken within the participants' geography class. The Internet connection and computer availability was assured, and technical assistance was available if any questions were raised. Each middle school employs a tech pro that was available to assist, the Wakta Webmaster provided his cell phone to all geography teachers in case they experienced technical difficulties, and the geography teacher was present in the computer lab. Student participants had prior experience with their network folder username and password. Each time students use a computer in their middle school, they are required to enter their username and password. Temporary usernames and passwords were provided to each geography teacher in case a student experienced difficulty accessing the survey.

The University of Texas-Austin's Information Technology Systems (2009) delineates several web-based survey limitations that may affect survey completion. Freezes and crashes are possible whenever an online survey is administered. Indeed, the freeze in the form of a "white screen" afflicted the second pilot attempt by 7<sup>th</sup> grade

students. Fortunately, this glitch was solved and there were no freezes or crashes during 8<sup>th</sup> grade survey administration. Error messages may emerge once a respondent completes a questionnaire (ITS, 2009). Diligent planning and preparation by the Webmaster prevented this limitation from evolving. Finally, double entry is a threat to online survey research. In some instances, it is possible for a participant to complete multiple surveys. The utilization of the network username and password as well as a timestamp allowed the researcher to quickly identify any double entry occurrences. There were two instances of double entry in this study. The second entry of each respondent was discarded during data analysis, eliminating this threat to validity.

### **The Sample and Response Rate**

Coverage error had the potential of emerging as a limitation of this research. Coverage may occur when not all members of a particular population have an equal opportunity to participate in the study. Middle School students are not known for their reliability in communicating with their parents or guardians. In this case, the parental consent form was presented to students in geography class. Students were required to take the form home, present it to their parents or guardians, bring the form back to school, and turn it in to their geography teacher. The token financial incentive encouraged students to return the parental consent form to their geography teacher, whether or not they wished to participate in the survey. Though each potential participant received identical instructions, a substantial number of 8<sup>th</sup> grade students failed to complete each of these steps satisfactorily. The geography teachers called home to remind parents to return the parental consent form, students were encouraged to call

home and remind their parents about the parental consent form, and the researcher was able to communicate with parents via email and phone. The combined efforts of 8<sup>th</sup> grade participants, parents of participants, teachers, and the researcher resulted in a robust completion rate.

Of the 786 students in the sample frame, 692 students completed the 8<sup>th</sup> grade engagement survey. The 88% response rate for this survey was similar to Dr. Sbrocco's response rate of 94% for her 8<sup>th</sup> grade engagement survey (Sbrocco, 2009). Non-response bias occurs when there is a substantial number of non-responders to a survey. The dearth of responders in a survey limits the researcher's ability to draw conclusions of the larger population (Electronic Data Information Source, 2011). Non-response bias is mitigated with an elevated response rate, especially a rate that approaches 90% inclusion.

Measurement error did not arise as a limitation in this study. Per Renee Sbrocco's (2009) research protocol, a pilot version of the survey was tested with 72 7<sup>th</sup> grade students. Three 7<sup>th</sup> grade-reading classes participated in the pilot survey. The second group to take the survey experienced technical difficulties and were unable to complete the survey. This allowed the researcher and the Webmaster to retool the survey, thereby avoiding future problems related to the online survey program. Eight students participated in a think-aloud (see Appendix A) with the researcher, providing feedback and perceptions related to the pilot survey. This process allowed the researcher to refine questions, correct grammatical and spelling errors, and modify the appearance of the survey. Measurement error was not a factor as students were required to answer each question before proceeding to the next screen of the survey. Each participant answered

each question of the survey, eliminating the need to monitor student response for missing data for a particular question.

Though 692 students completed the survey, several students in this group did not have achievement data on file. As a result of missing achievement data, the final sample size was 650 students for this research. These 650 students had survey responses to each question, achievement data, and demographic data available to the researcher.

### **Data Preparation**

The researcher was able to merge the data sets of demographics, achievement, and survey responses. Once the data was merged into one document, the responses were transformed from “strongly agree” or “disagree” to an ordinal value of 1, 2, 3, or 4 (Sbrocco, 2009). The response “Strongly agree” was given a value of 4, “agree” a 3, “disagree” a 2, and “strongly disagree” a score of 1. In order to avoid positive bias, several questions were written with negative presuppositions. The following statement is one such example: “I feel as if I don’t have control over my grades.” If a student responded with a “strongly disagree” to this statement, they are actually demonstrating a high level of engagement. The response to this statement was converted from a “1” to a “4” for analysis purposes. In this analysis, a score of “4” represented complete engagement, while a score of “1” represented complete disengagement. The responses for all questions with negative presuppositions were adjusted accordingly. If a student was missing either achievement data or survey data, they were eliminated from consideration for this research. Though 692 students completed the survey, a total 650 students had both survey data and achievement data.

## **Variable Construction**

Dr. Sbrocco (2009) provided a template for variable construction in her student engagement survey. The researcher analyzed the combined data set of demographic information (e.g., ethnicity), achievement scores (e.g., MAP scores), and survey responses. The researcher was able to construct variables by “running a factor analysis for distinct groups of questions and coding them according to appropriate research and analysis” (Sbrocco, 2009, p. 82). The construction of variables increased the ease and efficiency of further analysis of the combined data set.

A Likert Scale limited students to four possible answers (strongly agree, agree, disagree, and strongly disagree). Strongly agree was correlated with a “4”, agree with a “3,” disagree with a “2”, and strongly disagree with a “1.” In this particular survey, 24 statements on the survey “corresponded with student engagement” (Sbrocco, 2009). Eight questions assessed behavioral engagement, nine statements measured cognitive engagement, and seven correlated with emotional engagement.

The researcher conducted a component factor analysis with varimax-rotation in order “to determine independent variables and confirm the presence of similar types of engagement that the survey” (Sbrocco, 2009, p. 83). Following the factor analysis, six factors emerged with eigenvalues over 1.0. Behavioral engagement, cognitive engagement, emotional engagement, teacher support, school climate, and authentic pedagogy all had Eigenvalues over 1.0. Each of these factors was deemed viable as they had “more than two items with a factor loading of .5 or higher” (Sbrocco, 2009, p. 83). The National Center for School Engagement (2006) describes Cronbach’s Alpha as “an

index of reliability for a set of items that indicates the extent to which items measure the same characteristic” (p. 8). These factors were deemed viable for research as “typical acceptable Cronbach Alpha in social sciences is .70” (NCSE, 2006, p. 9). Table 4.4 includes the factors that emerged with the corresponding statements from the survey, the Cronbach Alpha, and the Eigenvalue.

### **Data Analysis Methods**

Descriptive and inferential statistics were utilized in the data analysis of this study. Descriptive statistics typically “describe what is or what the data shows” (Social Research Methods, 2006). Alternatively, inferential statistics attempt to “reach conclusions that go beyond the immediate data alone” (Social Research Methods, 2006). Furthermore, inferential statistics are “used to provide information on the relationship and predictability between variables” (Sbrocco, 2009).

### **Descriptive Statistics**

Demographic data was collected from the Wakta Teaching and Learning department. The researcher was able to collect ethnicity, English learner status, free and reduced lunch status, and special education status. This information formed the foundation of the data that would eventually be transferred to SPSS. The information collected from the Wakta Teaching and Learning department was also used to compare the demographics of the three Wakta middle schools.

### **Inferential Statistics**

Several research questions of this study related to relationships between variables, and inferential statistics were utilized to analyze correlations between particular variables

(Sbrocco, 2009). Initially, correlations were “run on each type of behavioral, cognitive, and emotional engagement” (Sbrocco, 2009, p. 88). A subsequent correlation was executed to find the relationship between the engagement variables and achievement data. An analysis of the relationships allowed the researcher to run step-wise regressions “in order to examine engagement variables to see which variables are associated with student achievement, over and above the control variable of student ethnicity” (Sbrocco, 2009, p. 88). Table 3.4 indicates the statistical analysis method for each research question.



Table 3.2 *Data Analysis by Research Question*

Research Question	Specific Statistical Test
1. What is student academic engagement?	Factor Analysis
1a. What forms of student academic engagement emerge?	Factor Analysis
1b. What are the relationships between these types of student academic engagement?	Bivariate Correlations
1c. How does student academic engagement emerge overall, by school and demographic indicators?	Descriptive Statistics
2. What is the relationship between academic engagement and student academic achievement (and all subquestions)?	Bivariate Correlation
3. What is the relationship between white and black students' academic engagement and academic achievement (and all subquestions)?	Bivariate Correlation
4. What is the relationship between students' academic engagement, the developmentally appropriate school model and teacher support (and all subquestions)?	Bivariate Correlation
5. To what degree can student academic engagement decrease or increase the effects of ethnicity on student academic achievement (and all subquestions)?	Stepwise Regression

## **Ethical Considerations**

According to the University of Minnesota's "Protecting Human Subjects Guide" (2009), the Institutional Review Board has two ethical considerations for research involving human subjects:

- 1) to protect human subjects involved in research at the University from inappropriate risk, and
- 2) to ensure that human subjects consent to their research participation.

Students were protected from inappropriate risk in this study. Parental consent was a prerequisite for participant inclusion in this research. Sans parental consent, 8<sup>th</sup> grade students were not able to participate in this study, regardless of their willingness to complete the survey. Anonymity is a serious ethical issue that was preserved throughout research process as only the researcher had access to identifying information (Punch, 2005). Once survey responses, demographic data, and achievement data were combined into a single data set, identifying information was removed. Furthermore, encryption software was utilized to provide increased security of research data.

Potential participants had multiple opportunities to consent to their inclusion in this research. Fowler (2008) suggests that research participants should be briefed on the purpose of the study, and how the data will be recorded. The 8<sup>th</sup> grade students involved in this research project had the option of withdrawing from the survey at any time. Students indicated their consent on the parental consent form. On the day of the survey, students were given another chance to provide consent. Student survey information was

included only if a student consent form was collected. Information on the student assent form detailed “what” students were to do in lieu of the survey (i.e., work on homework). The researcher sought IRB approval in November 2010. Following consultation with advisor Neal Nickerson and Wakta Teaching and Learning administrators, the revisions were presented to IRB on January 31, 2010. Further revisions were requested by IRB, and the researcher satisfied each requirement. Final IRB approval was granted on March 14, 2011.

## **Chapter Four**

### **Survey Results**

This study is a replication of Dr. Sbrocco's (2009) research. The purpose of the Sbrocco study, as well as this research, was "to assess the relationship between students' engagement and their academic achievement" (Sbrocco, 2009, p. 93). Student engagement has been exhaustively studied by a myriad of researchers (e.g., Fredricks, Blumenfeld, & Paris; Adelman & Taylor, etc.). This study intends to analyze the relationship between student engagement and academic achievement (as measured by standardized test scores). Each Wakta 8<sup>th</sup> grader was invited to participate in this study, and eventually 88% (692/786) of the students completed the engagement survey.

In order to focus the analysis of the impact of engagement on academic achievement, five research questions were formulated. The research questions mirror Dr. Sbrocco's (2009) study on the relationship between student engagement and academic achievement.

### **Research Questions**

1. What is student engagement?
  - a. What forms of student engagement emerge?
  - b. What are the relationships between these types of student engagement?
  - c. How does student engagement emerge by school, by demographic indicators, and overall?
2. What is the relationship between student engagement and student academic achievement?

- a. What is the relationship between student engagement and performance on the Reading and Mathematics portions of the MCA II?
  - b. What is the relationship between student engagement and performance on the MAP Mathematics and Reading assessments?
3. What is the relationship between 8<sup>th</sup> grade students' engagement and academic achievement?
  - a. What is the relationship between student engagement and MCA II Mathematics and Reading?
  - b. What is the relationship between student engagement and MAP Mathematics and Reading?
4. What is the relationship between students' engagement, developmentally appropriate schooling, and teacher support?
  - a. What is the relationship between student engagement and teacher support?
  - b. What is the relationship between student engagement and developmentally appropriate schooling?
  - c. What were the differences between 8<sup>th</sup> grade students' experience of both teacher support and developmentally appropriate schooling?
5. To what degree can student engagement decrease or increase the effects of ethnicity on student academic achievement?

### **Characteristics of Participants**

The Wakta Teaching and Learning department provided the researcher with demographic and assessment information for each 8<sup>th</sup> grade student. This information included the middle school attended, gender, ethnicity, free and reduced lunch status, special education status, English language proficiency, MCA-II mathematics and reading scores, and MAP mathematics and reading scores.

During the spring of 2011, 692 of a possible 786 students completed the engagement survey (88% response rate). In order to be included in the data analysis, students needed to satisfy both of the following requirements:

- 1) complete the engagement survey
- 2) have both 7<sup>th</sup> grade MAP and 7<sup>th</sup> grade MCA-II scores on file

Standardized test scores from the MCA-II and MAP were utilized as achievement data for Wakta 8<sup>th</sup> grade students. Though test scores are comparatively similar among the Wakta Middle Schools, MS #1's MCA-II reading scores were the highest in several demographic categories. Overall, 91.8% of MS #1 students were proficient on the MCA-II reading test, while MS #3 had 87.0% of students that were proficient, and 81.3% of students at MS #2 were proficient. Asian students were 100% proficient at MS #1, 95.2% proficient at MS #3, and 83.3% proficient at MS #2. Black students had the highest proficiency rate at MS #2 (53.6%), followed by MS #1 (46.2%) and MS #3 (44.8%). White students at MS #1 had the highest reading scores (94.2%), followed by MS #3 (91.2%) and MS #2 (86.2%).

The scores varied a bit on the Mathematics MCA-III test. The scores are depressed for each cohort of students as “new, more rigorous standards were

implemented in 2011” (MDE, 2011). MS #3 had the highest overall proficiency rate (73.6%), followed by MS #1 (70.6%) and MS #3 (59.8%). Asian students demonstrated the highest proficiency (82.1%). White students were ten points behind at 72.2% proficiency. There was a precipitous drop-off in proficiency rates for both Hispanic students (38.1%) and black students (26.1%).

Achievement variations between black students and their Asian and white peers are glaringly apparent. On the Reading MCA II test, only 48.6% of black 8<sup>th</sup> grade students were proficient, while Asian 8<sup>th</sup> grade students (92.2%) and white 8<sup>th</sup> grade students (90.6%) demonstrated much higher proficiency rates. The Mathematics MCA III test showed a higher gap between black 8<sup>th</sup> grade students (26.1% proficiency) and their white (72.2%) and Asian (82.1%) 8<sup>th</sup> grade peers. Across Minnesota, white students were 59.7% proficient on the MCA III Mathematics test, while black students were 24.5% proficient. Though black students in Wakta performed marginally better on the mathematics test compared to the state average for black students, they still trailed every other ethnic category of students in Wakta. The 46% gap (between black 8<sup>th</sup> grade students and white 8<sup>th</sup> grade students) and 56% gap (between black 8<sup>th</sup> grade students and Asian 8<sup>th</sup> grade students) represent a larger difference of achievement for groups than the state averages. The following charts highlight the differences in achievement among the three Wakta middle schools during the 2010-2011 academic year.

Table 4.1 *MCA-II 2011 Reading Results*

	MS #2	MS #3	MS #1	District	State
All Students Proficiency	81.3	87.0	91.8	86.5	68.1
All Students AYP Status	Yes	Yes	Yes	Yes	No
Asian Students Proficiency	83.3	95.2	100	92.2	61.6
Asian Students AYP Status	Yes	Yes	Yes	Yes	Yes
Hispanic Students Proficiency	N/A	N/A	N/A	71.4	45.7
Hispanic Students AYP Status	N/A	N/A	N/A	Yes	No
Black Students Proficiency	53.6	44.8	46.2	48.6	43.5
Black Students AYP Status	Yes	Yes	Yes	Yes	Yes (SH)
White Students Proficiency	86.2	91.2	94.2	90.6	74.1
White Students AYP Status	Yes	Yes	Yes	Yes	Yes

*Scores are reported in percentages.*

*AYP Calculation was based on multi-year averaging (see previous page).*

*SH indicates that the cell met AYP Safe Harbor target (see page previous page).*

*N/A indicates less than 20 students in that cell took the MCA-II*

*Data retrieved from MN Dept. of Education, 10/15/11.*

Table 4.2 *MCA-III Mathematics 2011 Results*



	MS #2	MS #3	MS #1	District	State
All Students Proficiency	59.8	73.6	70.6	68.3	67.7
All Students AYP Status	Yes	Yes	Yes	Yes	Yes
Asian Students Proficiency	72.0	85.7	90.9	82.1	53.5
Asian Students AYP Status	Yes	Yes	Yes	Yes	Yes
Hispanic Students Proficiency	N/A	N/A	N/A	38.1	27.7
Hispanic Students AYP Status	N/A	N/A	N/A	Yes	No
Black Students Proficiency	18.5	27.6	38.5	26.1	24.5
Black Students AYP Status	Yes	Yes	Yes	Yes	No
White Students Proficiency	66.0	77.3	72.3	72.2	59.7
White Students AYP Status	Yes	Yes	Yes	Yes	Yes

Score

*s are reported in percentages.*

*AYP Calculation was based on multi-year averaging.*

*SH indicates that the cell met AYP Safe Harbor target.*

*Data Retrieved from Minnesota Department of Education website, 10/5/11.*

### **Demographic Characteristics of Participants**

For varying reasons, 42 students who had completed the survey did not have a complete testing profile of MCA II and MAP tests. Of the 692 students that took the survey, 650 had MCA II and MAP test results on file and were included in the data analysis. The three Wakta middle schools included a varying amount of students in the study: 265 students (40.8%) attended MS #3, 193 students (29.7%) attended MS #1, and 192 (29.5%) attended MS #2. Female students accounted for 334 responses (51.4%), while 316 males participated (48.6%). This study included 527 white students (81.1%), 68 Asian students (10.5%), 39 Black students (6.0%), and 16 Hispanic students (2.5%). The 650 participants included 71 students who qualified for free and reduced lunch, 26 students who received special education services, and three students that participated in this study were Limited English Proficiency (LEP) students. Table 4.3 includes a complete composite of student demographic information.

Table 4.3 *Demographic Data of 8<sup>th</sup> Grade Students*

Middle Schools			
	MS #3	MS #2	MS #1
Total Number	265	192	193
Frequency	40.8%	29.5%	29.7%

Gender		
	Male	Female
Total Number	316	334
Frequency	48.6%	51.4%

Ethnicity				
	Asian	Hispanic	Black	White
Total Number	68	16	39	527
Frequency	10.5%	2.5%	6%	81.1%

Free and Reduced Lunch		
	Yes	No
Total Number	71	579
Frequency	10.9%	89.1%

Table 4.3 *Demographic Data of 8<sup>th</sup> Grade Students*

Special Education		
	Yes	No
Total Number	26	624
Frequency	4%	96%

Limited English Proficiency		
	Yes	No
Total Number	3	647
Frequency	.5%	99.5%

Prior to completing a correlation analysis, the researcher determined which factors emerged from the survey results. A component factor analysis with varimax-rotation was used to ascertain engagement variables (Sbrocco, 2009). Following this analysis, behavioral engagement, cognitive engagement, and emotional engagement emerged as significant factors (each had a factor loading over .5). Table 4.4 includes the results.

*Cognitive Engagement:* This factor had a Cronbach's Alpha of .808. Items found to have high loadings (over .5) included "Most of my schoolwork is interesting," "I like coming to my school," and "I like when I have to think really hard about an academic problem."

*Behavioral Engagement:* This factor had a Cronbach's Alpha of .822. There were several questions that demonstrated high loadings, including "I do my homework," "I do my school work because I want to get good grades," and "I take pride in my assignments." Students who are behaviorally engaged display positive behaviors in school. Each question that emerged with a high loading reflected positive school behaviors.

*Emotional Engagement:* This factor had a Cronbach's Alpha of .683. Statements that demonstrated high loadings included "I am able to do school as well as other students," "I feel safe in my school," and "I feel good about myself."

*Teacher Support:* This factor had a Cronbach's Alpha of .760. This factor had high loadings on items such as "My teachers are interested in me," "My teachers believe I can do well in school," and "My teachers praise my efforts when I work hard." All of

these items reflected the definition of teacher support for this study. A few items that had high loadings for teacher support were written to assess authentic pedagogy, but also connected to teacher support. For example, “My teachers require me to think hard about the subjects we are learning.”

*Fairness:* This factor had a Cronbach’s Alpha of .775. Statements that had high loadings included “I am treated fairly by teachers,” “My friends are treated fairly by teachers,” and “I am treated fairly by administrators.”

*Developmentally Appropriate School Model (DASM):* This factor emerged with a Cronbach’s Alpha of .564. Statements that had high loadings included “My school is a caring community,” “Teachers and administrators support student leadership,” and “There is an adult in my school that I know cares about me.” Each item in this factor resembles the current research of the DASM (Sbrocco, 2009).

Achievement variables were also created in order to analyze the correlation between achievement and engagement (Sbrocco, 2009). Variable construction of MCA achievement included the average of the MCA math and MCA reading score. Student achievement on the “MAP math and reading tests were also averaged to create one combined MAP variable” (Sbrocco, p 87, 2009).

Table 4.4 *Factor Analysis*

Factor	Survey Statement	Eigen- value	Alpha
Cognitive Engagement	<p>I often feel bored at school.</p> <p>The topics we study in school are usually interesting.</p> <p>Most of my schoolwork is interesting.</p> <p>I like coming to my school.</p> <p>I often count the minutes before school ends.</p> <p>I do my schoolwork because I want to learn as much as I can.</p> <p>I like it when I have to think really hard about an academic problem.</p> <p>I learn more outside of school than inside.</p>	7.624	.808
Behavioral Engagement	<p>I work hard because I plan to graduate from college in the future.</p> <p>I do my schoolwork because I want to get good grades.</p> <p>I do my schoolwork because I know it will help me in the future.</p> <p>I do my homework.</p> <p>I take pride in my assignments.</p> <p>If I do not understand something in class I keep working until I find the answer.</p> <p>In school, good luck is more important than hard work for success.</p>	1.670	.822
Emotional Engagement	<p>I feel I do not have much to be proud of in school.</p> <p>I am able to do school as well as most other students.</p> <p>I feel good about myself.</p> <p>I feel as if I don't have a lot of control over my grades.</p> <p>I feel safe in my school.</p>	1.325	.683

Teacher Support	My teachers really listen to what I have to say. My teachers are interested in me. My teachers know me well. The teaching in my school is good. My teachers believe I can do well in school. My teachers praise my efforts when I work hard. My teachers are willing to give extra help if I need it.	5.491	.760
Teacher Support (cont.)	What I'm learning in my classes will help me in the real world. Students get along well with teachers in my school. Discipline rules at my school are fair. My teachers expect me to memorize rather than think.		
Fairness	I am treated fairly by teachers. I am treated fairly by administrators. My friends are treated fairly by teachers. My friends are treated fairly by administrators.	5.828	.775
Developmentally Appropriate School Model (DASM)	My school is a caring community My school wants me to be a good citizen. My school helps me be a healthy person. My school is safe. My school is dedicated to improving the intelligence of all students. Teachers and administrators support student leadership. There is an adult in my school that I know cares about me. My school involves my parents.	1.459	.564



***Research Question One: What is student engagement?***

In order to answer question one, the variables connected to engagement would need to be analyzed. A factor analysis was utilized, and bivariate correlations were run on each engagement variable (see pages 13-14) that surfaced in order to answer the question of, “What is student academic engagement?” (Sbrocco, 2009). Table 4.5 includes the results.

***Research sub question 1a: What forms of student engagement emerge?***

A component factor analysis with varimax-rotation was used to ascertain engagement variables (Sbrocco, 2009). Following this analysis, behavioral engagement, cognitive engagement, and emotional engagement emerged as significant factors (each had a factor loading over .5). See Table 4.4 for results.

***Research sub question 1b: What are the relationships between these types of student academic achievement?***

Analysis via SPSS revealed the correlation between the three engagement variables of behavioral, cognitive, and emotional engagement. Table 4.5 includes the correlation findings.

A positive and significant correlation between behavioral engagement and cognitive engagement ( $r = .619$ ) emerged after analysis. Behavioral engagement and emotional engagement were found to be positively and significantly correlated ( $r = .604$ ). A positive and significant correlation also emerged between cognitive engagement and emotional engagement ( $r = .529$ ).

Table 4.5 *Engagement Correlations*

		Cognitive Engagement	Behavioral Engagement	Emotional Engagement
Cognitive Engagement	Pearson Correlation	1.000	.619**	.529**
	Sig. (2-tailed)		.000	.000
	N	650	650	650
Behavioral Engagement	Pearson Correlation	.619**	1	.604**
	Sig. (2-tailed)	.000		.000
	N	650	650	650
Emotional Engagement	Pearson Correlation	.529**	.604**	1
	Sig. (2-tailed)	.000	.000	
	N	650	650	650

\*\* *Correlation is significant at the 0.01 level (2-tailed)*

Multicollinearity did not emerge as a threat to validity as the correlation of between behavioral engagement and cognitive engagement ( $r = .619$ ), between behavioral engagement and emotional engagement ( $r = .604$ ), and between cognitive engagement and emotional engagement ( $r = .529$ ). Each of these correlations were below the .70 multicollinearity threshold.

***Research sub question 1C: How does student academic engagement emerge by school, by demographic indicators, and overall?***

Analysis of the results reveals that student engagement varied by middle school attended. Table 4.6 displays the minimum, maximum, mean, and standard deviation for each engagement variable (behavioral, cognitive, and emotional).

Table 4.6 *Summary of Descriptive Statistics for Student Engagement*

		Minimum	Maximum	Mean	Std. Deviation
Behavioral Engagement	50	1.00	4.00	3.3048	.44309
Cognitive Engagement	50	1.13	3.75	2.4796	.47977
Emotional Engagement	50	1.40	4.00	3.1938	.45095
Valid N (listwise)	50				

Research sub question 1C includes an analysis of student engagement levels by school. MS #1 emerged with the highest mean scores in behavioral engagement, cognitive engagement, and emotional engagement. These results can be found in table 4.7. Table 4.8 displays the significance of the differences in engagement scores among the three middle schools.

Table 4.7 *Summary of Descriptive Statistics by Each School (MS #1, MS #2, and MS #3)*

Types of Engagement	Mean (S.D.)		
	MS #1 (N=193)	MS #2 (N=192)	MS #3 (N=265)
Behavioral Engagement	3.36 (.43)	3.23 (.42)	3.31 (.46)
Cognitive Engagement	2.57 (.46)	2.43 (.47)	2.45 (.49)
Emotional Engagement	3.24 (.44)	3.17 (.46)	3.17 (.45)
Valid N = 650			

Table 4.8 ANOVA to Determine if There is a Significant Difference Between Schools on Engagement Scores

	F (Sig.)		
	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Between Groups	4.184 (.016)	4.883 (.008)	1.600 (.203)

Research sub question 1C includes an analysis of whether or not student academic engagement varies, depending on demographic differences (e.g., gender, ethnicity, special education, and LEP). Table 4.9 reveals females had higher scores in behavioral engagement, cognitive engagement, and emotional engagement.



Table 4.9 *Descriptive Statistics Comparing Male and Female students on Student Engagement*

Type of Engagement	Mean (S.D.)	
	Male (N=316)	Female (N=334)
Behavioral	3.23 (.47)	3.37 (.41)
Cognitive	2.43 (.49)	2.52 (.47)
Emotional	3.17 (.45)	3.22 (.45)
Valid N = 650		

An ANOVA analysis is included in Table 4.10. A significant difference between male and female students did not emerge in cognitive engagement or emotional engagement; however, a significant difference among males and females did emerge in behavioral engagement.

Table 4.10 *ANOVA to Determine if There is a Significant Difference Between Genders on Engagement Scores*

	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Between Groups	16.851 (.000)	5.613 (.018)	1.777 (.183)

Sub question 1C analyzes the variance in engagement levels amongst students of each ethnic group. Table 4.11 includes engagement levels for Asian, Hispanic, black and white students. Asian students had the highest behavioral, cognitive, and emotional engagement. The ANOVA analysis included in table 4.12 reveals a significant difference amongst the ethnic groups in emotional engagement. Behavioral engagement and cognitive engagement are relatively similar amongst the ethnic groups of students.

Table 4.11 *Descriptive Statistics Comparing Ethnicities on Student Engagement*

Type of Engagement	Asian (N=68)	Hispanic (N=16)	Black (N=3)	White (N=527)
Behavioral	3.51 (.32)	3.10 (.40)	3.21 (.46)	3.30 (.44)
Cognitive	2.64 (.45)	2.45 (.41)	2.55 (.57)	2.48 (.48)
Emotional	3.26 (.41)	3.10 (.40)	3.10 (.46)	3.20 (.46)
Valid = 650				

Table 4.12 ANOVA to Determine if there is a significant difference between ethnicities on Engagement scores.

	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Between Groups	7.111 (.000)	3.314 (.020)	1.768 (.152)

Research sub question 1C analyzed the impact special education status, Limited English Proficiency (LEP) students, free and reduced lunch students had on academic engagement. Only three students were LEP, so they are not included in the analysis in table 4.13. These factors are routinely used to compare and contrast achievement outcomes for students in U.S. schools. In this study, student who qualified for free and reduced lunch demonstrated lower behavioral engagement and emotional engagement scores. Students who qualified for free and reduced lunch had the exact same cognitive engagement score (2.48) as students who did not qualify for free and reduced lunch. Finally, students who received SPED services had lower behavioral engagement and emotional engagement scores while they displayed a slightly higher cognitive engagement score.

Table 4.13 *Descriptive Statistics Comparing Students Who Qualify and Who Do Not Qualify for Free and Reduced Lunch and Special Education on Student Engagement*

Type of Engagement	Mean (S.D.)			
	No-Free Reduced Lunch (N=579)	Yes-Free Reduced Lunch (N=71)	No SPED (N=624)	SPED (N=26)
Behavioral	3.33	3.14	3.32	3.01
Cognitive	2.48	2.48	2.48	2.50
Emotional	3.21	3.05	3.20	2.96
N = 650				



Significant differences in emotional engagement (.005) and behavioral engagement (.001) scores emerged between students who qualified for free and reduced lunch and those who did not qualify for free and reduced lunch. Though students who received special education services had a higher cognitive engagement (2.50) score than students that did not receive special education services (2.48), the difference was negligible and therefore not considered significant. Students who received special education services did display significantly lower behavioral engagement scores (See Table 4.14 for ANOVA). Finally, students who received special education services had lower emotional engagement scores, though the difference was not considered significant (.007).

Table 4.14 ANOVA to Determine If There is a Significant Difference Between Special Education and Free and Reduced Lunch on Engagement Scores

	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Between Groups	11.649	.003	8.119
Free & Reduced	(.001)	(.959)	(.005)
Between Groups	12.582	.075	7.257
Special Education	(.000)	(.785)	(.007)

**Research Question Two: What is the relationship between student engagement and student achievement?**

This particular research question explores the correlation between student engagement and their academic achievement. Bivariate correlations were utilized on each engagement variable and achievement measurements (Sbrocco, 2009).

**Research sub question 2a: What is the relationship between student engagement and performance on the reading and mathematics portions of the Minnesota Comprehensive Assessment (MCA-II)?**

Bivariate correlation was used to analyze the relationship between engagement (behavioral, cognitive, and emotional) and the averaged MCA-II mathematics and reading scores. Each state utilized a criterion-referenced test to measure adequate yearly progress as part of NCLB, and Minnesota utilizes the MCA-II assessment for this purpose. MCA-II mathematics and reading scores were combined to create a single academic achievement variable for the purpose of this study (Sbrocco, 2009). Based on table 4.15, the results indicate behavioral engagement and MCA-II achievement were positively and significantly correlated at .316. Cognitive engagement and MCA-II achievement were positively, but not significantly correlated, at .150. Emotional engagement and MCA-II achievement were positively and significantly correlated at .343.

Table 4.15 *Correlations Between MCA-II Achievement and Student Engagement*

	Combined MCA II (Math and Reading)		
	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Pearson Correlation	.316**	.150*	.343**
Sig. (2-tailed)	.000	.000	.000
N	650	650	650

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Sub question 2b: What is the relationship between student academic engagement and performance on the Measures of Academic Progress (MAP) mathematics and reading assessments?**

The Measures of Academic Progress (MAP) is an assessment utilized by Wakta Public Schools to assess the progress of each student. The criterion-referenced tests are given to students in grades 3-8 in Wakta Public Schools. Similar to the Sbrocco (2009) study, the MAP results for mathematics and reading were combined into a single variable for analysis purposes. In order to analyze the relationship between engagement and academic achievement (as measured by MAP scores), bivariate correlations were run on each engagement variable (behavioral, cognitive, and emotional) and the MAP scores for each 8<sup>th</sup> grade student (Sbrocco, 2009). Based on table 4.16, the results indicate a positive and significant correlation exists between behavioral engagement and MAP scores (.306), between cognitive engagement and MAP scores (.144), and between emotional engagement and MAP scores (.347).

Table 4.16 *Correlations Between MAP Achievement and Student Engagement*

	Combined MAP (Mathematics and Reading)		
	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Pearson Correlation	.306**	.144**	.347**
Sig. (2-tailed)	.000	.000	.000
N	650	650	650

\*\* *Correlation is significant at the 0.01 level (2-tailed).*

**Research Question Three: What is the relationship between all student ethnic groups on student engagement and academic achievement?**

The third research question analyzes the relationship between student engagement and academic achievement. To examine this relationship, “bivariate correlations were conducted on each engagement variable by ethnicity and achievement measurements” (Sbrocco, 2009). The remainder of this section includes analysis for sub questions 3a, 3b, 3c, and 3d.

**Sub question 3a: What is the relationship between all student ethnic groups student engagement and MCA-II Mathematics and Reading scores?**

The same method used for research question two were utilized for all of research question three. The MCA-II mathematics and reading scores were combined to create one achievement variable for analysis purposes. Table 4.17 includes the correlations for engagement and academic achievement (as measured by MCA-II mathematics and reading) for each ethnic group. Asian students showed a positive and significant relationship between academic achievement and behavioral engagement (.366) and emotional engagement (.251). Moreover, Asian students showed a positive but not significant statistical relationship between cognitive engagement and achievement (.060). Hispanic students did show a positive and significant correlation between behavioral engagement and achievement (.747) and as well as between emotional engagement and achievement (.703); however there was an insignificant correlation between cognitive engagement and achievement (.105). Black students showed positive but not significant correlations between academic achievement and behavioral engagement (.175) and

cognitive engagement (-.094). Black students showed a slightly negative and not significant correlation between cognitive engagement and academic achievement (-.094). Finally, white students displayed positive and significant correlations between academic achievement and behavioral engagement (.291), cognitive engagement (.195), and emotional engagement (.350). Table 4.17 includes the correlations for student engagement and MCA II achievement.



Table 4.17 *Correlations for MCA-II Achievement and Student Engagement*

		Asian Students	Hispanic Students	Black Students	White Students
Behavioral Engagement	Pearson Correlation	.366**	.747**	.175	.291**
	Sig. (2- tailed)	.002	.001	.286	.000
	N	68	16	39	527
Cognitive Engagement	Pearson Correlation	.060	.105	-.094	.195**
	Sig. (2- tailed)	.629	.698	.568	.000
	N	68	16	39	527
Emotional Engagement	Pearson Correlation	.251*	.703**	.184	.350**
	Sig. (2- tailed)	.039	.002	.262	.000
	N	68	16	39	527

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

\**. Correlation is significant at the 0.05 level (2-tailed).*

**Sub question 3b: What is the relationship between student engagement and MAP Mathematics and Reading scores?**

The MAP mathematics and reading scores were averaged to create a singular achievement variable (just as in research question 2). Based on table 4.18, the results indicate Asian students have a positive but not significant relationship between behavioral engagement and achievement (.303) and between emotional engagement and achievement (.260). Hispanic students displayed a positive and significant correlation between behavioral engagement and achievement (.699) and between emotional engagement and achievement (.683). Black students demonstrated a positive but not significant correlation between achievement and behavioral engagement (.166) and emotional engagement (.268). A negative correlation between cognitive engagement and achievement (-.059) emerged for black students. Finally, white students showed a positive and significant correlation between achievement and behavioral engagement (.279), cognitive engagement (.173), and emotional engagement (.348).

Table 4.18 *Correlations for Student Engagement and MAP Achievement*

		Asian Students	Hispanic Students	Black Students	White Students
Behavioral Engagement	Pearson Correlation	.303*	.699**	.166	.279**
	Sig. (2-tailed)	.012	.003	.314	.000
	N	68	16	39	527
Cognitive Engagement	Pearson Correlation	.080	.162	-.059	.173**
	Sig. (2-tailed)	.517	.548	.722	.000
	N	68	16	39	527
Emotional Engagement	Pearson Correlation	.260*	.683**	.268	.348**
	Sig. (2-tailed)	.032	.004	.099	.000
	N	68	16	39	527

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

\**. Correlation is significant at the 0.05 level (2-tailed).*

**Research Question Four: What is the relationship between students' engagement and the developmentally appropriate school model and teacher support?**

This question pertains to the relationship between student engagement, the developmentally appropriate school model (see page 29), teacher support (see page 30), and student engagement. Bivariate correlations were conducted on each engagement variable (behavioral, cognitive, and emotional), the developmentally appropriate school model, teacher support, and fairness.

**Sub question 4a: What is the relationship between student engagement and teacher support?**

The relationship between engagement and teacher support was answered by examining the correlation between the engagement variables (behavioral, cognitive, and emotional) and the teacher support variable (Sbrocco, 2009). Based on table 4.19, the results indicate that teacher support is positively and significantly correlated to behavioral engagement ( $\alpha = .498$ ), cognitive engagement ( $\alpha = .617$ ), and emotional engagement ( $\alpha = .525$ ). Table 4.19 includes the correlations between teacher support and student engagement.

Table 4.19 *Correlations between Teacher Support and the Three Engagement Variables.*

Teacher Support			
	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Pearson Correlation	.498**	.617**	.525**
Sig. (2-tailed)	.000	.000	.000
N	650	650	650

\*\* *Correlation is significant at the 0.01 level (2-tailed)*

**Sub question 4b: What is the relationship between student engagement and the developmentally appropriate school model (DASM)?**

An analysis of the correlation among the three engagement variables (behavioral, cognitive, emotional) and the DASM revealed a positive and significant relationship. For instance, a positive and significant correlation exists between behavioral engagement and DASM ( $\alpha = .403$ ). A positive and significant correlation exists between cognitive engagement and DASM ( $\alpha = .488$ ) as well as between emotional engagement and DASM ( $\alpha = .474$ ). Table 4.20 includes the correlations between student engagement and DASM.

Table 4.20 *Correlations Between the Developmentally Appropriate School Model and the Three Engagement Variables.*

Developmentally Appropriate School Model			
	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Pearson Correlation	.403**	.488**	.474**
Sig. (2-tailed)	.000	.000	.000
N	650	650	650

*\*\*.* Correlation is significant at the 0.01 level (2-tailed)

**Sub question 4C: What is the relationship between student engagement and school culture?**

Research question 4C explores the relationship between student engagement and school culture (see page 30). The three engagement variables (behavioral, cognitive, and emotional) were correlated with school culture. A bivariate correlation was run and strong correlations emerged between engagement and school culture. A positive and significant correlation emerged between school culture and behavioral engagement ( $\alpha = .334$ ), cognitive engagement ( $\alpha = .336$ ), and emotional engagement ( $\alpha = .325$ ). Table 4.21 shows the correlations between engagement and school culture.



Table 4.21 *Correlations Between School Culture and the Three Engagement Variables.*

School Culture			
	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Pearson Correlation	.334**	.336**	.325**
Sig. (2-tailed)	.000	.000	.000
N	650	650	650

\*\* *Correlation is significant at the 0.01 level (2-tailed)*

**Sub question 4D: What is the relationship between student engagement and authentic pedagogy?**

Research question 4d examines the relationship between authentic pedagogy and student engagement. Authentic pedagogy is based on Fred Newman's (1994) conception that school work should be based on high standards of intellectual quality. A bivariate correlation was run and strong correlations emerged between authentic pedagogy and student engagement. Based on table 4.22, the results indicate a positive and significant correlation exist between authentic pedagogy and behavioral engagement ( $\alpha = .183$ ) and cognitive engagement ( $\alpha = .261$ ). A positive and moderate correlation emerged between authentic pedagogy and emotional engagement ( $\alpha = .092$ ). Table 4.22 shows the correlations between authentic pedagogy and student engagement.

Table 4.22 *Correlations Between Authentic Pedagogy and the Three Engagement Variables.*

Authentic Pedagogy			
	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Pearson Correlation	.183**	.261**	.092*
Sig. (2-tailed)	.000	.000	.019
N	650	650	650

\*\**. Correlation is significant at the 0.01 level (2-tailed)*

**Sub question 4E: What is the relationship between student engagement and fairness?**

Sub question 4e examines the relationship between fairness and student engagement. In this study, fairness is the perception of each student regarding “how” they were treated by adults in school, as well as how their peers were treated by the adults. A bivariate correlation was run, and a positive and significant correlation emerged between fairness and the three engagement variables (behavioral, cognitive, and emotional). Based on table 4.23, the results indicate a positive and significant correlation between fairness and behavioral engagement ( $\alpha = .410$ ), cognitive engagement ( $\alpha = .490$ ), and emotional engagement ( $\alpha = .378$ ). Table 4.20 shows the correlations between fairness and student engagement.

Table 4.23 *Correlations Between Fairness and the Three Engagement Variables.*

Fairness			
	Behavioral Engagement	Cognitive Engagement	Emotional Engagement
Pearson Correlation	.410**	.490**	.378**
Sig. (2-tailed)	.000	.000	.000
N	650	650	650

\*\* *Correlation is significant at the 0.01 level (2-tailed)*

**Sub question 4F: What were the differences between student experiences of teacher support, the developmentally appropriate school model, school culture, fairness, and authentic pedagogy?**

Descriptive statistics were utilized to analyze research sub question 4f (Sbrocco, 2009). Mean scores for all ethnic groups were tabulated for teacher support, developmentally appropriate school model, school culture, fairness, and authentic pedagogy. Asian students emerged with the highest teacher support mean (3.01), followed by Hispanic students (2.93), white students (2.90), and black students (2.87). Both Asian and black students had a school culture mean score of 3.10 while white students had a 3.09 and Hispanic students had a 3.06. Black students emerged with the highest authentic pedagogy mean score of 2.85, followed by Asian students (2.77), Hispanic, and white students (both 2.73). Asian students had the highest fairness mean score of 3.06, followed by Hispanic students (3.03), white students (2.96), and black students (2.83). Hispanic students had the highest DASM score of 3.04, with Asian students close behind at 3.03, and white students at 3.02. Black students had the lowest DASM score with a mean of 2.93. Table 4.24 shows the descriptive statistics of teacher support, DASM, school culture, fairness, and authentic pedagogy.

Table 4.24 *Summary of Descriptive Statistics for the Developmentally Appropriate School Model, Teacher Support, Fairness, Authentic Pedagogy, and School Culture For All Students.*

	Mean (S.D.)				
	Asian Students (N=68)	Hispanic Students (N=16)	Black Students (N=39)	White Students (N=527)	All Students (N=650)
Teacher Support	3.01 (.33)	2.93 (.40)	2.87 (.48)	2.90 (.40)	2.91 (.40)
School Culture	3.10 (.34)	3.06 (.36)	3.10 (.43)	3.09 (.39)	3.09 (.38)
Authentic Pedagogy	2.77 (.44)	2.73 (.39)	2.85 (.52)	2.73 (.42)	2.73 (.43)
Fairness	3.06 (.49)	3.03 (.54)	2.83 (.64)	2.96 (.53)	2.96 (.53)
DASM	3.03 (.35)	3.04 (.31)	2.93 (.43)	3.02 (.37)	3.02 (.37)

A one-way ANOVA was run to determine if the differences between ethnic groups and teacher support, DASM, school culture, fairness, and authentic pedagogy (Sbrocco, 2009). Based on Table 4.25, the results did not reveal a significant difference between students of varying ethnicities and their perceptions regarding teacher support, DASM, school culture, fairness, and authentic pedagogy. Table 4.25 includes the ANOVA results.



Table 4.25 *ANOVA to Determine if There is a Significant Difference Between Groups of Waktu 8<sup>th</sup> grade students and teacher support, developmentally appropriate school model, school culture, fairness, and authentic pedagogy*

	F	Sig.
Teacher Support Between Groups	1.746	.156
DASM Between Groups	.796	.497
School Culture Between Groups	.068	.977
Fairness Between Groups	1.663	.174
Authentic Pedagogy Between Groups	1.082	.356

**Research Question Five: To what degree can student engagement decrease or increase the effects of ethnicity on student academic achievement?**

Both Listwise and Stepwise linear regressions were utilized to determine which engagement variables were associated with academic achievement. Listwise linear regressions were run in order to replicate Renee Sbrocco's (2009) variable analysis. Listwise linear regressions were run with student achievement (MAP average, MCA-II average) serving as the independent variable, and behavioral engagement, cognitive engagement, and emotional engagement as the dependent variables (Sbrocco, 2009). Each ethnic group of students was included in this regression analysis. Table 4.26 includes Asian and white students, Table 4.27 includes Hispanic and white students, and Table 4.28 includes black and white students. Table 4.29 includes a listwise linear regression analysis of black students and white students. The MCA II average served as the dependent variable. Ethnicity, behavioral engagement, cognitive engagement, and emotional engagement were entered. Ultimately, emotional engagement emerged as the most significant predictor of student achievement.

Listwise and stepwise regression produced differing outcomes in this study. Listwise regression has a pre-determined order of variables whereas stepwise regression will allow the most predictive variables to emerge. Ethnicity was entered as a dummy variable (white = 0), along with the behavioral engagement, cognitive engagement, and emotional engagement variables. Stepwise regression will "allow a variable to enter the equation only if certain criteria are met" (Sbrocco, 2009). If the criteria are not met, variables will be removed from analysis, as was the case with cognitive engagement.

Similar to Renee Sbrocco's 2009 study, "the probability associated with the test of significance is less than or equal to the default in SPSS of .05, the predictor variable with the largest correlation with achievement enters the equation first" (Sbrocco, 2009, p.138). Any subsequent variable that meets the minimum threshold (PIN = .05) will be added to the equation, while variables currently in the equation are "examined for removal according to the removal criterion (POUT = .10)" (Sbrocco, 2009, p. 138). Stepwise regression provides the researcher with the best method of identifying the most predictive dependent variable.

The first, second, and third listwise regressions analyzed the relationship between academic achievement (MCA-II average) and student engagement (behavioral, cognitive, and emotional). Listwise regression was utilized in order to compare the results with Dr. Sbrocco's 2009 study. Variables were entered in the following order: ethnicity, behavioral engagement, emotional engagement, and cognitive engagement. Ethnicity was entered as a dummy variable (white = 0), and compared to Asian, Hispanic, and black students. The first regression focused on the comparison between Asian and white students, the second regression compared Hispanic and white students, while the third regression focused on black and white students.

The first regression analysis revealed the moderating impact engagement had on ethnicity. This regression compared the engagement levels and achievement levels of Asian and white students. Ethnicity emerged as an insignificant (.013) predictive variable that accounted for approximately 10% of the variance in achievement.

Behavioral engagement was added in the second step of analysis, and it mitigated the

effect of ethnicity on achievement by nearly half (.102 to .054). Table 4.26 displays the results of this regression analysis.

The second regression contained mixed results. Hispanic and white students were included in this regression analysis. In this regression, ethnicity and academic achievement had a negative beta of  $-.083$  and an insignificant relationship. The R square was  $.007$  for ethnicity, but when ethnicity was combined with behavioral engagement, the R square rose to  $.099$ . The low number of Hispanic students ( $N=16$ ) involved in this study had an impact on the significance of the regression analysis. Table 4.27 includes the results for this regression analysis.

The third regression included black and white students. The first step of the regression revealed a beta value of  $.313$ , a significance of  $.000$ , and an R square of  $.098$ . Once behavioral engagement was entered on the second step, the beta value dropped from  $.313$  to  $.301$ . Behavioral engagement had a significant mitigating effect on ethnicity for black and white students in terms of academic achievement. Similar to Renee Sbrocco's research, behavioral engagement "does not eliminate the achievement gap, but it does reduce the association between ethnicity and achievement" (Sbrocco, 2009, p. 139). Table 4.28 includes the results for this particular regression.

In the fourth analysis, a stepwise regression was utilized comparing Asian and white students. Emotional engagement was the most predictive variable with a beta of  $.340$ . Behavioral engagement emerged in the second step of the stepwise regression with a beta of  $.162$ . Nearly 25% of the variance in achievement of Asian and white students is predicted by their emotional and behavioral engagement scores. Ethnicity and cognitive

engagement were excluded from this analysis. Table 4.29 includes the results of the regression analysis featuring Asian and white students.

The fifth regression also utilized a stepwise format. Emotional engagement emerged as the most predictive variable with a beta of .364. This result is considered significant (.000). Behavioral engagement emerged in the second step of the stepwise regression with a beta value of .142. Emotional engagement (13.1%) and behavioral engagement (14.5%) accounted for 27.6% of the variance in achievement amongst Hispanic and white students. Both ethnicity and cognitive engagement were excluded variables in this particular regression. See Table 4.30 for complete results of this regression.

The sixth and final analysis was performed with a stepwise regression. Black and white students were the focus in this regression, and emotional engagement emerged as the most predictive variable in the stepwise regression (See Table 4.31). The first variable's R square of .115 reveals that 11.5% of the variance in student achievement on the MCA II reading test is attributed to emotional engagement. Ethnicity emerged as the second most predictive variable with 8.7% of the variance explained, and the R square rose to .202. Behavioral engagement was the last variable that emerged, accounting for .8% of variance amongst student achievement scores, while the R square rose to .211. Cognitive engagement was entered into the stepwise regression, but it did not meet the criteria and was thus removed from the data analysis. Emotional engagement and ethnicity have similar beta values (.323 and .296), evidence of their predictive value on achievement of Waktá 8<sup>th</sup> grade black and white students.

Table 4.26 *Listwise Regression of MC- II Student Academic Achievement Based on Engagement and Ethnicity (Asian and white students).*

Predictors	$\beta$	t	Sig.	R <sup>2</sup>
1 (Constant)		1511.199	.000	
Ethnicity	.102	2.488	.013	.010
2 (Constant)		212.668	.000	
Ethnicity	.054	1.371	.171	
Behavioral Engagement	.297	7.513	.000	.096
3 (Constant)		211.622	.000	
Ethnicity	.054	1.374	.170	
Behavioral Engagement	.302	5.992	.000	
Cognitive Engagement	-.007	-.141	.888	.097
4 (Constant)		197.695	.000	
Ethnicity	.070	1.807	.071	
Behavioral Engagement	.186	3.472	.001	
Cognitive Engagement	-.078	-1.550	.122	
Emotional Engagement	.269	5.511	.000	.141
Model	F	24.159	Sig.	.000

Table 4.27 *Listwise regression of MCA II Student Academic Achievement based on engagement and ethnicity (Hispanic and white students).*

Predictors	$\beta$	t	Sig.	R <sup>2</sup>
1 (Constant)		1521.731	.000	
Ethnicity	-.083	-1.942	.053	.007
2 (Constant)		210.487	.000	
Ethnicity	-.061	-1.489	.137	
Behavioral Engagement	.304	7.435	.000	.099
3 (Constant)		209.124	.000	
Ethnicity	-.061	-1.488	.137	
Behavioral Engagement	.303	5.785	.000	
Cognitive Engagement	.002	.044	.965	.099
4 (Constant)		195.443	.000	
Ethnicity	-.050	-1.290	.198	
Behavioral Engagement	.175	3.147	.002	
Cognitive Engagement	-.075	-1.432	.153	
Emotional Engagement	.296	5.511	.000	.152
Model	F	24.039	Sig.	.000

Table 4.28 *Listwise egression of MCA II Student Academic Achievement based on engagement and ethnicity (Black and White students).*

Predictors	$\beta$	t	Sig.	R <sup>2</sup>
1 (Constant)		412.986	.000	
Ethnicity	-.313	7.835	.000	.098
2 (Constant)		196.103	.000	
Ethnicity	-.301	7.827	.000	
Behavioral Engagement	.269	7.011	.000	.171
3 (Constant)		194.432	.000	
Ethnicity	-.300	7.763	.000	
Behavioral Engagement	.275	5.553	.000	
Cognitive Engagement	-.009	-.179	.858	.171
4 (Constant)		185.616	.000	
Ethnicity	-.288	7.626	.000	
Behavioral Engagement	.157	2.975	.003	
Cognitive Engagement	-.082	-1.646	.100	
Emotional Engagement	.273	5.621	.000	.215
Model	F	38.376	Sig.	.000



Table 4.29 *Stepwise regression of MCA II Student Academic Achievement based on engagement and ethnicity (Asian and white students).*

Predictors	$\beta$	t	Sig.	R <sup>2</sup>
1 (Constant)		227.736	.000	
Emotional Engagement	.340	8.805	.000	.116
2 (Constant)		197.646	.000	
Emotional Engagement	.245	5.177	.000	
Behavioral Engagement	.162	3.432	.001	.133
Model	F	45.355	Sig.	.000

Table 4.30 *Stepwise regression of MCA II Student Academic Achievement based on engagement and ethnicity (Hispanic and white students).*

Predictors	$\beta$	t	Sig.	R <sup>2</sup>
1 (Constant)		223.649	.000	
Emotional Engagement	.364	9.087	.000	.132
2 (Constant)		195.908	.000	
Emotional Engagement	.279	5.616	.000	
Behavioral Engagement	.142	2.860	.004	.145
Model	F	45.922	Sig.	.000

Table 4.31 *Stepwise regression of MCA II Student Academic Achievement based on engagement and ethnicity (black and white students).*

Predictors	$\beta$	t	Sig.	R <sup>2</sup>
1 (Constant)		220.172	.000	
Emotional Engagement	.339	8.551	.000	.115
2 (Constant)		231.494	.000	
Emotional Engagement	.323	8.573	.000	
Ethnicity	-.296	-7.860	.000	.202
3 (Constant)		202.804	.000	
Emotional Engagement	.252	5.370	.000	
Ethnicity	-.295	-7.849	.000	
Behavioral Engagement	.117	2.498	.013	.211
Model	F	50.113	Sig.	.000

## **Chapter Summary**

Chapter Four includes quantitative data and analysis that explores the impact of student engagement on academic achievement. Wakta 8<sup>th</sup> grade student demographic information and analysis of each research question is included in this chapter. Analysis of research question one revealed that cognitive engagement, behavioral engagement, and emotional engagement emerged as variables. Further analysis revealed a significant and positive correlation among the three variables. Research question two explored the relationship between student engagement and academic achievement, and analysis of the data demonstrated a significant relationship between these two variables. The data related to research question three showed a significant relationship between student engagement and academic achievement for students of each ethnicity (Asian, Hispanic, black, and white). An analysis of the data revealed Asian and white students demonstrated a higher positive and significant relationship between student engagement and academic achievement than their Hispanic and black peers. These findings are similar to Minnesota as well as national trends regarding achievement differences amongst groups of students (although Asian students in Wakta score significantly higher on their standardized tests than Asian students across Minnesota). Analysis of research question four demonstrated several variables were shown to have a positive and significant correlation with academic achievement and student engagement, including the developmentally appropriate school model, teacher support, school culture, fairness and authentic pedagogy. Research question five focuses on the mitigating effect of student engagement for students of varying ethnicities. Research question five required

regression analysis. The data revealed the mitigating impact student engagement (behavioral, emotional, and cognitive) has on ethnicity in terms of academic achievement. Significantly, emotional engagement emerged as the best predictive variable in terms of academic achievement, not ethnicity. Chapter Five includes an interpretation of these results, implications on educational policy and practice, and final conclusions.

## **Chapter Five**

### **Conclusions**

This research intended first to analyze the relationship between students' behavioral, cognitive, and emotional engagement (see pages 11-13) and academic achievement as measured by standardized test scores. Secondly, the research explored the question of whether “student engagement moderates the association between ethnicity and academic achievement” (Sbrocco, 2009, p. 147). This chapter includes the purpose of this study, the research questions, the significance of this study, a summary of the data, an analysis of the data, the limitations of the study, and finally, implications on educational policy. The chapter concludes with recommendations for further research related to student engagement and academic achievement.

### **Purpose and Significance of the Study**

The purpose of this study was to analyze the relationship between student engagement (behavioral, cognitive, and emotional) and academic achievement as measured by MCA II and MAP scores. The Wakta School District utilizes the Minnesota Comprehensive Assessment II and III tests to assess student achievement in mathematics, reading, and science. Additionally, Wakta employs Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) tests in mathematics and reading to assess student comprehension. Each Wakta 8<sup>th</sup> grade student was invited to participate in this study, and eventually 88% (692/786) completed the engagement survey. The researcher was able to gather archival and demographic data from the Teaching & Learning department of Wakta Public Schools. The data provided by the Wakta School

District was combined with the survey results, allowing the researcher to commence a quantitative analysis of the impact of student engagement on academic achievement. Five research questions guided this research. The research questions reveal which variables emerged, as well as the impact each variable had on academic achievement. Finally, the researcher utilized the data in an analysis of whether or not student engagement moderates the effect of ethnicity on academic achievement. A finding that student engagement (behavioral, cognitive, and emotional) mitigates the impact of ethnicity on academic achievement might assist teachers, administrators, students, parents, and other stakeholders in their quest to narrow achievement gaps between groups of students.

### **Research Questions**

The study has five specific research questions. The questions and related sub questions are as follows:

- 1) What is student engagement?
  - a) What forms of student engagement emerge?
  - b) What are the relationships between these types of student engagement?
  - c) How does student engagement emerge by school, by demographic indicators, and overall?
- 2) What is the relationship between student engagement and student academic achievement?

- a) What is the relationship between student engagement and performance on the Reading and Math portions of the MCA II?
  - b) What is the relationship between student engagement and performance on the MAP Mathematics and Reading assessments?
- 3) What is the relationship between 8<sup>th</sup> grade students' engagement and academic achievement?
- a) What is the relationship between student engagement and MCA II Mathematics and Reading?
  - b) What is the relationship between student engagement and MAP Mathematics and Reading?
  - c) What is the relationship between students' engagement, developmentally appropriate schooling, and teacher support?
- 4) What is the relationship between students' engagement, developmentally appropriate schooling, and teacher support?
- a) What is the relationship between student engagement and teacher support?
  - b) What is the relationship between student engagement and developmentally appropriate schooling?
  - c) What were the differences between 8<sup>th</sup> grade students' experience on both teacher support and developmentally appropriate schooling?
- 5) To what degree can student engagement decrease or increase the effects of ethnicity on student achievement?



## **Summary of the Findings**

### **Student Engagement**

Following a factor analysis of the survey data, the three engagement variables that materialized were cognitive engagement, behavioral engagement, and emotional engagement. All three engagement variables were found to be highly correlated, and shared a statistically significant relationship. In Renee Sbrocco's 2009 study, behavioral engagement, emotional engagement, and disengagement appeared. Whereas behavioral engagement emerged as the most highly correlated factor in Dr. Sbrocco's study, cognitive engagement was the most highly correlated factor in this study (a variable that failed to emerge in the Sbrocco study).

Student engagement varied among students in differing ethnic groups. For instance, Asian students and white students demonstrated higher levels of engagement than Hispanic and black students. Hispanic and black students demonstrated higher levels of disengagement than Asian and white students. Jonathan Ogbu posits several explanations for the variance in both achievement and student engagement by some groups of students. The oppositional culture hypothesis (Fordham and Ogbu, 1986) explains the plight of low-income black students in U.S. schools. Students have developed an oppositional culture that discourages effort and engagement for fear of acting white and possibly alienating themselves from their black peer group (Ogbu, 1986). Renee Sbrocco cited Ogbu's (1986) notion of "white space" as a possible explanation of disengagement by some students: "Black students often feel that school is the white students' realm, not theirs. This sense of school as 'white space' as well as

subtle racism embedded within schools could be reasons why white students score higher than black students on measures of student engagement” (Sbrocco, 2009, p. 148). In this study, black students displayed the lowest levels of behavioral and emotional engagement, though they did post the second highest level of cognitive engagement. Only Asian students demonstrated a higher level of cognitive engagement in this study. Finally, similar to Renee Sbrocco’s 2009 study, a slight difference amongst groups of students on academic achievement measures emerged. Asian students demonstrated the highest level of academic achievement, followed by white students, Hispanic students, and black students. Though there was a discernible difference in academic achievement scores, the difference was not statistically significant.

### **Student Engagement and Academic Achievement**

This study analyzed the relationship between student engagement and academic achievement. Similar to Renee Sbrocco’s 2009 study, a significant and positive relationship emerged between student engagement and academic achievement in Waktā. When students are more engaged (behaviorally, cognitively, and emotionally), they are more likely to score well on standardized tests. Stuart Yeh’s 2006 research revealed the inverse is also true; increased academic achievement and increased student engagement are positively and significantly correlated. This research will focus on the increase in student engagement and its correlation with an increase in academic achievement (Sbrocco, 2009).

Cognitive Engagement demonstrated the strongest relationship with academic achievement (MCA II scores and MAP scores). Students with a high cognitive

engagement score are interested in the topics they are studying, like coming to school, complete schoolwork because they want to learn, and enjoy the challenge of working and thinking hard to solve a problem. According to National Academy of Science's Research Council (2004), 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" (Adelman & Taylor, 2010, p. 3). Students who are willing to put forth extra effort to solve complex problems will likely learn for more altruistic reasons than students who wish to "play school." Furthermore, students who are invested and care deeply about their educational career will overcome the obstacles and barriers that may inhibit the efforts of less dedicated students.

Behavioral Engagement demonstrated a positive and significant correlation with student achievement. The behavioral engagement variable was created when students indicated they do their homework, they take pride in their assignments, they believe their schoolwork will help them in the future, and they work hard because they want to graduate from college. According to Adelman & Taylor (2010), "behavioral engagement includes involvement in academic and social or extracurricular activities and is considered crucial for achieving positive academic outcomes and preventing dropping out" (p. 3). Students who work hard, complete their homework, and are prideful in their work will reap the rewards for their effort, both in subjective measures (grades) and objective measures (standardized test scores).

Emotional engagement was the third engagement variable that emerged in this study. Students who indicated they felt safe in school, they were able to do school work,

and they felt good about themselves demonstrated high emotional engagement levels. Increased emotional engagement has a positive and significant relationship with increased academic achievement. Adelman & Taylor (2010) define emotional engagement thusly: “Emotional engagement encompasses positive and negative reactions to teachers, classmates, academics, and school and is presumed to create ties to an institution and influences willingness to do work” (p. 3). The emotional engagement variable emerged as the single best predictor of achievement in this study, eclipsing all other types of engagement as well as ethnicity in terms of portending success on standardized tests.

### **Ethnicity, Student Engagement, and Academic Achievement**

In this study, Asian and white students demonstrated higher engagement levels than their Hispanic and black peers. Asian and white students also registered higher academic achievement levels as measured by standardized test scores (e.g., MCA II and MAP) than Hispanic and black students.

The data in this study revealed a statistically significant variance in engagement correlated to student ethnicity. In the Sbrocco (2009) study, white students demonstrated higher achievement scores on standardized tests as well as had higher behavioral, cognitive, and emotional scores than their 8<sup>th</sup> grade peers. The Sbrocco (2009) study focused on black and white students, while this study included Asian, Hispanic, black and white students. In Wakta, Asian students emerged with the highest academic achievement as well as the highest behavioral engagement, cognitive engagement, and emotional engagement ratings. White students had the second highest achievement scores and the

second highest behavioral engagement and emotional engagement measurement. White students were the only cohort to demonstrate a positive and significant relationship between academic achievement and behavioral, cognitive, and emotional engagement. Though black students had a higher cognitive engagement score than their white counterparts, they demonstrated the least amount of emotional engagement and behavioral engagement of all the ethnic groups included in this study. Black students also demonstrated the lowest academic achievement of any ethnic group.

### **School Model, Teacher Support, and Student Engagement**

Similar to Renee Sbrocco's 2009 research, the Developmentally Appropriate School Model (DASM) and teacher support were found to have both a positive and significant relationship with behavioral engagement. Both DASM teacher support were found to be positively and significantly correlated with cognitive engagement and emotional engagement.

### **Developmentally Appropriate School Model (DASM)**

Several researchers have analyzed the diminished motivation exhibited by students as they matriculate from elementary school to middle school (Meece, Anderman & Anderman 2006, Brooks-Gunn, Duncan & Aber 1997). Student achievement decreases, behavioral problems increase, and disengagement emerge as a severe threat to graduation. The students are not the only ones who struggle in the middle level. Middle schools are rarely staffed with teachers with a middle school endorsement, relying instead on elementary teaches with a general education or secondary teachers who have specialized training in a particular subject (Gootman, 2007). Elissa Gootman noted that

over an eight-year period in New York City “middle school teachers account for 22% of the 41,291 teachers who have left the school system since 1999, even though they make up only 17% of the overall teaching force” (Gootman, 2007). The constant turnover of staff in middle schools is an impediment to cultivating the trust and rapport between teachers, staff and parents that buttress student engagement and academic achievement in effective schools.

*Turning Points 2000* provided a framework for the DASM. In order for adolescents to thrive in their educational environment, a systematic approach that focuses on the academic and social development is necessary. Wakta has utilized the DASM since 1997 when the junior high model was replaced with three middle schools with students in grades 6-8. In a DASM, a team of teachers (usually a math, a social studies, a language arts, and a science teacher) educates the same cohort of students. The DASM includes common prep time, allowing teachers to collaborate on behavioral and curricular interventions for their students of all abilities, motivation, and behavior levels.

In this research, as was the case in Renee Sbrocco’s 2009 study, the DASM was found to have a significant and positive correlation with behavioral engagement. Wakta 8<sup>th</sup> grade students indicated their school is a caring community, the school is safe, their school is dedicated to improving the intelligence of all students, and that they are aware that at least one adult in their school cares about them.

### **Teacher Support**

Teacher support was also found to be positively and significantly correlated with behavioral, cognitive, and emotional engagement. Intuitively, students who enjoy

positive relationships with effective teachers will thrive academically. Fredricks, et al. (2004) defined teacher support as academic or interpersonal support for students. Jackson & Davis (2000) highlighted the need for teachers to create substantive interpersonal connections with students, and schools that have successfully closed achievement variances amongst groups of students often have high levels of teacher support. Renee Sbrocco cited the work of Marks (2000) when she proclaimed “a classroom in which students report feeling supported by both teachers and peers is associated with higher levels of engagement” (Sbrocco, 2009, p. 153). The results of this survey support the research related to teacher support and its impact on achievement. The results also mirror Renee Sbrocco’s (2009) findings. For instance, white students had higher levels of teacher support than their black peers. The slight difference between black (2.87 mean) and white (2.91 mean) student responses regarding teacher support was not deemed to be statistically significant. Asian and Hispanic students demonstrated higher levels of teacher support than white students.

Increasing cultural competency of Wakta School District employees has been a priority for several years. Wakta participates in the WEST Metro Education Program (WMEP), a voluntary integration program involving ten suburban school districts and Minneapolis. *The Choice is Yours* program has infused the district with hundreds of students that live in Minneapolis and bring their unique experiences with them into Wakta classrooms. Nearly a dozen cohorts specializing in implementation of National Urban Alliance (NUA) strategies exist in the three Wakta middle schools. The three core

beliefs of NUA ([NUAtc.org/about-us/](http://NUAtc.org/about-us/)) help to guide the practice of several Wakta educators. The NUA program includes the following tenets:

- 1) Intelligence is modifiable
- 2) All students benefit from a focus on high intellectual performance;
- 3) Learning is influenced by the interaction of culture, language, and cognition.

High expectations for all students, regardless of ethnicity, gender, past achievement, etc., is a major tenet of NUA's philosophy. Wakta is able to continue to provide professional development as a result of the DASM (common prep time), as well as the utilization of a cohort model of professional development in which cadres of teachers work together over the course of the year to increase cultural competency, become acquainted with best practices, and eventually modify and differentiate curriculum to meet the needs of their students.

The Wakta school district, as is the case in many other school districts in Minnesota, has experienced significant student demographic changes. The evolving demographics of the students are not mirrored in the demographics of the administrators, teachers, paraprofessionals, culinary staff, custodians, coaches, or nearly any other group of adults working with students. Of Wakta 8<sup>th</sup> grade students in 2010-2011, 24% were non-white at both MS #2 and MS #3 and 15% were non-white at MS #1. Though research is scarce regarding a direct correlation between the ethnicity of a teacher and the academic achievement of minority students, there are innumerable benefits related to a diversified teaching force. Increasing the cultural competency of educators in school



districts across the United States is imperative, especially considering the burgeoning diversity of future cohorts of students in public schools.

An effective teacher who demonstrates command of their content as well as fosters a nurturing learning environment is the most critical factor for student success. Secretary of U.S. Department of Education Arne Duncan recently explained the significant impact effective teaching has on student achievement:

We know that from the moment students enter a school, the most important factor in their success is not the color of their skin or the income of their parents-it is the teacher standing at the front of the classroom ([www.ascd.org/effective-teaching](http://www.ascd.org/effective-teaching)).

In short, there is a positive and significant relationship between student engagement and academic achievement. Though there are innumerable variables beyond the purview or control of a school (e.g., ethnicity, parental education, parental support, SES, etc.), there are in-school factors that can have a substantial effect on student engagement and academic achievement. The DASM and teacher support have been found to increase student engagement in both Renee Sbrocco's 2009 research and this study. In particular, behavioral engagement mitigates the effect of ethnicity on academic achievement (Sbrocco, 2009). This point is salient and significant because schools can create programs, train staff, and cultivate an atmosphere in which students are safe to learn. Educators and policy makers have the opportunity to directly influence behavioral engagement on a daily basis.

### **Policy Considerations and Possible Implications**

Several results from this research have the potential to impact school, district, state, and national educational policy. The remainder of this section will analyze policy

considerations and possible implications on both the micro and the macro level (Sbrocco, 2009).

### **Implications for Federal and State Policy**

Education reform has emerged as a hot-button political issue in the United States. President Obama's Race to the Top initiatives have transformed educational policies in several states and created the impetus for unprecedented changes in teacher contracts as well as teacher evaluation. Protests have erupted in Wisconsin, Ohio, Indiana, and other states as stakeholders of all political backgrounds have made student achievement, teacher tenure, school dropout rates, etc., political talking points. Dr. Sbrocco (2009) emphasized four policy suggestions in her research:

1. Include a survey component to NCLB testing requirements.
2. State and federal policy must recognize student engagement as predictor for academic achievement.
3. Convert all junior high schools to middle schools.
4. Require middle school teaching licensure for every teacher.

Since Dr. Sbrocco concluded her research in 2009, the *No Child Left Behind* (NCLB) law has undergone fundamental change. Nearly half of the nation's schools are currently designated as "failing," and the number of schools not making adequate yearly progress is destined to grow in the future. President Obama's administration granted ten states a waiver in 2012, releasing them from the onerous strictures the law required for schools that did not meet adequate yearly progress (Minnesota is one of the states that has been issued a waiver). In exchange for the waiver, states must create and maintain a

comprehensive assessment system for all students and teachers. States will continue to assess students with standardized tests under *NCLB*. This researcher agrees with Sbrocco's (2009) suggestion that a student survey that measures behavioral, cognitive, and emotional engagement should be required of each school in each district. The results of these surveys will provide school district leaders with robust data in which they can frame policies and create programs to maximize student achievement. This study serves to reinforce Dr. Sbrocco's 2009 findings that engagement (behavioral, cognitive, and emotional) has been shown to have a positive and significant relationship with academic achievement. In other words, the more students are engaged, the higher they will achieve on standardized tests. Dr. Sbrocco raised a salient issue when she highlighted the need to set aside funds for the student transition from elementary school to middle school. As students matriculate to the middle level, special care and attention need to be utilized to ensure a safe, orderly, and nurturing transition. Sbrocco's final recommendation of requiring a middle school licensure for all teaching staff may ameliorate the negative aspects of the transition. Requiring middle school licensure for all teachers working with 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> graders would allow students to receive the appropriate academic, social, and psychological support in these crucial years. This researcher endorses each of Dr. Sbrocco's federal and state policy recommendations.

This study includes several additional federal and state policy considerations. The first federal consideration is for the United States to institute a national educational policy that ensures equity and excellence for all students. In the United States, all schools are not created equal and a disproportionate amount of minority students drop out of school

before they earn their high school diploma. The negative outcomes of student dropouts are undeniable. Upon reflection, 74% of dropouts “say they would stay in school if they had a chance to do it all over again” (Melville, 2006, p. 7). An average high school dropout can expect to make 27% less income per year than the average high school graduate, a sobering statistic that underscores the need for students to earn their high school diploma (Melville, 2006). Melville (2006) points out that high school dropouts have diminished earning power, and as a result, 80% depend on government services for health care. Inequities in access to opportunity (Orfield, 2009) plague the U.S. educational system.

There are models of school systems that balance excellence and equity, however. Finland has a renowned educational system that is based on equity for all students. If students are not meeting expectations, expert teachers are tasked with identifying deficits in understanding and crafting solutions for individual students. The goal is to return students to their classroom as soon as they are secure in their skills. In a conversation with Michael Barber, the author of a McKinsey report entitled *How the World's Best Performing Schools Come Out on Top*, Tracy Crow summarized this key tenet to Finland's equitable educational system:

Successful systems expect that each child will succeed. When a child falls behind, people in those systems don't say, 'Oh, that child's not clever enough or comes from a poor background.' They say, 'What's the barrier to that child keeping up with everybody else, and what do we need to do about it?' Finnish schools are a model of this. Any child who falls behind is referred to special education-and it's not what you or I would call special education in our countries. It's truly expert teachers who are paid more, and they're on staff to diagnose a learning barrier or maybe a social, family, or cultural barrier. They'll work to unlock the barrier using a range of experts who have the knowledge. Their job is to get that child back into the

classroom with his or her peers as soon as possible (p. 2).

In Finland's educational system, equity goes hand in hand with excellence. Pasi Sahlberg is the director general of the Centre for International Mobility and Cooperation in Helsinki, Finland. Sahlberg reveals that, in Finland, "education sector development has been grounded on equal opportunities for all and equitable distribution of resources rather than competition" (Sahlberg, p. 10). Anu Partanen recently explained Finland's systemic approach in historical context in the *Atlantic*:

Since the 1980's, the main driver of Finnish education policy has been that children should have exactly the same opportunity to learn, regardless of family background, income, or geographic location. Education has been seen first and foremost not as a way to produce star performers, but as an instrument to even out social inequality (Partanen, 2011, p. 1).

Finland has emerged as the darling of international education, consistently scoring high on the Organization for Economic Co-operation and Development's (OECD) yearly Programme for International Assessment (PISA) measures (OECD.org, 2012).

According to OECD Secretary-General Angel Gurría, there is a distinct connection between academic achievement and future economic prosperity for both the individual and the nation:

Better educational outcomes are a strong predictor for future economic growth. While national income and educational achievement are still related, PISA shows that two countries with similar levels of prosperity can produce very different results. This shows that an image of a world divided neatly into rich and well-educated countries and poor and badly-educated countries is now out of date (OECD.org, 2012).

*Finnish envy* and *Finlandophilia* are terms coined by skeptics who challenge the notion that the United States, a multicultural, polyglot nation of over 300,000,000 people, can scale the educational policies of a small Scandinavian nation with a population

comparable to the state of Minnesota (5.3 million people). According to several education leaders (Linda Darling-Hammond, Diane Ravitch, Tony Wagner, etc.), Finland's educational policies could provide a template for reform in the United States. Linda Darling-Hammond is an education professor at Stanford, and she has found multiple reasons why the Finnish educational system can provide a model for U.S. decision makers. She states:

“The fact that we have more race, ethnicity, and economic heterogeneity, and we have this huge problem of poverty, should not mean we don't want qualified teachers-the strategies become even more important. Thirty years ago, Finland's education system was a mess. It was quite mediocre, very inequitable. It had a lot of features our system has: very top-down testing, extensive tracking, highly variable teachers, and they managed to reboot the whole system (NEA.org, 2011, p. 1).

Teachers in Finland teach three classes a day while their counterparts in the U.S. average seven. Finnish teachers use the additional time to work collaboratively on assessments, instructional strategies, and interventions. Darling-Hammond noted the engagement of students as she described a typical lesson:

In a Finnish classroom, it is rare to see a teacher standing at the front of a classroom lecturing students for 50 minutes. Instead, students are likely to determine their own weekly targets with their teachers in specific subject areas and choose the tasks they will work on at their own pace. In a typical classroom, students are likely to be walking around, rotating through workshops or gathering information, asking questions of their teacher, and working with other students in small groups. They may be completing independent or group projects or writing articles for their own magazine. The cultivation of independence and active learning allows students to develop metacognitive skills that help them to frame, tackle, and solve problems; evaluate and improve their work; and guide their learning processes in productive ways (NEA.org, 2011, p. 4).

Darling-Hammond's overview captures a dynamic, differentiated classroom in which students are directly involved in curricular and assessment development.

Conspicuously absent in Darling-Hammond's description of Finnish schools is a mention of an emphasis standardized test preparation.

While Finnish teachers have less student contact time than American teachers, Finnish students are engaged in play and active learning more often than their American peers. Columbia Education Professor Samuel Abrams reveals in "The Children Must Play: What the US Could Learn From Finland About Education" that Finnish schools:

Not only do Finnish educational authorities provide students with far more recess than their U.S. counterparts—75 minutes a day in Finnish elementary schools versus an average of 27 minutes in the U.S.—but they also mandate lots of arts and crafts, more learning by doing, rigorous standards for teacher certification, higher teacher pay, and attractive working conditions. This is a far cry from the U.S. concentration on testing in reading and math since the enactment of No Child Left Behind in 2002, which has led school districts across the country, according to a survey by the Center on Education Policy, to significantly narrow their curricula. (Abrams, 2011, p. 3).

This increase in play in Finnish schools allows students to engage in cardiovascular activities throughout the school day. The narrowing of school curricula not only endangers the job of any teacher besides a mathematics or a reading instructor, it robs students of opportunities to utilize and realize their multiple intelligences. Finland's students have scored in the top five nations in the PISA in mathematics, reading, and science testing over the last decade, and one reason for the increased achievement may be the opportunities for students to engage in authentic, challenging activities that involve multiple intelligences (e.g., linguistic, musical, kinesthetic, visual, etc.). Columbia Professor Samuel Abrams asserts that:

The Finns have made clear that, in any country, no matter its size or composition, there is much wisdom to minimizing testing and instead investing in broader curricula, smaller classes, and better training, pay, and treatment of teachers. The United States should take heed. (Abrams, 2011, p. 1).

Another aspect of support for students in Finland is the role of the “special teacher.” This particular staff member is responsible for identifying deficits in understanding, prescribing solutions, and assessing student progress toward learning goals. This proactive, intensive process is one reason Finnish students are engaged in their education. Lynnel Hancock’s illuminating article entitled “Why Are Finland’s Schools Successful?” was published recently in the Smithsonian Magazine. According to Hancock, “nearly 30% of Finland’s students receive some sort of special help during the first nine years of school” (Hancock, 2011, p. 1). If Finnish students need help, a veteran, expert teacher is poised to work one-on-one or in small groups to make sure students are secure with the current concepts, and are returned to the large group as soon as possible. The lack of stigmatization of remediation in the Finnish model is one reason students are able to matriculate year to year with their classmates at an exceedingly high level.

Darling-Hammond notes Finnish students do not begin school before the age of seven, do not take standardized tests until they are 16, and student test results are not publicly communicated. Student test scores are not publicized by ethnic groups nor by individual schools. Conversely, the United States disaggregates test result data that is subsequently communicated via all forms of media. In the U.S., test results are posted by school, school district, state, and by demographic groups (e.g., ethnicity, gender, special education, etc.) in every state. In New York City and Los Angeles, a “value-added” score has been publicly communicated for thousands of teachers. Despite the dearth of standardized testing, Finnish students consistently score in the top three nations on the PISA (math, reading, and science assessments) and there is also the least variance among



the highest and lowest student scores. Students in Finland score high on standardized tests not because of incessant skill-and-drill, and teachers do not “teach to the test.” The difference between the top students and the lowest scoring students in Finland is the smallest of any nation included in the OECD analysis. Finland also has the lowest variance between schools in terms of student achievement on the PISA, signifying a highly equitable educational system (OECD.org).

Most germane to this research is the relationship between student engagement and academic achievement found in Finland’s schools. Students in Finland routinely post achievement scores among the top three nations in the world, and they also have some of the highest levels of student engagement of participating nations. In 2000, Finnish students recorded the highest levels of reading proficiency, and the third highest level of student engagement (Valijarvi, 2004). Among Finnish students, student engagement accounted for 22% of the variance on the reading assessment, the most significant factor that emerged in a correlation analysis (Valijarvi, 2004). In the 2000 PISA, Finland had “a mean score of 546, significantly higher than that of any other country. Finland also had a relatively small spread of scores with a standard of deviation of 89-only four OECD countries had smaller standard deviations (OECD.org, 2002, p. 82). In terms of student engagement, “the country that shows the highest level of engagement in reading (far beyond that of the others) is Finland (.46)” (OECD.org, 2002, p. 118). In short, a strong correlation between academic achievement and student engagement has undergirded Finland’s meteoric rise in international education systems. On a micro level, Dr. Sbrocco’s (2009) research and this study have found that increased student engagement

has a positive and significant relationship with academic achievement. Finland has proven that rigorous interventions, high expectations, and creating an environment in which the majority of students are engaged in their education may be scaled on a national level. Though Finland may have a population of a little over 5 million people, it is comparable in size, or larger than, 30 states in the United States. Finland differs in demographics from the United States. In Finland, the overwhelming majority of citizens speak Finnish (91.5%), less than 4% of children live in poverty (Sahlberg, 2011), and there is a small immigrant population.

The equitable education system in Finland has proven that a responsive model can be successful for all students. Finland's rise has proven that "a rising tide lifts all ships," and the entire nation prospers as a result of engaged and educated citizens. This federal policy recommendation would call for the cessation of national testing, as well as the end of the publication of any student assessment data. Recent cheating scandals in Atlanta and New York City highlight the intense pressure school districts face as they tried to keep up with NCLB requirements. Pasi Sahlberg (2007) elucidated the effects of NCLB-inspired testing in the United States:

Perhaps the best-known practical illustration of large-scale education reform driven by the notion of standardization and related consequential accountability is found in the USA, where controversial federal legislation termed No Child Left Behind (Public Law 107-110) links school and teacher performance to Adequate yearly Progress and to financial and resource allocations to schools (Popham, 2004; Centre on Education Policy, 2006). Recent research, however, suggests that 'the ability of standardized tests to accurately reflect school performance remains in doubt' (Lemke et al., 2006, p. 246). Furthermore, Amrein and Berliner (2002) concluded, on the basis of their analysis across 18 states in the USA, that since clear evidence was not found for the positive impact of high-stakes testing policies upon increased student learning and because there are numerous reports of unintended consequences associated with these policies, such as increased

student drop-out rates, teacher and student cheating on exams, and teacher defection from the profession, there is need for transforming existing high-stakes testing policies. (Sahlberg, 2007, p. 152).

If the goal of education reform is to increase student achievement, rather than assess students with national tests that may (or may not) be connected to their school curriculum, a new model should be implemented nationwide. The possibility exists that states could still gather data to monitor student achievement. However, the publication of the results of standardized testing leads to a shaming of students and staff. Currently, teachers have little prior knowledge of what questions will appear on nationally standardized tests (e.g., MCA, MAP, etc.). If a school district generates the student assessments, professional learning communities will be able to analyze the data, observe patterns and trends, and eventually modify and adjust curriculum, instruction and assessment in order to increase student achievement. The results of district-created assessments would be communicated to the state, but they would not be published in a newspaper. A teacher's value added rankings would not be widely disseminated as in Los Angeles and New York City. A focus on cooperation and equality, rather than competition and inequality, is attainable. Anu Partanen captured the essence of Finland's grandiose plan as she quoted Pasi Sahlberg:

‘When President Kennedy was making his appeal for advancing American science and technology by putting a man on the moon by the end of the 1960’s, many said it couldn’t be done,’ Sahlberg said during his visit to New York. ‘But he had had a dream. Just like Martin Luther King a few years later had a dream. Those dreams came true. Finland’s dream was we want to have a good public education for every child regardless of where they go to school or what kind of families they come from, and many even in Finland said it couldn’t be done.’

Clearly, many were wrong. It is possible to create equality. And perhaps even

more important-as a challenge to the American way of thinking about education reform-Finland's experience shows that it is possible to achieve excellence by focusing not on competition, but on cooperation, and not on choice, but on equity (Partenen, 2011, p. 3).

Tactical and ongoing professional development is another future policy implication. Teachers in the U.S. average 1080 hours per year of student contact time, well above the OECD average of 803 hours/year for primary schools, and 664 hours per year for upper secondary teachers (NSDC, p. 1). By comparison, teachers in Finland average 570 hours of student contact time per year, and in South Korea, only about 35% of teacher work time is spent with students (Darling Hammond, 2009). On a weekly basis, teachers in OECD nations have 15-20 hours per week devoted to professional development, creating lessons, collaborating with other teachers, etc., while U.S. teachers have 3-5 hours for the same tasks. In Finland, teachers have one afternoon a week to collaborate with other teachers, "and schools in the same municipality are encouraged to work together to share materials" (NSDC, p. 2). This professional development time allows teachers to strengthen their pedagogy, create, implement, and analyze interventions, meet with parents, etc. A more supportive environment for teachers would be a wise investment:

The United States is squandering a significant opportunity to leverage improvements in teacher knowledge to improve school and student performance. Other nations, our competitors, have made support for teachers and teacher learning a top priority with significant results. In these countries, students learn and achieve more. Teachers stay in the field longer and are more satisfied with their work. Educators take on even more responsibility for improving what happens in their buildings. (NSDC, p. 2).

Additional professional development opportunities will allow teachers to analyze their assessments, observe fellow teachers, consult educational researchers, etc., in an effort to maximize their student contact time.

Another policy implication at the federal and state level revolves around the recruitment, development, and support of minority teachers. Though minority students “make up 40.7% of the public school population, only 14.6% of teachers are black or Latino” (Bireda & Chait, 2011, p. 1). Stunningly, in over “40% of schools, there is not a single teacher of color” (Bireda & Chait, 2011, p. 1). During the 2010-11 school year, there were 32 core (math, science, language arts, and social studies) 8<sup>th</sup> grade teachers in Wakta; none of them were black, Hispanic, or Asian.

The diversity of Wakta students has increased dramatically over the past 15 years, while the demographics of the teaching staff have remained static. This reality mirrors the national trend. Though minority students will soon become the majority of U.S. students, more than 85% of current teachers are white (Bireda & Chait, 2011). A significant federal and state policy initiative would include incentives for minorities to pursue a future in education. The federal government has the authority to create financial aid programs for minorities that major in education (Bireda & Chait, 2011). At the state level, initial teacher licensure programs must actively recruit and strive to retain minority teacher candidates. The diversification of the teaching staff in districts across the nation is a paramount necessity. Nancy Stevens described a few of the benefits of a diversified teaching force in her report for the Texas Education Association:

Diversity is considered important because students need role models of like characteristics in professional positions, and all students need exposure to

professionals who reflect the diversity of the state. The absence of role models gives minority students the negative message that opportunities are unavailable to persons from their backgrounds. Studies of African American and Hispanic teachers have found that they do positively affect the academic achievement of African and Hispanic students. Diversity within a school's teaching force may increase knowledge and understanding of different cultural groups for all the teachers, thereby enhancing the ability of all teachers to interact successfully in diverse classrooms (Stevens, 2012, p. 2).

In North Carolina, the Alamance-Burlington School District included the recruitment of minority teachers as a significant recommendation to close the achievement gap: "Increasing numbers of minority teachers are an invaluable tool in providing positive role models for children. The intrinsic value of being taught by qualified and competent teachers who are culturally and racially diverse benefits the whole student population" (Alamance-Burlington, 2004, p. 4). A teaching force that resembles the nation at large will provide positive role models for all students, as well as promote a culture of inclusion that values the background, perspectives, and opinions of all ethnic groups.

A final federal and state policy suggestion is the adoption of Adelman & Taylor's (2010) comprehensive system of learning supports. Adelman & Taylor's research describes the development of a comprehensive system of learning supports that will "enhance a school's focus on promoting engagement and re-engagement of students, staff, and families" (Adelman & Taylor, 2010, p. 4). There are six facets of their comprehensive system:

- 1) Classroom-focused interventions to enable and re-engage students in learning
- 2) Crisis assistance and prevention
- 3) Support for transitions

- 4) Home involvement and engagement in schooling
- 5) Community outreach for involvement and support
- 6) Student and family assistance

On a macro level, the correlation between student engagement and student achievement has emerged in an analysis of Finland's educational success story. Dr. Sbrocco's (2009) study as well as this research revealed a significant and positive correlation between engagement and academic achievement on a micro level. The adoption of these six aspects of the comprehensive system will ensure a foundation is set that places a premium on student engagement.

#### **Implications for Districts and School Administrators**

An intentional implementation of the Developmentally Appropriate School Model (DASM) would help districts and school administrators attend to the needs of the middle level student. In order to transition from K-8 models or junior high schools to DASM's, districts must provide intensive professional development steeped in the education of adolescent students. The seven components of a DASM are outlined in Chapter two. Of particular note, school leaders must create "schools that are developmentally responsive to students aged 10 to 14" (Sbrocco, 2009, p. 155). A developmentally responsive school must attend to the needs of the student inside and outside of school. The results of this study, coupled with Dr. Sbrocco's findings in 2009, indicate a DASM provides students with a learning environment that enhances their behavioral, cognitive, and emotional engagement. In Wakta, emotional engagement and behavioral engagement were shown

to have a mitigating impact on the predictability of ethnicity on student achievement scores.

Many DASM's in the United States are staffed with teachers who do not hold a middle school teaching certificate. An implication for districts and school administrators would require each teacher to hold a middle school teaching certificate (or endorsement). This policy would narrow the DASM prospective teaching pool in many districts. In 2007, the *New York Times* reported "while 46 states offer some sort of credential specifically for middle school teachers, only 24 require it (Gootman, 2007, p. 1). An intentional, deliberate, and systemic change must be undertaken to ensure students aged 10 to 14 are taught by qualified and prepared staff. Requiring a DASM teaching certificate would motivate current DASM teachers to receive their certificate, and it would also provide a road map for future DASM teachers as they prepare to work with this unique group of students.

Another implication for districts and school administrators is the utilization of a democratic leadership model. A DASM with a democratic leadership model will provide students, staff, parents, community members, and all other stakeholders an opportunity to engage in conversations to enhance the experience of everyone involved. In Minnesota, nearly fifty cents of each general fund tax dollar goes to education. Nearly 40% of general fund tax dollars are allocated to E-12 education, and 7.6% to higher education (Senate Finance Committee, 2011). The imperative to include and communicate with all stakeholders is undeniable. The steady decrease in education funding in Minnesota necessitates levy referendums in dozens of school districts each year. If school districts



wish to receive vital financial support from the local population, they must include the public voice as they consider curriculum, policies, etc.

Another policy initiative that would have implications for school districts and administrators is the implementation of Positive Behavior Interventions and Supports (PBIS). Dr. Sbrocco referenced the potential of PBIS in her study: “PBIS allows for teachers and school staff to directly teach expectations, and for students to be positively rewarded when they exhibit the expected behaviors” (Sbrocco, 2009, p. 156). Wakta MS #2 instituted PBIS prior to the 2007-08 school year. Literature provided by assistant principal Carter Smith described PBIS thusly:

PBIS is a process for creating safer and more effective schools. MS #2 is committed to facilitating a systems approach to enhancing the capacity of schools to education all children by developing research-based, school-wide, and classroom discipline systems. The process focuses on improving a school’s ability to teach and support positive behavior for all students. At MS #2, we practice school-wide procedures and processes intended for:

- All students, all staff, all settings.
- Non-classroom settings within the school environment.
- Individual classrooms and teachers.
- Individual student supports for students who present the most challenging behaviors (PBIS, 2012, p. 1).

An analysis of the data indicates a steep decline in referrals for major and minor infractions (see Appendix H). In the 2008-09 school year, there were 71.16 referrals per 100 students at MS #2. By the 2011-12 school year, the number of referrals had plummeted to 11.70 per 100 students. In terms of major referrals, MS #2 has seen a significant decrease from the 2009-10 school year. In 2009-10, there were 55.47 major referrals per 100 students, while there are only 4.63 major referrals per 100 students thus

far in the 2011-12 school year. One explanation for the precipitous drop in behavioral referrals may be all three grade levels (6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup>) have experienced PBIS each year at MS #2. Another indication of the PBIS influence is that 6<sup>th</sup> graders receive the highest amount of referrals per 100 students. These students may receive the most referrals as they are adjusting to the behavioral expectations of their new school setting. The steadily decreasing referral numbers for 7<sup>th</sup> and 8<sup>th</sup> grade students reveal a student population and school staff working in concert to minimize distracting and dangerous behaviors.

Creating a safe learning environment is paramount to cultivating behavioral, cognitive, and emotional engagement. Specifically, “I feel safe in school” was a statement that emerged in the emotional engagement variable in this research. For the 8<sup>th</sup> graders in Wakta, emotional engagement was found to be the best predictor of the variance of standardized test scores, underscoring the importance of PBIS in creating a consistent, caring, and safe atmosphere for all students. PBIS has had a profound impact on student, teacher, and administrator communication and interaction in schools across the nation.

PBIS contributes to a safe learning environment for all students and staff. Additionally, PBIS may engage individual students who may “present the most challenging behaviors” (Smith, 2002, p. 1). A common language, combined with common expectations, establishes a school environment in which desired behaviors are identified, described, and celebrated. Dr. Sbrocco (2009) highlighted 2009 report by the Konopka Institute of the University of Minnesota in her research which found young students are apt to drop out of school if they feel the rules are unfair, the staff are

uncaring, students feel disconnected with staff, or if the rules are too rigid or inconsistently enforced (Sbrocco, 2009). The negative personal and societal results of dropping out of school are quantifiable. As described in chapter one, high school dropouts can expect to live a decade less, earn 27% less income annually, and be more likely to be incarcerated than high school graduates. PBIS provides each administrator a “school wide process for systematic problem solving, planning, and evaluation” (Smith, 2012, p. 1). Administrators will be able to cultivate and eventually implement policies that will create a school environment that is caring, and in which there are positive and respectful interactions among students, staff, and administrators.

Districts and school administrators need information regarding student engagement (behavioral, emotional, and cognitive) in order to create policies and guidelines that will ensure a safe and robust learning environment. Dr. Sbrocco (2009) recommended that each school require student engagement surveys. Schools also need to dedicate time and resources (e.g., Director of Research and Evaluation support) to assist teachers in their analysis of the data. In Waktá, each middle school student has a student response device (SRD), and soon will be provided with an iPad 3. These devices could be utilized on a daily, weekly, or semester basis to gather quantifiable student feedback regarding their behavioral, emotional, and cognitive engagement. Analysis of this data will reveal patterns or trends amongst various groups of students (e.g., gender, ethnicity, grade level), and may be used to create policies and guidelines that will support the engagement of all students.

Another implication for districts and school administrators is to create a comprehensive transition protocol for students matriculating from elementary school to a DASM, within grades of a DASM, and from a DASM to a high school. Patrick Akos has detailed the perceptions of transitions of students, parents and teachers. In 2002, Akos et al indicated that perceptions of transition depend on the age of the student. For students entering middle school, “getting lost, older students and bullies, too much homework, school rules, making friends, and lockers have all been commonly cited” (Akos, 2002; Arth, 1990; Diemert; Mitman & Packer; Odegard & Heath, 1992). Akos found that students exiting middle school feel trepidation about some of the same concerns as when they entered middle school (grades, friends, bullies, getting lost, etc.). However, new concerns emerge for students about to enter high school, namely “preparing for college/life, parent expectations, and math class in particular” (Akos, 2002, p. 213). Not all perceptions about transitions between schools were negative, however. Students about to enter middle school look forward to:

Having their own lockers (although one third of the students worried about that), having different teachers for different subjects, moving to different rooms for various classes, eating in the cafeteria, participating in the sports program, and the opportunity to make new friends (Akos, 2002, p. 213).

When students, teachers, and parents were asked of their perceptions of how to improve the transitions, several themes emerged. Before the transition, 25% of students recommended more discussions about middle school, 16% recommended more discussion of the positive aspects of middle school, 13% wanted better preparation (i.e., importance of doing homework, emphasis on organizational skills, etc.), and 11% wished

they had a tour of their future school (Akos, 2002). For students that had transitioned to high school, 64% recommended practical information and insight (e.g., “tell them don’t stress, it is not too bad,” “tell them the myths and truth about high school,” “tell them what it will really be like”), 15% wanted to know exactly where their future classes would be located, and 8% wished that high schools would have visited the middle schools to answer student questions (Akos, 2002, p. 217). Following the transitions, students indicated that they hoped the staff in the new building would be both welcoming (13%) and encouraging (11%) (Akos, 2002). Students also wished they would have had the opportunity to discuss their transition (13%) to help them process their new surroundings (Akos, 2002).

Students recognize the significance of the transition between elementary and DASM, and between DASM and high school. School districts would be prudent to create a system that includes the behavioral, emotional, and cognitive engagement of each student. This comprehensive communication system would allow staff to share information gathered from previous years to the next group of teachers. This system would be accessible to current staff, and contact information would be readily available in case the current teacher wishes to speak to a former teacher of a particular student. Akos (2002) found that students identified three categories of school transition: academic, procedural, and social. School personnel need to be aware of the transitional needs of incoming students before, during, and after the transition from elementary school to middle school. School districts could set aside “transition days” during fall workshops so that teachers of elementary schools and middle schools (and middle

schools and high schools) would have the opportunity to discuss what has worked, and what has not worked for particular students. Knowledge of past conflicts with students or staff, intervention attempts, and background information would help the new teacher prepare an optimal learning environment for their incoming students. A trove of information is gathered on each student by their teachers on a daily basis in the approximately 98,700 schools in the U.S. (U.S. Census Bureau, 2012). Sans a systematic method of communicating both the qualitative and quantitative information about the student experience, the wisdom, knowledge and non-test score data that is available (yet rarely utilized) for each student is essentially lost each spring and summer when students depart for summer break. Software programs exist (e.g., Skyward, TIES, etc.) that could be utilized to communicate information from teacher to teacher. Student privacy is a primary concern when it comes to sharing student data, and every effort must be made to protect student information. Teachers that are aware of effective strategies that have worked with their incoming students will be able to incorporate policies and practices to prime students for success.

A final implication for districts and school administrators is to make every effort to ensure an equitable education for each student in a setting that reflects the burgeoning diversity of the United States. *The Choice is Yours* (TCIY) program began in 2000, and now includes students from Minneapolis and ten suburban school districts. Chapter two includes an overview of the TCIY program. A benefit of TCIY is the diversification of students in suburban schools (economically, ethnically, socially, etc.). Myron Orfield, Executive Director of the Institute on Race & Poverty, has summarized the research on

the academic benefits, improved opportunities for minority students, social benefits, and community benefits of integration (Orfield, 2011). Minority students that attend racially integrated schools and classrooms experience increased standardized test scores (Michelson, 2006; Michelson, 2003; Borman et al, 2004; Borman & Dowling, 2006). According to the multi-year evaluation of TCIY (Aspen Associates, 2009), 90.5% of TCIY students that have attended Wakta schools are minorities (1.2% are American Indian, 9.7% are Asian, 73.0% are black, 6.6% are Hispanic). Though the only requirement for student inclusion in TCIY is eligibility to receive free and reduced lunch, the TCIY students have increased the racial diversity in Wakta schools, as well as all of the other participating school districts that receive TCIY students. Granovetter (1986) “found that integrated schools enable minority students to have access to social networks associated with opportunity” (Orfield, 2011, p. 1). A slew of researchers have found that “interracial contact in desegregated settings decreases racial prejudice among students and facilitates more positive interracial relations (Orfield, 2011, p. 1). In addition to the social and academic benefits, the TCIY program may ameliorate the widening achievement gap between students from high and low-income families. Greg Duncan and Richard Murnane’s (2011) *Whither Opportunity? Rising Inequality, Schools, and Children’s Life Chances* is a sobering analysis of the academic achievement of students from the top quartile of incomes, and those in the lowest quartile of incomes. The gap between students in the 90<sup>th</sup> % of income and the 10<sup>th</sup>% of income is “now nearly twice as large as the black-white achievement gap” (Duncan & Murnane, 2011, p. 4). To put this income inequality in historical perspective, the black-white achievement gap “was

one and a half to two times as large as the income gap fifty years ago” (Duncan & Murnane, 2011, p. 4).

The TCIY program has provided transportation for Minneapolis students that wish to attend a school system in the participating school districts. Scarce research exists regarding the experience of TCIY students, specifically the behavioral, cognitive, and emotional engagement of TCIY students. In this study, 19 of the 24 (80%) TCIY students in 8<sup>th</sup> grade in Wakta schools completed the engagement survey. An analysis of the engagement levels reveals TCIY students are comparably engaged in relation to the rest of the 8<sup>th</sup> grade students. Specifically, TCIY students were slightly less behaviorally engaged (3.34 mean) than their peers (3.45). In terms of emotional engagement, TCIY students (3.10) were very similar to the other Wakta 8<sup>th</sup> graders (3.20). Though some students, teachers, and parents may worry that TCIY students may experience culture shock when they arrive in Wakta, the behavioral and emotional engagement levels exhibited by 8<sup>th</sup> grade TCIY students are consistent with the balance of the Wakta 8<sup>th</sup> graders.

A powerful discovery was made when analyzing the cognitive engagement of TCIY students (2.81) with the rest of the Wakta 8<sup>th</sup> graders (2.53). The elevated cognitive engagement average displayed by the TCIY students is significant as it is nearly a 10% increase over non-TCIY students. Adelman & Taylor (2010) describe cognitive engagement in terms of investment in learning as well as the desire to work hard to comprehend difficult concepts. TCIY students are provided transportation that includes one-way commutes that may last up to an hour, and they learn amongst students



that do not live near themselves. However, the elevated cognitive engagement levels of TCIY students is evidence that this cohort of students that are invested in their education, and they believe that what they are learning will help them in the future. Between 2001-2008, Wakta has the highest return percentage of returning students that attended Wakta schools the previous year (54%). This percentage was higher than any other school district that welcomes students from north Minneapolis, and the increased levels of cognitive engagement of TCIY students in Wakta middle schools provide context helpful to educational leaders (Aspen Associates, 2009). Despite the barriers TCIY students may experience (extended commute, meeting new peers and teachers, etc.), students that attend suburban school districts have posted higher achievement on standardized test scores than eligible students that have chosen not to participate in TCIY in 2004-05 and 2007-08 (Aspen Associates, 2009). In 2005-06, eligible non-participating students outperformed their TCIY peers, and the two cohorts achieved at the same level in 2006-07 (Aspen Associates, 2009). Further analysis indicates that the student turnover (about 50% of TCIY students in grades 3-7 were in a different school from the previous year) may account for the varying results. The cognitive engagement of Wakta 8<sup>th</sup> grade TCIY students (nearly 10% higher than non-TCIY Wakta 8<sup>th</sup> grade students), as well as the similar behavioral and emotional engagement levels of TCIY and non-TCIY students, provide evidence that TCIY is a program that should be replicated in order to increase economic and racial diversity in suburban school districts.

### **Implications for Teachers**

A teacher has an undeniable impact on student engagement (behavioral, cognitive, and emotional). Several researchers have found teachers to have the most impact of any in-school variable on student achievement (Rivkin, Hanushek, and Kain, 1998; 2005). In their 1998 study, Rivkin et al found teacher quality to be the:

Most important school-related factor influencing student achievement. They conclude from their analysis of 400,000 students in 3,000 schools that, while school quality is an important determinant of student achievement, the most important predictor is teacher quality. In comparison, class size, teacher education, and teacher experience play a small role (Rice, 2003, p. 1).

In Dr. Sbrocco's (2009) study, authentic pedagogy was positively and significantly correlated with student achievement. The same correlation emerged in this research. Dr. Sbrocco referenced the work of Fred Newmann's (1995) to highlight the influence of authentic instruction on academic achievement. Behavioral engagement was found to be positively and significantly correlated with academic achievement in this study. However, cognitive engagement was not shown to have a mitigating impact of ethnicity on student achievement in neither this study nor the Sbrocco (2009) study. Researchers have found authentic pedagogy to have a profound impact on student achievement, and teachers should strive to connect current lessons with the prior knowledge of their students.

Another implication endorsed by the Sbrocco (2009) study is to increase teacher support in the classroom. Richard Jones (2008) prescribed various methods for teachers to increase teacher support in "Strengthening Student Engagement." Jones suggests, "the one-on-one relationship between student and teacher is the critical element that can lead to increased student motivation and higher levels of engagement in academics and school

life (Jones, 2008, p. 2). Teachers that are able to balance classroom management, engaging and authentic lessons, and supportive relationships with students cultivate a classroom environment in which students are able to thrive. Richard Jones summarized the significance of learning relationships:

Strong positive relationships are critical to the education process. Students are more likely to make a personal commitment to engage in rigorous learning when they know teachers, parents, and other students care about how well they do. They are willing to continue making the investment when they are encouraged, supported, and assisted. Building good relationships complements rigor and relevance. For students to engage fully in challenging learning, they must have increased levels of support from the people around them (Jones, 2008, p. 8).

The last sentence highlights the importance of teacher support in regards to increasing behavioral, cognitive, and emotional engagement. Teachers that survey their students on their learning experience will be able to identify areas of growth in terms of supporting their students. As Jones (2008) states, if teachers are to engage all of their students, a nurturing and safe learning environment is imperative. In *Wakta*, it is tradition for National Merit Semi-Finalists to nominate an esteemed teacher from elementary and secondary (middle or high school) that had a profound impact on their development. The speeches focus on how welcome a teacher made a student feel when they first arrived in their classroom, how caring the teacher was when the student experienced frustration, or how a teacher encouraged them to share their opinions with the class. This level of teacher support has had a tangible impact on student achievement. Professional development that focuses on the cultivation of supportive teacher-student relationships would help identify strengths in current practice, as well as identify areas in which a

teacher may enhance their pedagogy to meet the academic and social needs of all students.

A final implication for teachers would be the opportunity to increase their pedagogical knowledge in concert with their professional learning communities (PLC's). The Wakta middle schools have utilized the PLC model the last few years. Educators have the opportunity to analyze common assessment trend data, to create common formative and summative assessments, to adjust their assessments, and to create and enhance their instruction. PLC time would be dedicated to district created assessments, creation of interdisciplinary units, and crafting individualized interventions for struggling students as well as for students that are excelling in their classes. Similar to Finland, a set of lean, easy to understand national standards would be presented for each subject. PLC's would have the autonomy to create assessments in each school district.

### **Implications for Further Research**

There are several opportunities for further research based on data and analysis of this study. Similar to Renee Sbrocco's (2009) suggestion, this study could be replicated in more suburban school districts. Additionally, this survey could be utilized with students in urban and rural schools. The West Metro Education Program (WMEP) would glean valuable information if each middle school in the Minneapolis and ten suburban school districts surveyed their students regarding their behavioral, cognitive, and emotional engagement. Parents in Minneapolis would be able to analyze the responses of students that choose to attend school in Minneapolis as well as the students that participate in the TCIY program.

Another implication for further research would be the inclusion of qualitative data to create a mixed-methods study (Sbrocco, 2009). The quantitative data in this research allowed students to indicate their level of engagement on a Likert Scale (e.g., strongly agree, agree, disagree, and strongly disagree). This quantitative data is valuable, but it would be enhanced if a researcher were able to inquire “why” students have experienced various engagement levels. Follow-up interviews or focus groups would allow a researcher to probe for specificity and to ask follow-up questions that may reveal patterns and trends that have a marked impact on student engagement. Specifically related to this study, MS #1 students emerged with the highest levels of behavioral, cognitive, and emotional engagement. Qualitative data gleaned from students in all three middle schools would help to explain why MS #1 students felt more engaged than their contemporaries at MS #2 and MS #3.

Another opportunity for further research would be to include a similar amount of students from each ethnic group. In this study, 86% of white students participated, while 85% of Asian students, 73% of Hispanic students, and 53% of black students participated. If a school district conducts the research in the future, they will not need to receive IRB permission (and the requirement for parental consent), and thus conceivably will be able to include a higher percentage of each cohort of students. Quantitative and qualitative data from each student would assist school leaders in their quest to create a safe, welcoming, and effective learning environment for all students.

Emotional engagement emerged as the variable with the best predictive value in relation to academic achievement for Waktá 8<sup>th</sup> graders. The “I feel safe in school”

statement could be clarified in a future study. A respondent may answer this question in terms of physical safety, while another student interprets this statement to indicate that they feel safe to make mistakes, to try new things, etc. As emotional engagement has the most impact on the variance of achievement in Wakta, qualitative responses would help to identify the true rationale behind the answers of the respondents.

A closer analysis of the TCIY data is another implication for further research. In this study, 19/24 (80%) of the TCIY students participated. The similar emotional and behavioral engagement levels, as well as the elevated cognitive engagement levels demonstrated by TCIY students could have regional and national implications. Follow-up questions of the TCIY students might reveal why the students chose to attend Wakta, what made Wakta schools an effective learning environment, what barriers did the TCIY students feel they encountered when they began attending Wakta schools, and what suggestions do they have to help future TCIY students adjust to their learning environment in Wakta. Myron Orfield is a staunch proponent of integration of schools and the resultant access to opportunity provided to all students (Orfield, 2005). If the TCIY students are engaged and achieving at an elevated level in the Wakta school district, future researchers might analyze the district policies, the role of teachers, parents, and the students to identify the roots of success.

A final opportunity for further research would be for Wakta to conduct longitudinal research regarding the behavioral, cognitive, and emotional engagement of their students. A correlation between academic achievement and student achievement could be analyzed each year. Furthermore, researchers could analyze individual students

and cohorts of students as they matriculate through Wakta schools. It would behoove Wakta Public schools to conduct an engagement survey for 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> grade students. The collection of data from students in these particular grade levels would indicate the engagement level of students as they are poised to enter middle school, as they matriculate middle school, and immediately after they have left middle school. Both qualitative and quantitative data could be analyzed to assess current programming and to consider policies that may enhance the student, parent, and teacher experience in a DASM. If engagement level were collected each year, researchers would be able to analyze the fluctuations in engagement from year to year, as well as the impact on academic achievement.

### **Critique of the Study**

This study met the threshold established by IRB and University of Minnesota's research standards. The researcher worked diligently to replicate the study originally completed by Dr. Sbrocco in 2009. The limitations in survey instrument, student participation, and data collection are identified and described in subsequent paragraphs.

### **Limitations of the Survey Instrument**

This study represented the second time this particular survey instrument was used with 8<sup>th</sup> grade students as the 2009 Sbrocco study represented the first time this survey instrument was utilized. The validity and reliability of the responses have therefore not been established to the extent of other national and international student engagement surveys (Sbrocco, 2009). This study collected data from 8<sup>th</sup> graders at one point in time. A longitudinal study that includes multiple years of engagement survey data would

provide the researcher with a clearer picture of the engagement level of each student, and how their varying engagement levels impacted their academic achievement over a longer time period (Sbrocco, 2009).

### **Limitations of Student Participation**

Though 88% (692/786) of the Wakta 8<sup>th</sup> graders participated in this survey, there were variances for cohorts of students. For instance, 53% of black students participated in this study, while over 86% white, 85% Asian, 73% Hispanic students were included in this research. Every effort was put forth to connect with every student that did not immediately return their permission slip, however, a significant difference in participation rates exists between black students and their Asian, Hispanic, and white peers. Full parental consent as mandated by IRB also may have depressed the participation rate. Dr. Sbrocco's 2009 study did not require IRB, and the student participation rate was 97%. Though the overall participation rate of this study was 88%, the difference may be attributable to breakdowns in the communication process. In order to acquire full parental consent, a permission slip and information describing the study was sent home via the 8<sup>th</sup> grade student. This permission slip was to be signed by a parent and returned to their geography teacher. A breach in this communication system may help to explain the roughly 10% difference in student participation between the Sbrocco (2009) study and this research.

### **Limitations of the Data Collection Process**

As Sbrocco (2009) indicated in her research, generalizability is a limitation with this study as the engagement levels of 8<sup>th</sup> graders are collected from three middle schools



in one Western suburban school district. The response rate and sample size were robust, and this allowed both Dr. Sbrocco and this researcher that the “findings can be cautiously generalized to other middle schools” (Sbrocco, 2009, p. 162). A mixed-method approach would have enhanced the quantitative data collected in this research as well (Sbrocco, 2009). The limitations of quantitative data prevent the researcher from gleaning the reasons “how” Wakta teachers and school policies have engaged students behaviorally, cognitively, and emotionally. A qualitative component would allow the researcher to investigate the reasons why and how the 8<sup>th</sup> grade students perceive their levels of engagement.

### **Study Summary**

This study was a replication of Renee Sbrocco’s 2009 doctoral research. The purpose of this study was to analyze the relationship between student engagement and academic achievement and to analyze whether or not student engagement can moderate the impact of ethnicity on academic achievement (Sbrocco, 2009). Each Wakta 8<sup>th</sup> grade student from the three middle schools was invited to participate in this study. Participants completed an online survey that measured their level of behavioral, cognitive, and emotional engagement. This research found a positive and statistically significant correlation between academic achievement and behavioral, cognitive, and emotional engagement. Regression analysis revealed that for Wakta 8<sup>th</sup> grade students, emotional engagement was the best predictive variable in relation to academic achievement. Furthermore, behavioral engagement and emotional engagement were found to have a moderating impact of ethnicity on student achievement.

The state of Minnesota has made education a priority since its inception in 1858.

Article 8, Section 1 of the Minnesota Constitution states:

The stability of a republican form of government depending mainly upon the intelligence of the people, it shall be the duty of the Legislature to establish a general and uniform system of public schools. (MNHS.org, 2012, p.21)

The necessity for educating the youth of Minnesota is codified in the state constitution.

Unfortunately, an analysis of the school districts in Minnesota reveals a distinctly non-uniform system of public schools. Students born in affluent and well-funded school districts have “access to opportunity” (Orfield, 2005) that their peers do not enjoy.

Though the MN state constitution calls on the legislature to create a “thorough and efficient system of Public Schools in each township in the State” (MNHS.org, 2012, p. 22), the funding, resources, and demographics vary widely from school district to school district. The political machinations and geographic manipulation that has created the school districts in this state are beyond the focus of this research. Rather, this study has found a positive and significant correlation between student engagement (behavioral, cognitive, and emotional) and academic achievement as measured by standardized tests. Fostering an environment that is conducive to learning, that is safe, and that welcomes the talents and experiences of all students is within the purview of individual teachers, administrators, and policy makers. The stark terms of the Minnesota State Constitution place the importance of education in sharp relief. The legislature of Minnesota has the responsibility for funding schools, while the teachers, parents, administrators, policy makers and community members have the responsibility of ensuring every student receives an equitable education.

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## Appendix A

### 7<sup>th</sup> Grade Pilot Revisions and Suggestions

Original Wording	7 <sup>th</sup> Grader Suggestion	Revised Question
My teachers require me think hard about the subjects we are learning.	Place the word “to” between “me” and “think”	My teachers require me <u>to</u> think hard about the subjects we are learning.
My teachers expect me memorize rather than think.	Place the word “to” between “me” and “memorize”	My teachers expect me <u>to</u> memorize rather than think.
I have never gotten into a fight with a student.	Add “at my current school” to the end of the statement	I have never gotten into a fight with a student <u>at my current school</u> .
I procrastinate and don’t do my best.	Add “as a result” after “procrastinate.” Also, add “on homework, tests, and/or projects” after “best.”	I procrastinate and <u>as a result</u> don’t do my best <u>on homework, tests, and/or projects</u> .
My teachers don’t care if I don’t do my work.	Remove “don’t” after “teachers”	My teachers care if I don’t do my work.
Other students often disrupt class is a problem at my school.	Add the word “who” after the word “students”	Other students <u>who</u> often disrupt class is a problem at my school.
I feel as if lot of control over my grades.	Add “I feel as if” at the beginning of the statement.	<u>I feel as if</u> I don’t have a lot of control over my grades.

#### Student Suggestions/comments:

- 1) What does “administrator” mean? Who are the administrators?
- 2) What if we feel differently about the statements depending on different teachers?
- 3) What is “I am able to do school as well as most other students?” mean? Does this mean grades, or staying out of trouble?
- 4) The statement “I learn more outside of school than inside” was confusing -do you mean education-wise? Or life lessons?
- 5) Make sure the question is specific about the barriers to learning. Do you mean in school? Or out of school?
- 6) The “topics we are studying in school are challenging” was a weird question -it depends on the subject (e.g., math, science, etc.)
- 7) The “I feel safe in my school” is too close to the “My school is safe” question.
- 8) The “I feel I do not have much to be proud of in school” is a lot like #18.



Appendix B

RESPONSE	SUBMITTED	USERNAME	BE1	BE2
5867	12/20/10 9:27	pilot-1	Strongly Agree	Strongly Agree
5868	12/21/10 9:18	pilot-1	Strongly Agree	Strongly Agree
5872	12/21/10 11:37	pilot-1	Agree	Disagree
5871	12/21/10 11:38	pilot-1	Agree	Agree
5869	12/21/10 11:39	pilot-1	Agree	Strongly Agree
5875	12/21/10 11:40	pilot-1	Agree	Agree
5873	12/21/10 11:40	pilot-1	Strongly Agree	Strongly Agree
5881	12/21/10 11:40	pilot-1	Strongly Agree	Agree
5874	12/21/10 11:41	pilot-1	Strongly Agree	Agree
5880	12/21/10 11:41	pilot-1	Strongly Agree	Agree
5893	12/21/10 11:42	pilot-1	Strongly Agree	Agree
5879	12/21/10 11:42	pilot-1	Agree	Agree
5870	12/21/10 11:42	pilot-1	Strongly Agree	Agree
5896	12/21/10 11:42	pilot-1	Agree	Agree
5895	12/21/10 11:42	pilot-1	Strongly Agree	Strongly Agree
5884	12/21/10 11:42	pilot-1	Agree	Agree
5885	12/21/10 11:42	pilot-1	Agree	Agree
5892	12/21/10 11:43	pilot-1	Strongly Agree	Strongly Agree
5883	12/21/10 11:43	pilot-1	Strongly Agree	Agree
5877	12/21/10 11:43	pilot-1	Strongly Agree	Agree
5894	12/21/10 11:43	pilot-1	Agree	Agree
5891	12/21/10 11:44	pilot-1	Strongly Agree	Strongly Agree
5887	12/21/10 11:44	pilot-1	Strongly Agree	Agree
5882	12/21/10 11:45	pilot-1	Strongly Agree	Strongly Agree
5876	12/21/10 11:45	pilot-1	Strongly Agree	Agree
5890	12/21/10 11:45	pilot-1	Strongly Agree	Agree
5878	12/21/10 11:45	pilot-1	Strongly Agree	Strongly Agree
5889	12/21/10 11:46	pilot-1	Strongly Agree	Agree
5886	12/21/10 11:47	pilot-1	Agree	Agree
5888	12/21/10 11:47	pilot-1	Strongly Agree	Agree
5897	12/22/10 9:51	pilot-1	Strongly Agree	Strongly Agree
5901	12/22/10 11:33	pilot-1	Strongly Agree	Disagree
5909	12/22/10 11:37	pilot-1	Strongly Agree	Agree
5934	1/21/11 11:35	pilot-2	Strongly Agree	Strongly Agree
5933	1/21/11 11:36	pilot-2	Strongly Agree	Agree
5941	1/21/11 11:36	pilot-2	Strongly Agree	Agree
5932	1/21/11 11:37	pilot-2	Agree	Agree
5924	1/21/11 11:37	pilot-2	Strongly Agree	Strongly Agree
5927	1/21/11 11:38	pilot-2	Agree	Agree
5936	1/21/11 11:38	pilot-2	Strongly Agree	Agree
5930	1/21/11 11:38	pilot-2	Strongly Agree	Disagree
5935	1/21/11 11:38	pilot-2	Strongly Agree	Agree
5939	1/21/11 11:38	pilot-2	Strongly Agree	Agree
5928	1/21/11 11:39	pilot-2	Strongly Agree	Agree
5942	1/21/11 11:39	pilot-2	Strongly Agree	Agree
5923	1/21/11 11:40	pilot-2	Agree	Agree
5926	1/21/11 11:40	pilot-2	Strongly Agree	Strongly Agree
5922	1/21/11 11:40	pilot-2	Strongly Agree	Agree

## Appendix C

### Introductory Letter

Dear Wakta 8<sup>th</sup> Grader,

My name is Matthew J Scheidler, and I have worked in the Wakta School District since 2000. I have had the good fortune to work in all three middle schools in Wakta as a social studies teacher and as a peer coach. I am also working on my doctorate (Ed. D.) in Organizational Leadership, Policy, & Development at the University of Minnesota.

I am asking if you are willing to take a survey about your engagement (interest) in school, because I am trying to learn more about the engagement of students your age. I'm really interested in learning more about the achievement of students (why some students do well in school and some do not). The survey on engagement will help me learn about student achievement and the connection to how you think about your educational experience. I am grateful for the time and effort your teacher is investing in this endeavor.

Since you are an 8<sup>th</sup> grader in Wakta, I am asking you to be in the study. The study will consist of taking a survey that will take no longer than 30 minutes. The survey will be taken on a computer during your class. In addition to the survey I will be reviewing your academic records (MCA test scores, MAP test scores). Don't worry; I will be the only one who will be working with this data. Your name will not be used at any point in this research, and the survey results and all other data will be kept secret.

You can ask any questions that you have about this study. If you have a question later that you don't think of now, you can ask your teacher or call/e-mail me. If you don't want to be in this study, just let your teacher know. Remember, being in this study is up to you, no one will be mad at you if you don't want to participate or even if you change your mind later.

The survey will be given to you before or after spring break. Your teacher will let you know the exact day.

Finally, you will be eligible to earn a cash incentive if you return your permission slip. If you choose to participate, or don't feel like participating, you will have a chance to earn the incentive if you return the permission slip on the back of this paper. Your teacher will have more details about this incentive.

Thank you,

Matthew J Scheidler

## **Appendix D**

### **Parent Consent Form**

#### ***Student Engagement and the Academic Achievement of Middle School Students: Does Engagement Increase Student Achievement?***

##### **INTRODUCTION**

Your child is invited to participate in a research study examining their level of behavioral, cognitive, and emotional engagement. Your child was selected as a possible participant because they are currently an 8<sup>th</sup> grade student at one of the three Wakta Middle Schools. We ask that you read this form and ask any questions you may have before agreeing to have your child participate in the study. This study will be conducted by Matthew J Scheidler, a doctoral candidate in the Department of Organizational Leadership, Policy, and Development (OLPD) at the University of Minnesota.

The Department of Organizational Leadership, Policy, and Development at the University of Minnesota supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to allow your child to participate in the present study. You may refuse to allow your child to participate in this study. You should be aware that even if you agree to participate, you or your child is free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Minnesota.

##### **BACKGROUND INFORMATION**

The purpose of this study is to examine student's level of academic engagement and determine if higher engagement leads to higher student academic achievement. While there are numerous studies on the achievement disparities between groups of students ("groups" defined by gender, ethnicity, etc.) and student academic engagement, there are few that examine the relationship between the two variables and how they intertwine for middle school students. This study has been approved by the University of Minnesota and by Wakta Public Schools. It has also been approved by the Institutional Review Board of the University of Minnesota.

A goal of this study is to examine the relationship between engagement (behavioral, cognitive, and emotional) and the academic achievement of all 8th grade students in three suburban middle schools in Wakta. Behavioral engagement is defined as doing schoolwork and following rules, and examples include student actions that demonstrate effort, persistence, and concentration. Behavioral engagement statements from the survey

include “I do my homework,” and “I follow classroom rules.” Cognitive Engagement relates to motivation, effort and strategy use, and a few sample statements are: “I like it when I have to think really hard,” and “I take pride in my assignments.” Emotional Engagement pertains to the interests, values and emotions of students. Sample statements include “I like coming to school,” and “I often feel bored at school.” Specifically this study will answer the following questions:

1. What is the relationship between 8th grade students’ level of engagement (behavioral, cognitive, and emotional) and academic achievement?
2. What is the relationship between the middle school model (school climate, teacher/classroom support, instructional practices) and the academic achievement?

## **PROCEDURES**

If you agree to have your child participate in this study, they will be asked to participate in a short survey (25-35 minutes) that will consist of 80 questions. The survey will ask students to assess their level of engagement as they consider statements regarding their emotions and behavior in school. In addition, I will be looking at your child’s educational records, but the records will be kept *anonymous with no direct identifiers*. Encryption software will be utilized to ensure there are no breaches of confidentiality while the data is analyzed.

## **RISKS AND BENEFITS OF PARTICIPATION**

*Risks are minimal for participating in this study.* The survey will ask students to evaluate their own feelings about school (i.e. I like coming to school every day). As to the benefits of participating in this study, there are none for the participants. Students who return this document with a parent/guardian signature will be eligible to receive a small incentive (regardless if they are participating in the survey or not). Some people find participating in a survey to be beneficial because it gives them a chance to express and reflect on issues that matter to them. Also, information provided may be used to help inform those who work in education to increase student academic achievement.

## **CONFIDENTIALITY**

The records of this study will be kept private. If any sort of report were to be published, it would not include any information that will make it possible to identify a subject. Student names will not be used in this study, and research records will be stored within an encrypted document.

## **VOLUNTARY NATURE OF THE STUDY**

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota or Wakta Public Schools. If you decide to participate, you child is free to withdraw at any time

without affecting those relationships.

## QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to the researcher(s) listed at the end of this consent form.

## PARTICIPANT CERTIFICATION

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about the rights of a research participant, I may contact the researcher at 763.745.6564 or email [matthew.scheidler@Wakta.k12.mn.us](mailto:matthew.scheidler@Wakta.k12.mn.us). I may also contact the Research Subjects' Advocate Line at (612) 625-1650, or by mail at D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455

If you wish to **Allow** your child to participate in the study, please sign and date below and return to the appropriate teacher.

Name of student (please print) : \_\_\_\_\_ Date: \_\_\_\_\_  
Name of parent or guardian (please print) : \_\_\_\_\_ Date: \_\_\_\_\_  
Signature of parent or guardian: \_\_\_\_\_ Date: \_\_\_\_\_  
Signature of Investigator: \_\_\_\_\_ Date: \_\_\_\_\_

If you **do not want** your child to participate in the study, please sign and date below and return to the appropriate teacher. ***If your child does not participate in the study they will have the opportunity to complete class work, read a book, etc., while the other students are taking the survey.***

Name of student (please print) : \_\_\_\_\_ Date: \_\_\_\_\_  
Name of parent or guardian (please print) : \_\_\_\_\_ Date: \_\_\_\_\_  
Signature of parent or guardian: \_\_\_\_\_ Date: \_\_\_\_\_  
Signature of Investigator: \_\_\_\_\_ Date: \_\_\_\_\_

Researcher Contact Information

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## Appendix E

### Student Assent Student Academic Engagement Study

I am asking if you are willing to take a survey about your engagement (interest) in school, because I am trying to learn more about the academic engagement of students your age. I'm really interested in learning more about our Wakta 8th graders view their educational experience, and how we can improve the academic achievement for all our students.

Since you are an 8<sup>th</sup> grade in Wakta, I am asking you to be in the study. The study will consist of taking a survey that will take no longer than 30 minutes. The survey will be taken on a computer during your class. In addition to the survey I will be analyzing your student achievement data. Don't worry; I will be the only one who will be working with this data. Your name and confidentiality will be kept secret.

You can ask any questions that you have about this study. If you have a question later that you don't think of now, you can ask your teacher or call/e-mail me. If you don't want to be in this study, just let your teacher know. Remember, being in this study is up to you, no one will be mad at you if you don't want to participate or even if you change your mind later.

I have read the above information. I have asked questions and have received answers. If you do not want to participate in the study, please return the following document. If you do not participate in the study you will have the opportunity to work on homework or class work while the other students are taking the survey

Student name (please print): \_\_\_\_\_ Date: \_\_\_\_\_

Signature of student: \_\_\_\_\_ Date: \_\_\_\_\_

Signature of Investigator: \_\_\_\_\_ Date: \_\_\_\_\_

**Please return this paper to your teacher after you  
finish the survey 😊**

## 8th Grade Engagement Survey Steps

Please utilize the following steps to complete the 8<sup>th</sup> grade engagement survey.

- 1) Each student must sign the “Student Assent” located on the other side of this page. Please sign the student assent page before you continue.
- 2) Please log in to the computer by entering your network username and password. This is the same username and password that you always use to log on to a Wakta computer.
- 3) Access the following website:  
  
<http://tinyurl.com/4f36opf>
- 4) A blue screen will appear with a “Wakta Public Schools” logo in the upper left corner, and the title “8th grade student engagement survey” below the Wakta logo. Please enter your network username and password in the appropriate spaces on this page. In the language drop down menu, please select en\_US and select “Submit”
- 5) Please should consider your daily experience as 8<sup>th</sup> graders as you answer the questions. The following statement appears at the top of the first page “Directions: When answering each question, think about how you act or feel on an average day in school.”
- 6) You are now be able to take the survey. Instructions will appear at the top of each page. You are required to answer each question-the survey will not proceed to the next page unless each question is answered. Please review the response to each question to make sure you have entered an answer if you receive a statement preventing you from moving to the next page.
- 7) Once each question has been answered, please select “Next Page” in the bottom left corner of the survey (this will appear after the last question on each page).
- 8) If you have any questions or technical issues, please let your teacher know. Thank you very much for you time and effort related to this survey!

**Please return this paper to your teacher after you  
finish the survey 😊**

Appendix F

## 8<sup>th</sup> Grade Student Experience Survey

**Thank you 8<sup>th</sup> graders for taking the time to complete this important survey. This survey will ask you questions about your experience as a student. Please take your time and answer each question based on your feelings and actions.**

**Directions: When answering each question, think about how you act or feel on an average day in school.**

	Question	Strongly Agree	Agree	Disagree	Strongly Disagree
BE	I do my homework.				
BE	I participate in class discussions.				
BE	I participate in class activities.				
BE	I follow classroom rules.				
BE	If I do not understand something in class I keep working until I find the answer.				
BE	I am able to concentrate during class.				
BE	I do my schoolwork because I want to get good grades.				
BE	I do my schoolwork because I know it will help me in the future.				
CE	I feel as if I don't have a lot of control over my grades.				
CE	In school, good luck is more important than hard work for success.				
CE	I like when I have to think really hard about an academic problem.				



CE	I take pride in my assignments.				
CE	Most of my school work is interesting.				
CE	I do my school work because I want to learn as much as I can.				
CE	I learn more outside of school than inside.				
CE	The topics we are studying in school are usually interesting.				
CE	The topics we are studying in school are challenging.				
EE	I feel good about myself.				
EE	I am able to do school as well as most other students.				
EE	I feel I do not have much to be proud of in school.				
EE	I like coming to my school.				
EE	I feel safe in my school.				
EE	I often feel bored at school.				
EE	I often count the minutes until school ends.				

**Please place an x in the box that most accurately describes *your school and teachers: TEACHER SUPPORT/CLASSROOM***

	Question	Strongly Agree	Agree	Disagree	Strongly Disagree
S	My school honors				
	academic achievement.				
S	In my school, students place a high priority on learning.				
S	At my school, students are expected to take their homework seriously.				
S	Discipline rules at my school are fair.				
S	Disruptions by other students get in the way of my learning.				
S	Misbehaving students often get away with it.				
AP	Students get along well with teachers in my school.				
T	The teaching in my school is good.				
T	My teachers are interested in me.				
T	My teachers expect me to do my best all the time.				
T	My teachers believe I can do well in school.				
T	My teachers care if I don't do my work.				
T	My teachers praise my efforts when I work hard.				
T	My teachers are willing to give extra help if I need it.				
T	My teachers know me well.				
T	My teachers really listen to what I have to say.				
AP	What I'm learning in				

	my classes will help me in the real world.				
AP	My teachers require me think hard about the subjects we are learning.				
AP	I'm required to talk with my classmates about the subject we are learning during class.				
AP	I'm required to talk with my teacher about the subject we are learning during class.				
AP	My teachers expect me memorize rather than think.				

**Directions:** When answering each question, think about how you act or feel on an average day in school.

**Please place an X in the box that most accurately describes *your middle school*: MIDDLE LEVEL**

	Question	Strongly Agree	Agree	Disagree	Strongly Disagree
MS	My teachers know how students learn best.				
MS	My teachers are preparing me to do well in high school.				
MS	My teachers are good at teaching 8 <sup>th</sup> grade students.				
MS	My school is a caring community.				
MS	My school is dedicated to improving the intelligence of all its students.				
MS	Teachers and administrators				

	support student leadership.				
MS	My school is safe.				
MS	My school helps me be a healthy person.				
MS	My school wants me to be a good citizen.				
MS	My school involves my parents.				
MS	There is an adult in my school that I know cares about me.				
MS	I am treated fairly by teachers.				
MS	I am treated fairly by administrators.				
MS	My friends are treated fairly by teachers.				
MS	My friends are treated fairly by administrators.				

**Directions:** When answering each response think about how you act or feel on an average day in school.

**Please place an X in the box**

	Question	Never	Once	Twice	More Than Twice
E	I have been sent to the office/quiet room because I was misbehaving.				
E	I have been sent to the office/quiet room because of problems with my school				

	work.				
E	My parents have received a warning about my attendance.				
E	My parents have received a warning about my grades.				
E	My parents have received a warning about my behavior.				
E	I have gotten into a physical fight with another student.				

Indicate the degree to which each of the following are a problem in your school:  
**Please place an X in the box:**

	Question	Strongly Agree	Agree	Disagree	Strongly Disagree
S	Student tardiness is a problem at my school.				
S	Student absenteeism (absent students) is a problem at my school.				
S	Students skipping class is a problem at my school.				
S	Physical conflict among students is a problem at my school.				
S	Robbery or theft is a problem at my school.				
S	Vandalism of school property is a problem at my school.				
S	Student possession of weapons is a problem at my school.				
S	Other students often disrupt class is a problem at my school.				

Overall, about how many hours do you spend on homework **EACH WEEK**, both in and out school combined? MARK ONE X

<input type="checkbox"/>	Zero Hours
<input type="checkbox"/>	1-3 Hours
<input type="checkbox"/>	4-6 Hours
<input type="checkbox"/>	7-9 Hours
<input type="checkbox"/>	10-12 Hours
<input type="checkbox"/>	13-15 Hours
<input type="checkbox"/>	16-18 Hours
<input type="checkbox"/>	19-21 Hours
<input type="checkbox"/>	Over 22 Hours

Have you participated in the following **school-sponsored** activities this school year (in 8<sup>th</sup> grade)? Please Check all that apply

<input type="checkbox"/>	Intramural sports (competition between teams in your school).
<input type="checkbox"/>	Interscholastic sports (competition with teams from other schools).
<input type="checkbox"/>	Band, orchestra, or choir
<input type="checkbox"/>	School play or musical.
<input type="checkbox"/>	Student council/government.
<input type="checkbox"/>	School yearbook
<input type="checkbox"/>	Academic club (such as art, computer, teen reader, foreign language, etc...).
<input type="checkbox"/>	Hobby club (Ski Club, chess, etc...)
<input type="checkbox"/>	Math Olympiad
<input type="checkbox"/>	Lego League
<input type="checkbox"/>	Sports clubs or teams outside of School (football, swimming, travel basketball, house basketball).
<input type="checkbox"/>	Other clubs or youth groups outside of school.

Survey References:

High School Survey of Student Engagement – 2005 Indiana University  
 National Longitudinal Study of 1988 (NELS: 88)  
 Educational Longitudinal Study of 2002  
 Corneille Survey 2008

## Appendix G

### *Wakta Student Demographic Information By Middle School*

	MS #2	MS #3	MS #1
Total Student Enrollment	758	945	715
8 <sup>th</sup> Grade Enrollment	256	311	230
8 <sup>th</sup> Grade Asian Students	10%	14%	6%
8 <sup>th</sup> Grade Hispanic Students	4%	2%	2%
8 <sup>th</sup> Grade Black Students	12%	10%	7%
8 <sup>th</sup> Grade White Students	74%	74%	85%
8 <sup>th</sup> Grade Special Education Students	8%	5%	12%
8 <sup>th</sup> Grade English Learner Students	4%	0%	0%
8 <sup>th</sup> Grade Students on Free-Reduced Lunch	22%	12%	10%
8 <sup>th</sup> Grade students enrolled via TCIY	5%	3%	2%

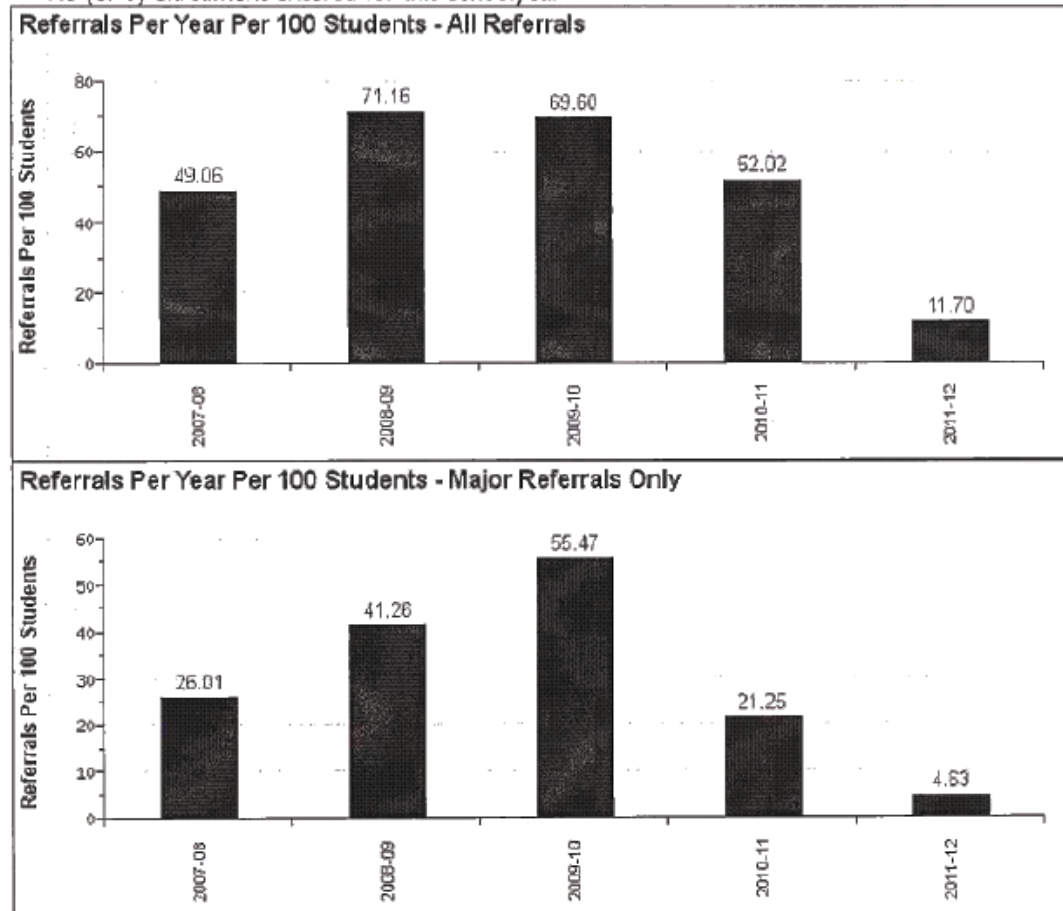
## Appendix H

### Wakta MS #2 Student Referral Data

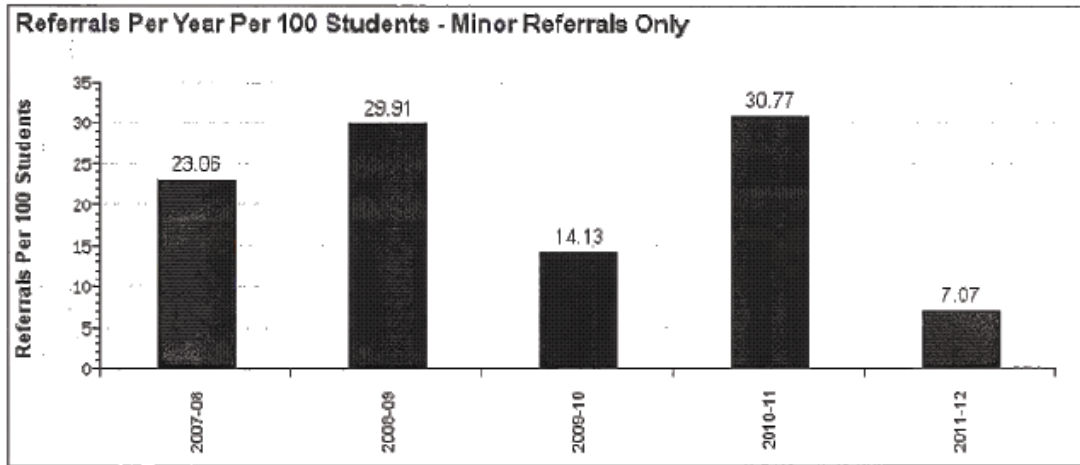
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2011-12

#### Referrals Per 100 Students

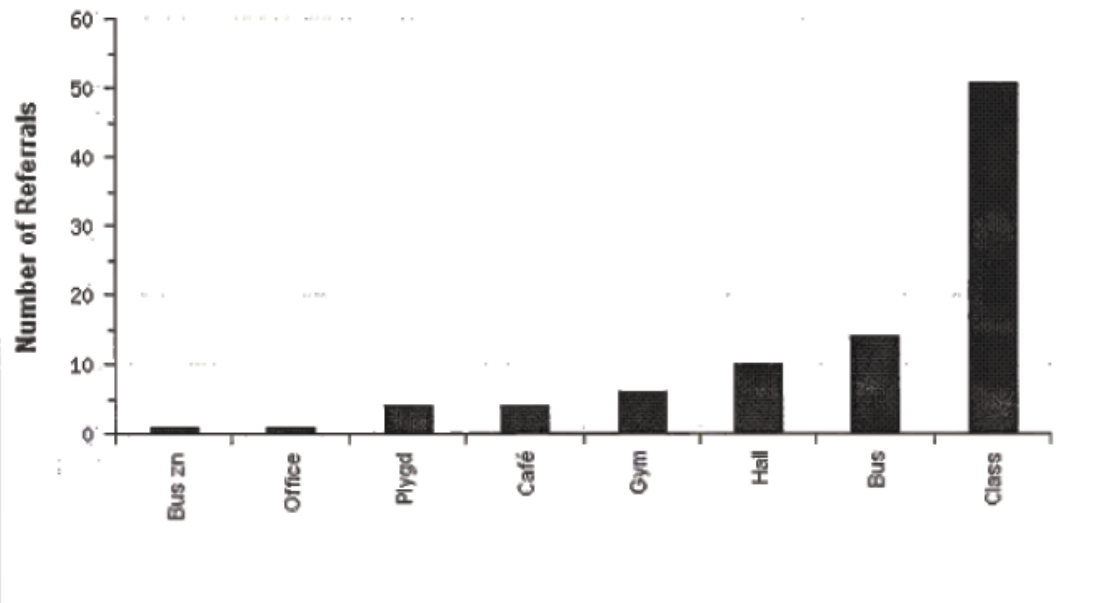
\* - No (or 0) enrollment entered for this schoolyear



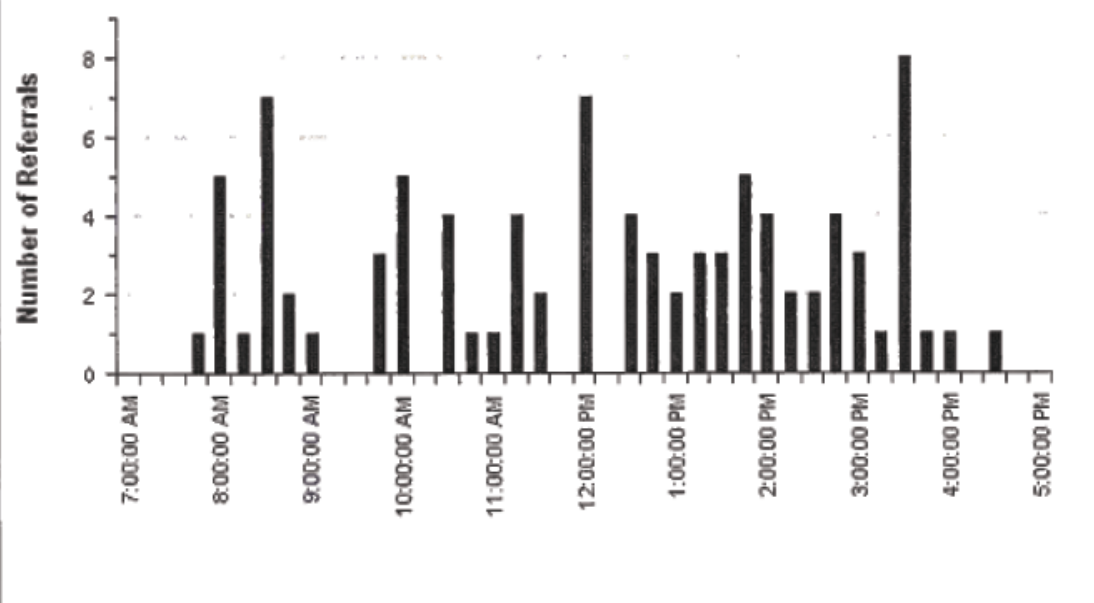




**Referrals By Location, 2011-12**

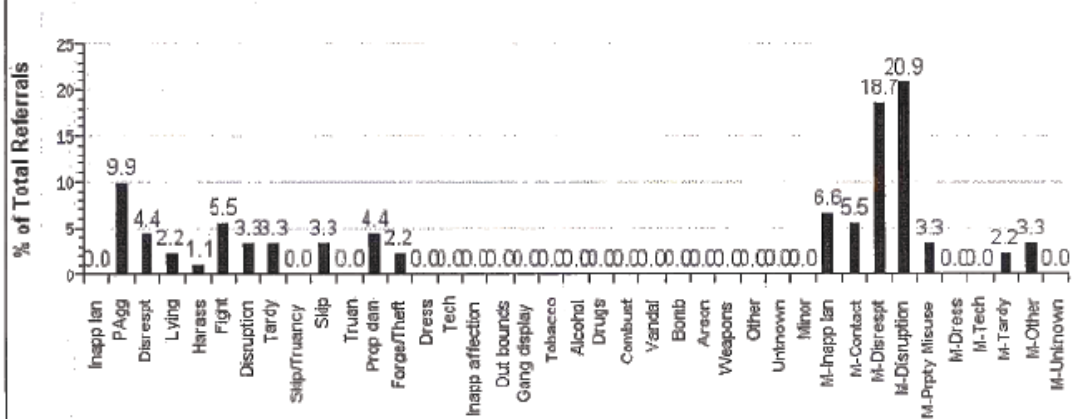


**Referrals By Time, 2011-12**

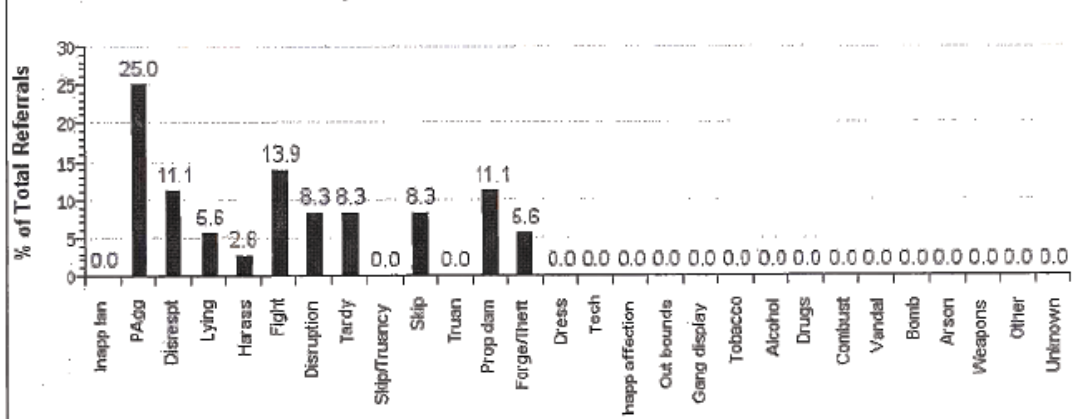


### Problem Behavior Report

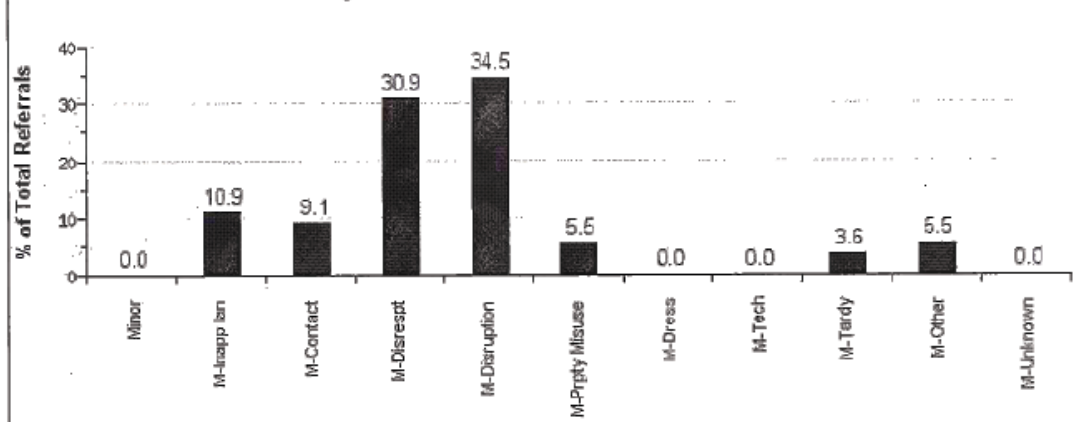
#### Percent Of Total Referrals By Problem Behavior



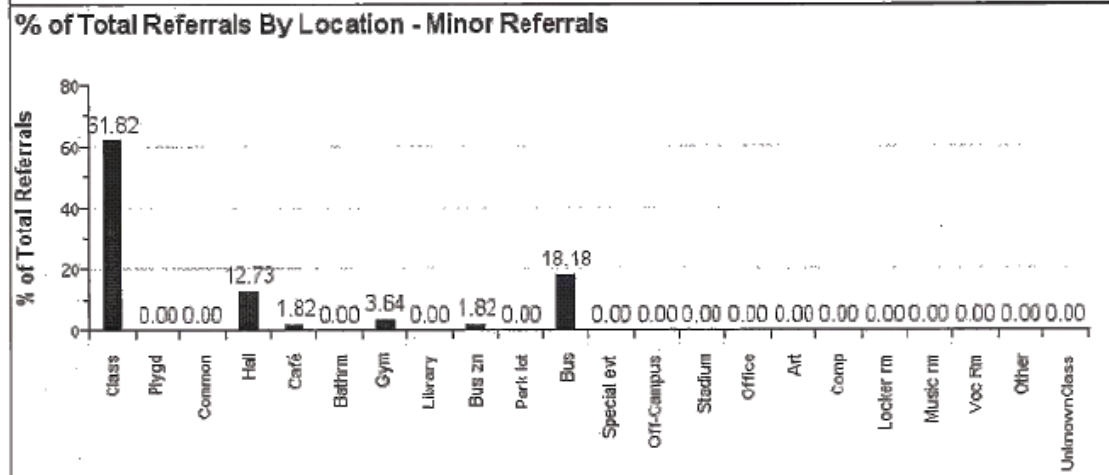
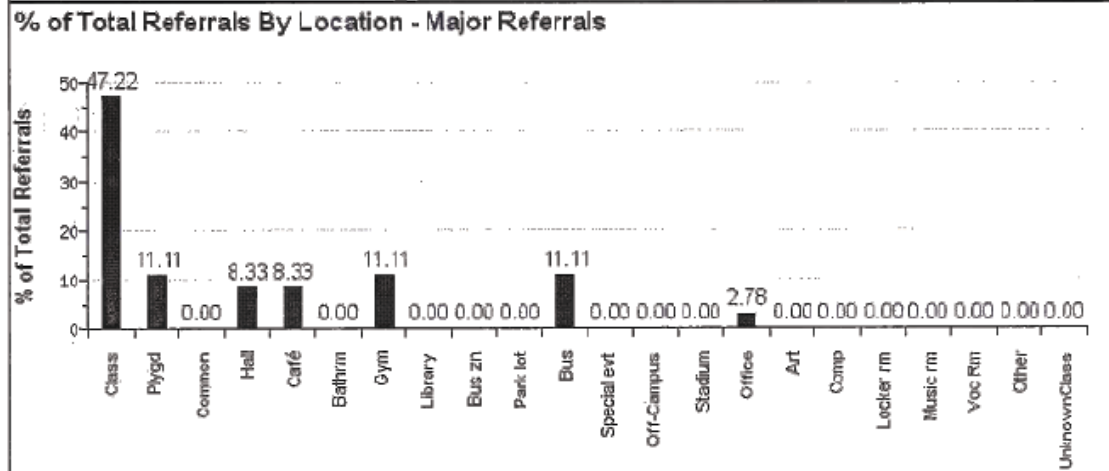
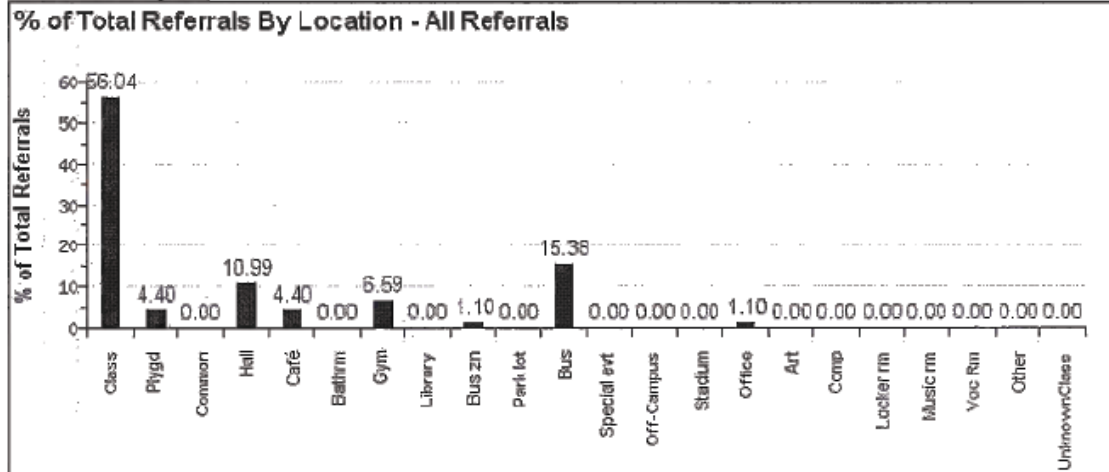
#### Percent Of Total Referrals By Problem Behavior - Major Referrals Only



#### Percent Of Total Referrals By Problem Behavior - Minor Referrals Only

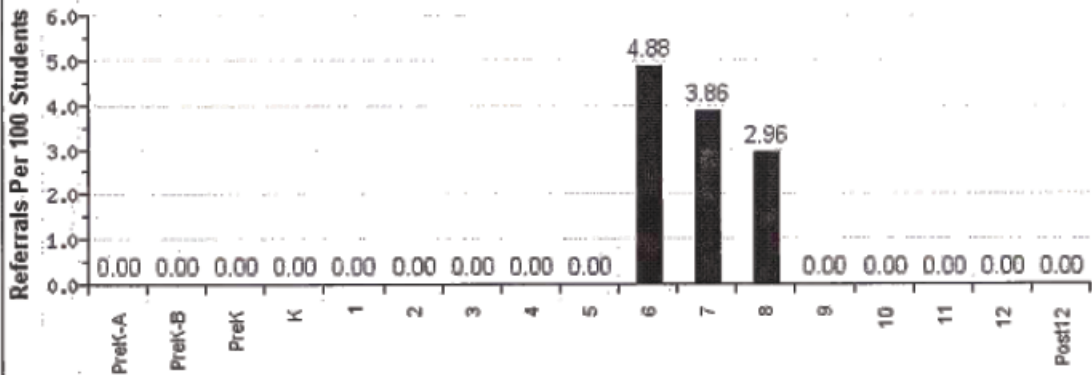


**Location Report**

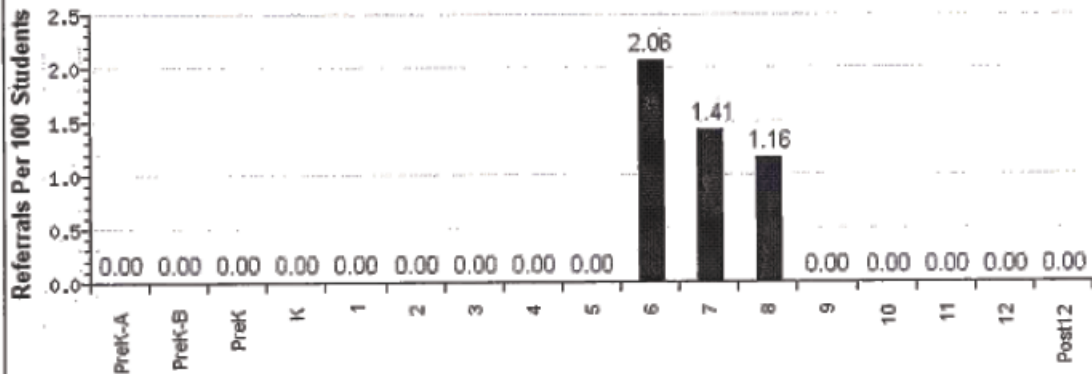


## Grade Report

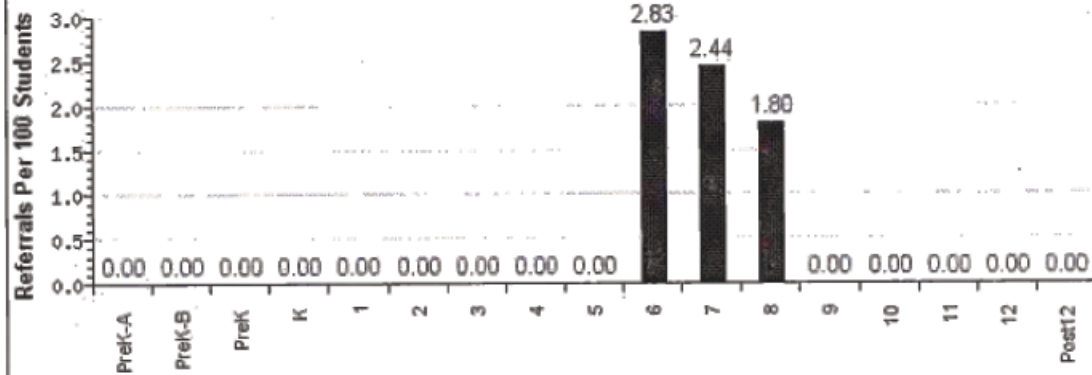
### Referrals By Grade Per 100 Students - All Referrals



### Referrals By Grade Per 100 Students - Major Referrals

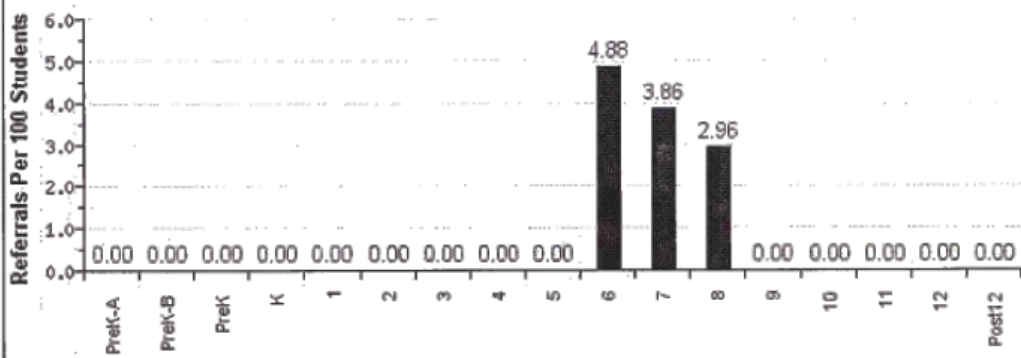


### Referrals By Grade Per 100 Students - Minor Referrals

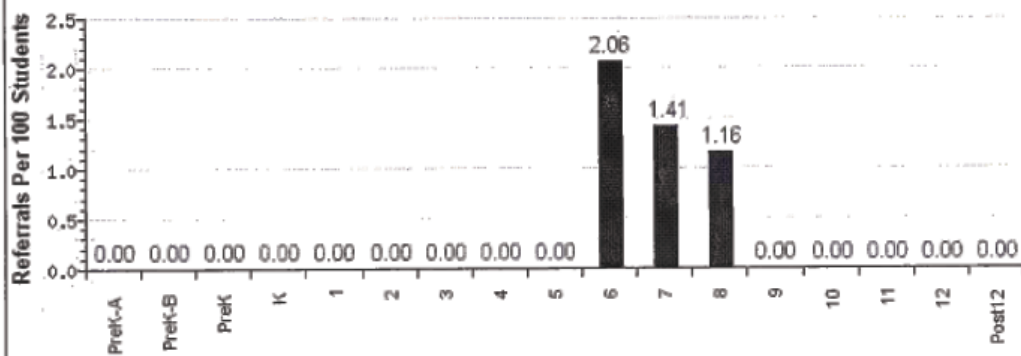


## Grade Report

### Referrals By Grade Per 100 Students - All Referrals



### Referrals By Grade Per 100 Students - Major Referrals



### Referrals By Grade Per 100 Students - Minor Referrals

