READINESS FOR COLLEGE: FACTORS AFFECTING MINORITY HIGH SCHOOL STUDENTS IN TWO LARGE WASHINGTON SCHOOL DISTRICTS

By

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the dissertation of MERRI M. RIEGER find it satisfactory and recommend that it be accepted.

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Chair

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Abstract

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The purpose of this study was to investigate the relationships among ethnicity, academic achievement, students' perceptions of their teachers' attitudes about their academic ability, and students' attitudes about achievement to identify factors that influence college readiness for minority students. Study participants included approximately 2100 students in grade 11 from two large Washington school districts' who were surveyed about their perceptions of teacher support, academic self-perception, motivation self-regulation, and concrete achievement attitudes. The information from the survey was linked to academic performance and demographic data. Analysis of variance and correlations were conducted to examine differences by ethnic groups. Multiple regressions were conducted using academic performance, ethnicity, perception and attitude variables to determine the amount of variation in college readiness accounted for by each variable. The results indicated that writing achievement and student attitudes were the strongest factors for college readiness for minority students. Additional factors affecting minority college readiness were prior academic achievement and some minimum influence of teacher expectations.

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DEDICATION

This dissertation is dedicated to my parents, Gene and Marlys Rieger, for the unconditional love and support they have given me throughout my life. They have always believed in me and encouraged me to follow my dreams. They were my first and have been my best teachers. They taught me to love learning and about the importance of questions. They always encouraged my curiosity. They taught me I could be and do anything I set my heart and mind to. Their belief in me gave me the support and encouragement I needed to complete this endeavor. I am who I am because of them.

CHAPTER ONE

INTRODUCTION

There has been much attention given to the inequitable outcomes for minority students in American public schools. New policies and programs have been enacted by educators and legislators to close the achievement gap. The federal policy of No Child Left Behind Act of 2001 (NCLB) was approved by legislators and signed into law by the president of the United States to rectify the achievement gap between White students and their non-White peers. State assessment results are required to be reported for each ethnic group and educators are required to close identified gaps. The sense of urgency to do this important work is heightened by the federal sanctions placed on schools and districts for not meeting their target goals of closing achievement gaps and increasing graduation rates for all students.

Attention to closing the achievement gap is not only a national educational issue but also an economic issue. A person's level of educational attainment is a strong predictor of occupational status, earning power, and influences future occupational and socioeconomic status (Education Trust, 2003; Jacobson et al., 2001; Lee, 2002; Scurry, 2003). Regardless of ability, if a student performs poorly in high school, they generally have lower paying jobs and educational status than their higher achieving peers leading to long inequities in socioeconomic status (Education Trust, 2003). Martinez and Klopott (2005, p.3) state, "Few American institutions have a greater impact on the quality of life of American citizens than the public high school. High school is a pivotal institution that lays the foundation of adult participation in the American economy and civil society." Students who have low academic achievement in high school are less likely to pursue higher education.

Life's opportunities expand with the level of educational attainment. To change economic and occupational opportunity students must leave high school prepared for college. According to Day & Newburger (2002), dropouts earned $18,900 annually compared to $25,900 for high school graduates, and $45,400 for graduates of 4-year colleges. Regardless of ability, if a student performs poorly in high school, they generally have lower paying jobs and educational status than their higher achieving peers leading to long inequities in socioeconomic status. Simply graduating from high school is not enough to substantively change the economic future of our students.

Researchers have shown that the rigor of courses taken in high school is the strongest predictor of academic achievement, high school graduation, and enrollment in post-secondary education (ACT, 2004; Adelman, 1999). The rate of college enrollment for African American and Hispanic students are lower than White and Asian students (Education Trust, 2003; Jacobson et al. 2001; Martinez & Klopott, 2005; Scurry, 2003), making the academic achievement gap concern greater than just high school graduation rates. According to Martinez and Klopott (2005), a critical factor for this disparity is due to lack of preparedness or readiness of minority high school graduates for post secondary education.

The National Center for Educational Statistics (2001) reported that African American and Hispanic students were much less likely than their White peers to complete rigorous curricula; 20% of White students completed rigorous courses as compared to only 8% African American and 16% Hispanic students. Contrast that information with the information about who is in courses that are no higher than core; 27% White, 34% Hispanic and 42% African American (NCES, 2007). The level of high school curricula a student participates in is strongly related to their persistence in post

secondary education. In 2001, 68% of undergraduates were White, 13% Black, and 12% Hispanic (NCES, 2002). These percentages are much smaller the percentages for students in those ethnic groups graduating from high school. According to Martinez and Klopott (2005), a critical factor for this disparity is lack of preparedness or readiness of minority high school graduates for post secondary education. Darling-Hammond (1998, p.28) stated that "educational outcomes for minority children are much more a function of their unequal access to key educational resources, including skilled teachers and quality curriculum, than they are to a function of race." Therefore, the achievement gap in college preparatory courses becomes an issue of lifetime occupational and socioeconomic status.

Researchers (Adelman, 1999; Horn & Kojaku, 2001; Stage & Ruskin, 1993) state that the strongest predictors of college attendance and completion, especially for minority and low-income students are academic preparation, social support, access to information, parental involvement and knowledge about college and financial aid. Of these predictors, academic preparation is directly related to what happens in high school (Adelman, 1999). Strong academic preparation provides students with information and skills necessary to succeed in college. The level of high school curricula students reported completing also was related to race/ethnicity, family background, indicators of socioeconomic status and the economic status of their high school's student body (NCES, 2001). All of these factors relate to whether or not students have an opportunity to participate in rigorous curricula in high school. Educators cannot control family background or economic status but they can control school practices and policies that support or hinder students from low socioeconomic backgrounds and who are minorities access to rigorous classes and support to successfully complete those courses.

Minority students are over-represented in non-college preparatory programs (Oakes, 1985; Oakes & Lipton, 1992) which hinders their opportunity to receive the strong academic preparation needed to access college at the same rate as their White peers. The state of Washington, like the nation, has a disproportionately low number of African American and Hispanic students enrolled in college prep courses. Because research has shown the rigor of courses taken in high school is the strongest predictor of enrollment in post secondary education (ACT, 2004) low numbers of minority students in advanced courses is a cause for concern. The two school districts in this study mirror the state of Washington in disproportionately low numbers of African American and Hispanic students in college prep courses.

A large body of research exists that focus on factors influencing students' academic achievement: family factors (Allen, 1978), unequal access to educational resources (Darling-Hammond, 1998), tracking (Oakes, 1985; Oakes & Guiton,1995), teacher quality (Haycock, 2006), teacher perceptions (Ross & Broh, 2000; Bol & Berry, 2005), student attitudes (Michelson, 1990), and student perceptions (Wayman, 2002; Jussim, 1989; Ferguson, 2003), which can help educators to understand potential causes for the achievement gap. There has been little research done about students' perceptions of their teachers' attitudes/behaviors about their academic ability and how that may affect what courses they decide to take which in turn may affect their level of academic achievement. Educators need more information about what factors influence students' course selection in order to develop strategies or programs to increase the number of minority students enrolling and succeeding in college preparatory classes

Specifically, educators need answers to the questions: Why are so many African American and Hispanic students performing less well than their Asian and White peers

in classes and on state assessments? Why are fewer African American and Hispanic students enrolled in Advanced Placement or honors courses even in multiracial schools? Since adolescents spend a great deal of their time at school, what can schools do to influence the answers to these questions? Teachers have potential to be a key source of support. Teachers signal to their students how they should interact, speak and what cultural knowledge is needed to seen as a smart person in our society (Carter, 2005). Many students believe that education leads to success and with the proper support, they believe they can achieve a level of success greater than their parents. This is especially true for students from low socioeconomic background and for minority students (Michelson, 1990; Carter 2005). Information about how that support is perceived by students could provide educators with important information that could assist their efforts to close the achievement gap and increase the number of minority students represented in advanced courses. More information is needed about factors which influence minority students' course selection in order to develop programs and policies to increase the number of minority students enrolling and succeeding in rigorous college preparatory courses.

The purpose of this study was to investigate the relationships among ethnicity, prior academic achievement, students' perceptions of their teachers' attitudes about their academic ability, and students' own achievement orientation to identify factors that influence college readiness for minority students.

Research Questions

1. What are the differences between minority students and their non-minority peers on: a) academic performance, b) college readiness based on enrollment in college gateway courses and grade point average, c) achievement attitudes, and

d) perceptions of their teachers' attitudes about their academic ability and performance?

2. How are academic performance, college readiness, achievement attitudes and perceptions of their teacher's attitudes about their academic ability and performance related to one another?
3. Is there any difference in the pattern and relative influence of these factors for minority students and non-minority students?

CHAPTER TWO

REVIEW OF LITERATURE

To understand the myriad of factors influencing student academic achievement and how those factors have influenced the inequitable outcomes for minority students in American schools this review of literature was organized into six sections: 1) achievement gap factors, 2) minority student achievement, 3) tracking, 4) teacher behaviors/perceptions, 5) teacher expectations and 6) student behaviors and perceptions.

Achievement Gap Factors

In Lee's 2002 study, he extensively analyzed the achievement gap utilizing available achievement data and multiple research studies focused on the topic over the past three decades; most notably the National Assessment of Educational Progress (NAEP) data. He found that socioeconomic and family conditions do play a part in the achievement gap but they were not the main factor. Two other factors seemed to have a greater impact: peer culture and student behaviors, and school conditions and practices. Due to these findings, it is important to study what perceptions, attitudes, and motivational factors influence secondary school students' academic achievement along with the schooling factors that may create access barriers, especially for minority students, into rigorous college preparatory courses.

The body of research about teachers' perceptions, expectations and behaviors provides some insight into possible links between how students perceive their teachers actions and how those perceptions may affect their behavior in the classroom. Ferguson (2003) found that teachers' perceptions, expectations, and behaviors interact with students' beliefs, behaviors and work habits in ways that perpetuate the Black-

White test score gap. In his 2003 article, he states a major concern for Blacks is teachers underestimating Black students' potential. Jussim et al., in their 1996 study, found an estimated impact of teacher perceptions on students' grades around perceived student effort affected Black students almost three times as much as White students. In many schools, grades are used as critical factors in placing students in low or high academic tracks. Once placed, changing tracks becomes difficult (Oakes, 1985). In an earlier study done by Jussim (1989), he found teacher expectations of performance had a self-fulfilling affect on students' self-concept of ability. If minority students' perceive their teachers think they are not academically capable of rigorous course work, they may not even consider choosing the necessary college preparatory courses that could lead to college attendance and completion.

When students have strong beliefs in their ability to succeed and attend schools in which strong relationships with teachers exist, and where teachers are perceived to be caring and supportive, minority students are more likely to attend college (Adams & Singh, 1998; Lee & Burkham, 2003; MacLeod, 1987). In Haycock's (2001) synthesis of research, she looked to what students said would close the achievement gap. She found students want teachers and school officials to set high standards for them. When a teacher sets and holds high standards, they are telling students they believe in their ability to reach these standards. Challenging curricula must be available for all students, not just some, and teachers matter a lot. What teachers know, as well as what they do, does make a difference for minority students.

The academic achievement gap in secondary schools and the under representation of African American and Hispanic students in college is a result of several interacting factors. Although there are many factors that affect a students'

academic achievement, researchers have identified three main areas that seem to have the most influence on closing the minority achievement gap. These factors fall into three broad categories: 1) schooling conditions and practices, 2) student behaviors, 3) teacher behaviors (Bennett, et al., 2004; Darling-Hammond; 1998; Lee, 2002). The following review of literature discusses contributing factors leading to the achievement gap as it relates to the low number of eligible African American and Hispanic students in college preparatory classes.

Minority Student Achievement

The achievement gap between African American and Hispanic students and White and Asian students has been a concern for educators, parents, lawmakers, and business leaders for decades. Coupled with the knowledge that what happens in high school directly affects a person's future educational and socioeconomic status, it becomes critical for education practitioners looking to close the achievement gap, to study the factors they have the most control over: schooling conditions and practices.

Between the 1970's and 1980's the racial and ethnic achievement gap narrowed substantially, that trend did not continue into the 1990's. As researchers studied the reasons for the achievement gap between African American and Hispanic students and their White peers, three factors were consistently identified as contributing to the achievement gap. These three factors were socio-economic and family conditions, youth culture and student behaviors, and schooling conditions and practices (Lee, 2002; Bennett, et al., 2004). Through his extensive review of literature, Lee (2002) further identified five specific schooling conditions and practices that play the biggest role in affecting the achievement gap.

Conditions sited by Lee (2002) are instructional resources, teacher quality, course taking, segregation, and dropping out of school. Several researchers (Darling-Hammond, 1998; Haycock, 2001; Haycock & Peske, 2006; Kozol, 2005) support Lee's findings that African American and Hispanic students are much less likely than White students to have sufficient instructional resources, quality teachers, and experience a rigorous curriculum. Minority students and students from poverty often attend schools where current and sufficient instructional resources are lacking (Darling-Hammond, 1998; Kozol, 2005). Due to low quality, or in many cases, non-existent instructional resources, students attending high poverty, high minority schools are not provided the educational resources their White middle class peers receive. In addition to low quality instructional resources, teacher quality plays a critical role in the quality of learning experiences a student receives. Darling-Hammond (1998) and Haycock (2001) provide graphic data about the quality of teachers students attending schools with high percentages of minority students experienced. Both researchers contend that providing experienced, knowledgeable and caring teachers to our most struggling learners will make a significant difference in their achievement levels. The higher the quality of teacher, the more a student will learn, thus providing them access and opportunities to not only select but achieve in more rigorous college preparatory courses.

In 1998, Adams & Singh did a study about direct and indirect effects of school learning variables on the academic achievement of African American high school students. They found that prior achievement, perceptions about teachers and teaching, and socio-economic status had a significant effect on the academic achievement of a nation-wide sample of 10th grade African American students. Prior achievement overwhelmingly influenced later achievement. Participation in challenging course work

is one of the critical factors leading to achievement in college preparatory classes as well as preparing students for success in college (Bennett et al., 2004; Jacobson et al., 2001; Martinez and Klopott, 2005; Oakes 1985). Therefore, prior achievement level is critical to how well African American students will achieve in high-level high school courses and eventually in college. According to Martinez and Klopott (2005), the rates of college enrollment for African American and Hispanic students remains much lower than those of White and Asian students. Critically analyzing what type of courses African American and Hispanic students choose, or are placed in, is important to better understanding the achievement gap.

Haycock, in her 2001 *Educational Leadership* article, puts a student voice to research findings about why the achievement gap exists and how these factors have influenced their achievement, and/or access to classes that best prepare them for college. The minority students in her research said they have teachers who do not know their subject matter, counselors who underestimate their potential and put them in low-level classes, and curriculum that is so low level it is boring them out of school. What hurt students most were teachers teaching them less content and skills. These students believed that when teachers taught them less, the teacher was in fact telling them that was the level of rigor they could accomplish. Adams & Singh's (1998) and McCoach's (2002) findings support the importance of teacher behavior (expectations) and the message it sends students. Their studies found that when students perceive teachers as caring about them, and students feel the quality of the instruction they received was good, they were more likely to be high achievers.

Bennett et al. (2004) conducted an extensive review of previous studies and data analysis that revealed peer culture and school conditions and practices seemed to have

the greatest potential impact on closing the achievement gap. Their findings added to a growing body of research (Haycock, 2001; Hoy, Sweetland & Smith, 2002; Ross & Broh, 2000; McKenzie & Scheurich, 2004; Smith, Atkins, & Connell, 2003) identifying ways to narrow the achievement gap. Key elements found to make a difference in helping students achieve at high levels were: 1) a belief that all students can achieve, 2) all students have access to challenging course work, 3) highly trained teachers working together makes a difference, 4) teacher perceptions matter, and 5) involved parents and families provide support and guidance. These findings may assist educators as they address the achievement gap in college preparatory classes.

Tracking

Academic tracking has been sited by several researchers (Darling-Hammond, 1998; Hallinan, 1994; Oakes, 1985; Wells & Oakes, 1995; Mickelson, 2005) as having negative effects on academic achievement potential for minority and low-income students. Curricular tracking is a structure found in almost every public high school in America. Researchers, like Oakes (1985) and Darling-Hammond (1998) have data that show low-income and minority students participate at higher rates in low-track courses thus, denying them educational opportunities afforded their White peers. Studies done by these researcher and others, add to the body of research about factors that contribute to the achievement gap between White students and African American and Hispanic students.

Oakes (1985) and Carbonaro (2005) argue that students in higher curricular tracks tend to learn more than do comparable students in lower tracks. Students in higher tracks receive a wider range of learning opportunities, have higher quality instruction by teachers with deeper content knowledge and higher instructional skills,

spend more time on instruction, and get greater curricula coverage. Hallinan (1994) concurs with their findings in her review of the empirical research about the effects of track levels on students' learning. Her findings around the effects of tracking include: 1) quantity and quality of instruction increase with the level of track, 2) students in high-ability tracks learn more and at a faster pace and 3) tracking provide no advantage over heterogeneous groupings for students in the middle-ability range. In addition, her research review produced the following findings about assignment to tracks: 1) track assignments are dependent, in part to the schools that students attend, 2) track assignments are less permanent than commonly believed, and 3) a greater proportion of minority and low-income students are assigned to lower tracks. The findings of these researchers and others support the need to look closely at tracking as a factor influencing achievement for minority and low-income students.

Oakes and Guiton's 1995 study examined tracking decisions in three comprehensive high schools over a two-year period. Their research interest was to gain a better understanding of how high schools decide what courses to offer and how to place students in those courses. Their research is important as it provides some insights into who gets access to rigorous courses and whether decisions made by school personnel have added to the achievement gap. This research also provides some evidence about the subtle messages students receive from teachers, counselors and administrators about which students are seen as academically capable to be successful in college preparatory courses.

Three important findings in Oakes and Guiton's 1995 study relate to my Dissertation Proposal. First, schools view students' abilities, motivation, and aspirations as fixed. If a student is assigned initially to a lower-track class, this decision often

influences their assignment throughout their high school career because the initial judgment of ability is seldom revisited. Second, curriculum provided to students in different tracks often seeks to accommodate rather than alter their ability. Students in lower-tracks are not provided curriculum that is as rigorous or sophisticated as higher-track students are. Third, and possibly most critical to my study, was Oakes and Guiton's finding that race, ethnicity and social class signal ability and motivation, that in turn, influenced curricular decisions. School personnel making tracking decisions may hold certain perceptions of students' suitability for classes at the various track levels. Oakes and Guiton (1995) concluded that even when the three high schools studied said they provided students "choice" in deciding what courses they wanted to take, often the structural decisions made by teachers, counselors and administrators resulted in hidden structures and messages that tracked minority and low-income students into low-track classes at a higher rate than White students with comparable skills.

In research done by Mickelson (2005) in the Charlotte-Mecklenburg school district, she showed that academic tracking negated the benefits of school desegregation. She based this finding on the disproportionate number of minority students in low-level courses while the advanced higher-level courses had a majority of White students. Her findings further concluded, minority students rarely moved from the lower-track classes because challenging learning opportunities or effective teaching were not provided. Wells & Oakes (1996) research provides similar findings. Their multi-case, three year study of ten racially mixed schools looked at how de-tracking was effecting systemic reform efforts. Political pressure from White parents put pressure on school leaders to provide their students with a curriculum different from the rest of the student body. In addition to parents, colleges put pressure on schools to offer AP, IB

and honors courses due to their entrance requirements (Wells & Oakes, 1996). Schools efforts to de-track their schools were often at odds with White parents and college demands, thus resulting in segregated tracked classes.

Teacher Behaviors/Perceptions

Of the three factors identified by research as having an affect on the achievement gap: 1) socioeconomic and family conditions, 2) youth culture and student behaviors, and 3) schooling conditions and practices (Bennett et al.; Lee 2002), the factor of schooling conditions and practices may prove to have the greatest defining impact on closing the achievement gap. Student academic achievement is impacted most by a student's sense of personal control and that sense of control is directly correlated to academic achievement (Ross & Broh, 2000). Smith, Atkins, and Connell (2003) also identified teacher's perceptions, beliefs, and behaviors as having an effect on student's optimistic beliefs about their abilities. Bennett et al., in their report, *All Students Reaching the Top* (2004) stated, "Academic ability is a developed (and developable) ability, one that is not simply a function of one's biological endowment or a fixed aptitude (p.1)". Additional researchers have shown that a teacher's perceptions about minority students abilities does influence the way in which that teacher teaches minority students (Bol and Berry, 2005; McKenzie and Scheurich, 2004; Hoy, Sweetland, and Smith, 2002).

Bol and Berry conducted a study in 2005 about the perceptions of secondary mathematics teachers on factors that contribute to the achievement gap. The study consisted of 379 members of the National Council of Teachers of Mathematics (NCTM) who responded to their survey. The study found that secondary teachers believed the achievement gap was due to student characteristics such as motivation, work ethic, and

family support. Mathematics supervisors and university faculty were more likely to say that the achievement gap was due more to curriculum and instruction and less to student characteristics. Interestingly, Bol and Berry (2005) also found that the lower the number of minority students in a school the more likely a teacher would attribute the achievement gap to student characteristics and behaviors. In the study, the teacher expectations for student achievement were three times greater for White than for African American students. Additional findings from the study were lack of teacher training and understanding diversity, which may contribute to the findings of lower expectations.

In McKenzie and Scheurich's study (2004), they looked at eight experienced White elementary teachers' perceptions about their students of color, their own racial identity and the relationship between their perceptions of their student of color and their own racial identity. The researchers did one-on-one interviews followed by six two-hour focus group sessions. Of the six themes that emerged from their study, all revealed that the teachers in the study believed that the reason students of color did not achieve at their potential was based around family and student characteristics. The teachers did not believe that their own behaviors had any negative impact on student achievement even when the data revealed that they had low expectations, did not consistently provide rigorous work, and sometimes treated students disrespectfully.

Hoy, Sweetland, and Smith (2002) did a study that demonstrates the power of collective teacher efficacy in addressing academic achievement gaps at the school level. Their findings concluded that when teachers worked in concert with each other and collectively believed and behaved in a manner that demonstrated their belief that all their students were capable of achieving the stated standard; their collective

belief/behaviors had more impact on the school-wide achievement score than working independently.

A critical look at teacher's perceptions and behaviors toward identified student groups may assist in understanding how teacher beliefs and actions affect student achievement. Landsman, in a 2004 article, "Confronting the Racism of Low Expectations", contends that too often the assumption many teachers make "that Black and Latino students could not possibly know the answers to deep or complex questions (p.28)," lead to racially tracked classes, with minority students found predominately in lower tracked classes. Her findings are important to understanding teacher perception factors potentially affecting the low numbers of African American and Hispanic students in honors and AP/IB courses. Ronald Ferguson's 2003 review of research around teacher perceptions, expectations, and behaviors and their influence on the Black-White test score gap supports Landsman's contention that teacher perceptions about minority students' abilities does impact the type of educational experiences these students receive. Ferguson found that a concern for African Americans is how teachers underestimate a Black student's potential (2003). If a teacher does not believe a Black student has potential, they will not seek ways to provide challenging curriculum that would prepare them for college preparatory courses. Negative attitudes or stereotypes on the part of a teacher affect the critical relationship between the teacher and the students necessary for building a trusting relationship (Payne, 1994).

Because the teacher plays such a critical role in a student's learning experiences, how students perceive their teachers actions often influences how they view themselves as learners. Adams and Singh (1998) found that there was a significant path between students' perceptions of teachers and teaching and student achievement. If teachers

were perceived as caring about them, praising them for their effort, and they gave them quality instruction, students were likely to be higher achievers. Adams and Singh (1998) believe that "the relationship between teachers and students may be an important link to academic achievement" (p.58).

Teacher Expectations

Along with teacher perceptions, teacher expectations play a role in how students view their academic ability. Several researchers have looked at whether teacher expectations predicted student achievement (Brattesani, Weinstein & Marshall, 1984; Ferguson, 2003; Jussim, 1989; Jussim & Eccles, 1992). The general conclusion was that teacher expectations may have some impact on student achievement but the impact is typically small. However, what they did find was that for some stigmatized social groups self-fulfilling prophesies did occur. In a study done by Jussim in 1996, he and his fellow researchers found that the impact of teacher perceptions was almost 3 times as great for African Americans as it was for Whites. Jussim hypothesizes that perhaps the behaviors of both the students and teachers are affected by the combination of the teacher's perception of performance and the student's race.

Jussim and Harber (2005) did a 35-year review of the empirical research on teacher expectations. One question they focused their review on was, if negative teacher expectations harm students more than positive teacher expectations help them. They concluded, "Positive expectancy effects were generally more powerful than negative ones, and this pattern disproportionately benefited low expectancy students (p. 146)". This finding provides support for studying the relationship between teacher expectations and students perceptions of their own academic ability.

Other researchers (Brattesani, Weinstein & Marshall, 1984) found that teacher expectations not only sustain pre-existing differences in student achievement but can also increase these differences. Brattesani, Weinstein & Marshall (1984) were looking at perceived differential teacher treatment between high and low achieving students. Their findings were consistent with the hypothesis that "teachers can behave in ways that communicate their achievement expectations to their students, that students perceive these expectations from their teachers' behavior, and that these expectations influence students' own expectations and achievement (p. 246)". Teacher expectations most strongly predicted student achievement and perceptions in classes where students felt the greatest differential treatment. These findings, coupled with findings from studies about teacher perceptions, especially their perceptions of minority students' abilities, can provide insight to educators seeking to close the achievement gap as well as increasing the number of capable African American and Hispanic students in college preparatory courses.

Student Behaviors/Perceptions

Schooling conditions and practices, teacher behaviors, and student behaviors/perceptions all play a role in closing the achievement gap (Bennett, et al., 2004; Darling-Hammond; 1998; Lee, 2002). Educators and parents place a great deal of emphasis for closing the achievement gap on schooling conditions and teacher behaviors, often overlooking the importance of student behaviors and perceptions. Adams and Singh (1998) tested the direct and indirect effects of school learning variables on the academic achievement of African American 10th graders. Two important findings from their study were, prior achievement overwhelmingly influences later achievement and students' perceptions of teachers and teaching exerted a

statistically significant affect. When students perceived their teachers as caring, competent, and providing praise for their effort, they are more likely to be higher achievers (Adams & Singh, 1998).

A recent study conducted by Ross and Broh (2000) found prior achievement led to a student's sense of personal control, this sense of control had more of an impact on academic achievement than the role of self-esteem. Ross & Broh (2000) used data from the National Educational Longitudinal study for a cohort of students beginning in 8th grade to determine the effects of academic achievement on the student's self esteem by the time they were in 12th grade. Parents of the study-students were asked about parental support and involvement with their children's school lives. Findings from the study indicate that the earlier the students experienced academic achievement, the greater the impact on their belief that they were capable of rigorous work such as honors and Advanced Placement courses. Supportive relationships of parents was important in how a student felt about him or herself, but the greatest academic achievement came from students believing and demonstrating that they could achieve academically (Ross and Broh, 2000).

Another influence on youth culture and behavior cited in research are the beliefs families and communities have about racial/ethnic attitudes and their affect on academic achievement. Smith, Atkins, and Connell (2003) studied 98 African American fourth-graders to see if the way children felt about their racial-ethnic background lead to better behavioral and academic outcomes. What they found was that, "children whose teachers exhibited higher levels of racial-ethnic trust and perceived fewer barriers due to race and ethnicity evidenced more trust and optimism" (p. 159), which led to greater student achievement. Parent's racial-ethnic attitudes did have an impact on student

behaviors and feeling about their race or ethnicity, but the findings pointed to the greater impact teachers, school, and day care providers had on a students racial-ethnic attitude. This finding was due, in part, to the amount of time students spent in school and/or day care as compared to the time they spent with their parents. Important implications from this study point to teacher beliefs, attitudes, and behaviors and how students perceive those actions, as key factors in addressing the achievement gap.

Student-perceived teacher support is an important element for Hispanic and African American students and their academic achievement (Brewster & Bowen, 2004; Ford & Harris, 1996; MacLeod, 1987; Payne, 1994; Wayman, 2002). Relationships are especially important to marginalized students. Weinstein et al. (1982) did a study looking at students perceptions of teacher treatment of high and low achievers. Their findings demonstrated that students did perceive differential teacher treatment toward high and low achievers. With the fact that minority students are assigned in higher numbers in lower track classes (Oakes, 1985; Oakes & Guiton, 1995; Mickelson, 2005), Weinstein's findings are even more important to the purpose of this study. If minority students perceive their teachers care about them and see them as capable, then students' beliefs about their own academic abilities might increase.

Student attachment to school is influenced by their perceptions of teacher support and caring. Prudence Carter's study discussed in her book, *Keepin' it Real : School Success Beyond Black and White* (2005), found that school attachment and engagement was effected by students' perceptions of how teachers gave out rewards and sanctions according to who followed the dominate culture rules of the school or classroom. Students read the cues and signals that teachers send to them. Carter found that teachers did not realize the power of their interactions with students; however

students' perceptions of teacher actions could undermine a student's academic commitment and achievement. If the student perceived the teacher thought they were not smart and did not supported their future academic goals because of their ethnicity or socioeconomic background that had a negative impact on how the student performed and/or acted in that teacher's class. Carter's study also found that a students' achievement in school also was due to the degree to which students believed education was linked to jobs, success, and economic ability. This finding supported Michelson's research (1990) around concrete achievement attitude.

Summary

A large body of research directed at identifying and understanding factors influencing academic achievement has been reviewed. Many of the factors are outside of the influence or control of educators however, some are within educators influence. The need to close the academic achievement gap and the resulting economic gap for those who do not earn college degrees has created urgency for many educators. Developing a deeper understanding of the factors that influence minority students' college readiness while in high school may lead to the development of strategies and programs that increase student enrollment and success in college preparatory courses. This study was designed to explore the influence and relationship of ethnicity, achievement, and student attitudes and perceptions and how those factors affect college readiness.

CHAPTER THREE

METHODOLOGY

Currently, much attention is given to the inequitable outcomes for minority students in American public schools. New policies and programs have been enacted by educators and legislators to close the achievement gap. The federal policy of No Child Left Behind Act of 2001 (NCLB) was approved by legislators and signed into law by the president of the United States to rectify the achievement gap between white students and their non-white peers. NCLB requires that schools work to alleviate achievement gaps, where they exist.

Purpose of the Research

Attention to closing the achievement gap is not only a national educational issue but also an economic issue. As stated in chapter one, a person's level of educational attainment is a strong predictor of occupational status, earning power, and influences future occupational and socioeconomic status (Education Trust, 2003). Simply graduating from high school is not enough to substantively change the economic future of our students. Researchers have shown that the rigor of courses taken in high school is the strongest predictor of academic achievement, high school graduation, and enrollment in post-secondary education (ACT, 2004; Adelman, 1999). Regardless of ability, if a student performs poorly in high school, they generally have lower paying jobs and educational status than their higher achieving peers leading to long inequities in socioeconomic status. Identifying factors that affect minority students' readiness for college is one way to change a students' economic and occupational future. The following chapter provides the details of research methods, sampling, access, instrumentation, variables, data collection, statistical analysis and limitations.

The purpose of this study was to investigate the relationships among ethnicity, prior academic achievement, students' perceptions of their teachers' attitudes about their academic ability, and students' own achievement attitudes to identify factors that influence college readiness. To accomplish the purpose of this study, the following research questions were developed:

1. What are the differences between minority students and their non-minority peers on: a) academic performance, b) college readiness based on enrollment in college gateway courses and grade point average, c) achievement attitudes, and d) perceptions of their teachers' attitudes about their academic ability and performance?
2. How are academic performance, college readiness, achievement attitudes and perceptions of their teacher's attitudes about their academic ability and performance related to one another?
3. Is there any difference in the pattern and relative influence of these factors for minority students and non-minority students?

Research Methods

This study used quantitative methods. The design was Ex Post Facto because data were collected after variable interactions occurred (Creswell, 2003 & 2005; Shavelson, 1996). The correlational method was used permitting the researcher to analyze the relationships among a large amount of variables; allowing analysis on how several variables, either by them or in combination, might affect a particular pattern of behavior (Borg & Gall, 1989). Correlation statistics were used to investigate the relationship between variables involving student's perceptions of their teachers' attitudes about their academic ability, their own achievement attitudes and variables

involving students' academic performance (Borg & Gall, 1989; Shavelson, 1996). The concept of college readiness, as used in this study, included four components: (1) academic achievement, (2), academic self-perceptions, (3) perceptions of teacher expectations and (4) achievement attitudes.

Pearson's product-moment correlation was used to examine the relationship between demographic, academic performance and perception variables (Shavelson, 1996). Analysis of variances (ANOVA) was used to analyze difference in means between and within ethnic groups (Shavelson, 1996.) Multiple regression was used to determine which independent variable best predicted the dependent student outcome variable, college ready index. Multiple regression allowed the researcher to develop models identifying the relative influence and direction of demographic, academic performance and perception variables on college readiness factors (Foster, Barkus & Yavorsky, 2006; Borg & Gall, 1989).

Sample

District demographics. Two large districts in western Washington were selected for this study. These two districts were selected because the student populations in their high schools represented the socio-economic and ethnic diversity needed to address the variables in the study. The two districts range in size between 17,000 and 28,000 students. In the combined districts, there were seven large comprehensive high schools and three smaller non-traditional or alternative high schools. Both district's high school WASL scores have steadily increased over the last decade however scores for low income and minority students have increased to a lesser degree continuing to leave achievement gaps in both areas.

Sampling methods. Data for this study came from high school students in the class of 2009 in the two districts described above. The method of sampling was not random; it was purposeful in design to provide enough cases representing the ethnic and socio-economic diversity necessary to answer the research questions. In addition, the students in the class of 2009 were purposefully selected as the participant group for this study because they had recently taken the high school WASL assessment and had sufficient academic history that allowed the researcher to look at course selection patterns.

The initial sample size was the total combined population of the class of 2009 for both districts. One district had 2324 students and the other district had 1381 students in the class of 2009 for a total of 3,705. The large number of participants was needed due to the multiple variables that decrease the degree of freedom in statistical calculations (Shavelson, 1996). Students in the class of 2009 should have been in the eleventh grade based on the number of credits earned annually. Students in the class of 2009 from both districts were surveyed for this study in February of 2008.

Students who were in 11th grade were selected for this study because, by 11th grade, students have largely determined their academic course through the classes they have selected. Intensive English Language Learners (ELL) and Special Education students participated in the survey only if they were enrolled in basic education courses or advisory periods in which the survey was administered. Exclusion of these students was purposeful on the part of the researcher due to the nature of the survey and that the research questions focused on college readiness factors. Students in intensive ELL and Special Education classes in the 11th grade would have difficulty reading and

responding to the survey questions. All other grade 11 students were surveyed during the regular school day in English, U.S. History or Advisory periods.

Due to various factors, 2190 out of the 3,705 possible 11th grade students completed surveys. Of those, 1707 cases included complete survey, demographic, academic, and assessment information and were used for this study. Table 1 shows the ethnicity and socio-economic makeup of students participants who completed surveys from data provide by each district.

Table 1. *Student Demographics of Research Sample*

Characteristics		N	%
Ethnicity	Native American	23	1.1
	Asian	326	14.9
	African American	136	6.2
	Hispanic	126	5.8
	Multiracial	59	2.7
	Pacific Islander	28	1.3
	White	1322	60.4
	Missing	170	7.8
SES: Free/Reduced Lunch	No	1561	71.3
	Yes	474	21.6
	Missing	155	7.1

N= 2190

Access

Both districts required written research proposal requests to allow access to student participants. Once permission was granted then parent permission was

requested. Parents received a letter requesting permission for their student to participate in the study along with an explanation of the research. Parents and students had the opportunity to refuse to participate in the study. In addition, students were able to decline to participate on some or all of the survey.

Data Collection

Student records management systems in each district were used to provide demographic, 7th and High School WASL scores in reading, writing and math, cumulative grade point average (GPA), GPA by semester, course history, currently enrolled courses, cumulative credits earned to date, grade level, special program involvement and participation in the Free/Reduced Lunch program for each study participant. Survey data were also collected for each study participant. Individual student identifiers were used on each survey in order to correlate survey responses with student demographic and academic achievement data. After the initial correlation was made between survey, demographic and test data, randomly assigned numbers replaced individual student identification numbers.

Instrumentation

Survey Items. The survey instrument selected for this study, Appendix A, contained three parts: (a) demographic items; (b) items assessing student perceptions of the degree to which they experience teacher support; and (c) students' perceptions of school, achievement, and other educational variables. The items generated for the study instrument were from three valid survey instruments. The Teacher Support Scale Revised (TSS-R), developed by McWhirter, Rasheed, & Crothers (2007), was used to quantify students' perceptions of teacher's assessment of their academic performance. Survey items 1-25 encompass this scale. These survey questions collected students'

perceptions of the impact of teacher support. TSS-R survey questions used a Likert scale for response items. Higher scores indicate greater levels of teacher support. Student survey responses were analyzed using principle component analysis. Five scales were identified: accessible, feedback, invested, expectation, and positive regard. Student responses to the corresponding survey items for each scale were averaged to determine a scale score.

Portions of the School Attitude Assessment Survey developed by McCoach (2002 & 2003) were used to quantify students' academic self-perceptions, and motivation and self-regulation. Academic self-perception reflects students' attitudes about their confidence in their academic skills and their level of effort and persistence in the types of activities they select to engage in that will help them be successful academically (McCoach, 2002). Survey items 26-30 address academic self-perception. Motivation and self-regulation are related to initiating and maintaining goal-directed activities. Students' level of motivation effects whether or not they will begin and continue in goal-oriented behaviors. Self-regulation refers to the manner in which students develop and maintain thought-processes, behaviors and emotions directed at achieving their goals (McCoach, 2002). Survey items 31-34 address motivation and self-regulation. These surveys also used a Liker scale for student response. Student responses to survey items corresponding to student academic self-perception were averaged to determine scores for this scale. Survey response item averaging was repeated for items corresponding with motivation self-regulation to determine a scale score.

Mickelson's 1990 survey on attitude-achievement paradox provided the final survey questions around concrete achievement attitudes. Concrete Achievement

attitude was quantified using her survey questions. This survey also used a Likert scale for student responses. Survey items 35-40 corresponded to concrete achievement attitudes. Student responses to these identified questions were averaged to determine a scale score. Concrete achievement attitude represents the material world in which students live and their experience with respect to returns on education. This attitude represents their personal beliefs about education connected with their perception of what the effort and accomplishment in school will ultimately get them in a larger society. A higher number indicates a more positive concrete-achievement attitudes or an increased belief that education will result in increased future opportunities.

Finally, questions 41-50 were added to assess students' socio-economic status based on their parent's level of education and occupations. Free and Reduced lunch information was gathered for each student in the sample however, research indicates parent income, education and occupation are key factors establishing socio-economic status (Sirin, 2005).

Determination of survey scales. Principle component analysis was applied to the perception survey item responses to create a reduced number of scale variables representing related concepts (Shlens, 2005). Survey responses were analyzed using SPSS 14.0 ("SPSS for Windows," 2005). Varimax rotation with Kaiser normalization was applied to extract the principle components. The number of factors to be retained was determined by analysis of Eigenvalues. Eigenvalues were analyzed to determine the total variance which could be accounted for by each factor as shown in Appendix D. The data were shared with the original researcher to confirm the conclusions (P.Goldman, personal communication, June 23, 2008). By analyzing factor loading and consulting with the researcher who developed the survey, it was determined that

question 21 be deleted, question 23 be included in the feedback scale and question 20 be included in the invested scale as can be seen in Appendix E (Norusis, 2005b).

Through this process five scales were determined: accessible, feedback, positive regard, expectation and invested. Each scale refers to students' perceptions of their teachers. Each survey item began with the phrase "My teachers in my high school". The results of the principle component analysis are presented in Table 2. Pearson correlations were calculated for each of the scales (accessible, expectation, feedback, invested and positive regard) and for the Teacher Support Scale Revised as a whole (see Table 3). Each of the scales was strongly correlated. The lowest correlation was between feedback and expectation at .56**. All of the others ranged from .61 to .74 and all correlations were significant. As expected, the Teacher Support Scale Revised was highly correlated with each of the other scales.

Table 2. *Principle Component Analysis by Scale*

Scale	Survey Item: My teacher in my high school…	Loading
Positive Regard	enjoy interacting with me	.69
	think I am a hard worker	.64
	would tell other people good things about me	.62
	care about me as a person	.62
Accessible	try to answer my questions	.69
	answer my questions about how to do better	.67
	will listen if I want to talk about a problem	.62
	take the time to help me get better grades	.62
	are easy to talk to about school things	.55
Invested	challenge me to think about my future goals	.69
	are interested in my future	.62
	are helpful when I have questions about career issues	.55
	help me understand my strengths	.53
	support my goals for the future	.52
	push me to succeed	.38
Expectation	expect me to study	.72
	expect me to work hard in school	.69
	think I should go to college	.57
	believe I am capable of achieving	.46
	want me to do well in school	.44

Table 2 (continued). *Principle Component Analysis by Scale*

Scale	Survey Item: My teacher in my high school…	Loading
Feedback	let me know how to improve my grades	.67
	tell me if I'm not working hard enough	.63
	take time to get to know me	.49
	evaluate my work carefully	.54
	Extraction Method: Principal Component Analysis.	
	Rotation Method: Varimax with Kaiser Normalization.	

Table 3. *Intercorrelation of Scales*

	Accessible	Expectation	Feedback	Invested	Positive Regard	Teacher Support
Accessible	1	.66**(2178)	.63**(2166)	.74**(2178)	.64**(2171)	.87**(2178)
Expectation		1	.56**(2166)	.66**(2178)	.61**(2171)	.82**(2178)
Feedback			1	.70**(2166)	.60**(2165	.81**(2166)
Invested				1	.72**(2171)	.91**(2178)
Positive Regard					1	.83**(2171)
Teacher Support						1

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

Variables

Dependent Variable. The dependent variable for the study was a scale variable, college ready index. The college ready index is an aggregate variable based on the sum of a student's cumulative grade point average (GPA) and courses cumulative rating. Individual transcripts data were downloaded from student files and evaluated using course enrollment history and grades for grades in English, math, science and world language courses at the end of the first semester of grade 10 and grade 11. For each of these core courses, students were given a rating on a scale of 1 to 5 based upon the course taken. A rating of 5 indicated a course above grade level or at an honors, Advanced Placement or International Baccalaureate level. A rating of 4 indicated a course at grade level with a passing grade. A rating of 3 indicated a grade

level appropriate course taken with a corresponding support level course in the same discipline and with a passing grade. A rating of 2 indicated a below grade level course or a grade level course with a failing grade. A rating of 1 indicated a special education or English Language Learner level course.

This rating scale was applied to courses in English, math and science for each of the two years independently. Grade level was defined in math as geometry in grade 10 and Algebra II/Trigonometry in grade 11. Grade level was defined in English as the grade level appropriate general education English course offered in grade 10 and grade 11 respectively. Grade level in science was defined as biology in grade 10 and a third year laboratory based science in grade 11. Because colleges require two years of world language in the same language, world language courses were rated only once using the information from both years. A rating of 1 indicates that the student had not taken a world language course by grade 11. A rating of 2 indicates that the student had taken one year of the world language course by grade 11 and earned a failing grade. A rating of 3 indicates that the student had taken the first year of a world language in grade 11 or had taken two different first year languages by grade 11. A rating of 4 indicated that the student had taken year two of a world language by grade 11. A rating of 5 indicated that the student had taken year two of a world language by grade 10 and was enrolled in year three of the same language in grade 11.

Core course ratings in these seven areas were added to create an aggregate rating, the core courses cumulative rating, in which a minimum of 28 indicates grade level course enrollment in each of the seven areas and a maximum of 35, indicates above grade level course enrollment in each of the seven areas.

Student cumulative grade point average and core courses cumulative ratings were analyzed to develop an index incorporating both the level of the course and the student's overall academic performance as measured by the cumulative grade point average. Multiplying the grade point average and core courses cumulative rating was considered but discarded. In this model, assuming a 3.0 grade point average and grade level appropriate coursework as a minimum college requirement, a college ready student would have a minimum score of 84. However, this score could be achieved by a student who earned a 4.0 grade point average having taken only below grade level core courses. By adding the cumulative grade point average and the core courses cumulative rating, the number of students below standard in the minimum core courses cumulative rating was significantly diminished. There was one case in which a student earned a college ready index of 31 with a core courses cumulative rating of 27. This indicates that the student was below grade level or at grade level with a support class in one core area. This case amounts to .06% of the total cases. Similarly the small number of students with significantly higher core courses cumulative ratings but slightly lower grade point averages was diminished. A total of 117 students earned a college ready index of 31 with a cumulative grade point average less than 3.0. These cases amount to 6.85% of total cases. In addition, all of the students held grade point average above 2.0. Of these 117 cases, 65 students held grade point average in the 2.7-2.99 range which is equivalent to a B- average. Another 50 cases held grade point averages between 2.3 and 2.7 which is equivalent to a C+ average.

Independent Variables. Demographic, academic performance and assessment data were collected for analysis from student data files maintained by each district. Students' perceptions of their teachers' assessment of their abilities, students' academic

self-concept and students' concrete achievement attitude were collected using a survey instrument. Independent variables included:

(1) Measures of student achievement and academic performance: 7th and High School WASL scores in reading, writing and math, cumulative grade point average (GPA), GPA by semester, course history, currently enrolled courses, cumulative credits earned to date, grade level;

(2) Survey measures: teacher-perception scales, academic-self concept, motivation self- regulation and concrete achievement attitude and;

(3) Demographic information: ethnicity, English Language Learner (ELL) program, Special Education (SE) program, gender, date of birth, 504 program and students qualification for Free/Reduced Lunch program. To gain a more comprehensive view of students' socio-economic status, students were asked to respond to a number of survey questions indicating their parents' level of education and employment.

Some variables were recoded for the purpose of analysis. The student ethnicity variable was recoded into a series of dichotomous variables indicating the student's inclusion or exclusion in specific ethnic groups. In the original variable, students were identified as African-American, Hispanic, Asian, Pacific Islander, Native American, Multiracial, or White. This variable was then recoded into a collective variable which categorized students as non-Asian minority or Asian and White students collectively. Using the individual grades in the seven core areas, a variable was created which indicated the students' grade point average in core courses. An additional variable, total SES was created which combined students' responses to the survey questions about parent level of education and occupation with their participation in the federal Free and Reduced lunch program. In this study, total SES is used in statistical analysis because

it includes all three accepted dimensions of socio-economic status: parents' educational level, parent occupational status, and income (Sirin, 2005).

Analysis

Data for this study were quantitative. Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) 14.0. Data analysis in this study began by computing descriptive information about demographic, academic achievement and perception information.

Analysis of Variance (ANOVA) was used next to analyze the difference in means between and within groups to determine whether or not differences in the means were significant or were a result of sampling errors (Shavelson, 1996). Descriptive statistics for each of the variables is found in Table 4. Next, Pearson's correlational analysis was performed to assess the nature of the relationship between demographic, academic, perception and attitude variables collected or calculated for the study. Finally, analysis was completed using multiple regression which allowed the researcher to develop the models that represents the contribution of each of the independent variables on the dependent variable. One dependent variable, college ready index was used in the regression analysis. The independent variables used represented academic performance, student perception and attitude scales.

Table 4. *Descriptive Statistics*

Variable	N Valid	Mean	Std. Dev.	Variance
Accessible	2178	3.64	.72	.52
Expectation	2178	3.98	.67	.45
Feedback	2166	3.31	.76	.57
Invested	2178	3.35	.75	.56
Positive Regard	2171	3.41	.74	.55
Academic Self Perception	2158	3.73	.78	.61
Motivation Self Regulation	2148	3.65	.88	.78
Concrete Achieve Attitude	2138	2.69	.76	.57
Course Rating Cum	1806	25.11	7.47	55.77
Credits	1787	14.11	2.85	8.12
Cum GPA	1819	2.83	.79	.62
College Ready & GPA	1806	.37	.48	.23
College Ready Index	1806	27.95	8.01	64.19
7th WASL Reading	1511	399.26	64.35	4140.62
7th WASL Writing	1505	9.18	1.92	3.69
7th WASL Math	1510	399.59	63.08	3978.44
HS WASL Reading	1848	430.10	38.66	1494.51
HS WASL Writing	1857	20.48	3.03	9.17
HS WASL Math	1850	402.34	57.89	3351.24
Total SES	2031	4.86	3.11	9.65

Table 4 (continued). *Descriptive Statistics*

Variable	N Valid	Mean	Std. Dev.	Variance
African American	136	.07	.25	.06
Native American	23	.01	.11	.01
Asian	326	.16	.37	.14
Hispanic	126	.06	.24	.06
Multiracial	59	.03	.17	.03
Pacific Islander	28	.01	.18	.01
White	1320	.65	.48	.23
Non-Asian Minority	372	.18	.39	.15.
Minority	698	.35	.48	.23

Limitations

Limitations identify the potential weakness of a study (Creswell, 2004). Limitations found in this study include: generalizability, sample size for some demographic groups, and imprecise nature of data on ethnicity and SES.

Generalization may present a limitation because the student population studied represented a largely suburban population of students and may not reflect the population of students as a whole. The study did not include all potential grade 11 students in each of the school districts surveyed. Students omitted include students who dropped out prior to the second semester of their 11th grade year and students who were served mainly in English Language Learner or Special Education programs. The students who dropped out prior to the survey administration might have provided results different than those found especially due to the higher drop out rate for minority students

than White students. The combined drop out rate for the class of 2009 student sample for the two districts by ethnicity was: African American, 12.7%; Hispanic, 13.1%; Multiracial, 8.1%; Native American, 14.8%; Pacific Islander, 12.6%; Asian, 6.2% and White, 8.0%. Possibly, students who persisted in the school system to second semester of their 11th grade year may have a different perception of teacher support behaviors than those students who dropped out.

Sample size for African American, Hispanic, Native American, Pacific Islanders, and Multiracial were relatively small compared to the entire sample. The small sample size for some of the ethnic groups reduces inference and made controlling for differences due to chance, outliers, and unrelated effects difficult.

Data did not disaggregate different populations within each ethnic group. For example, the category African American contained African students, including newly arrived African immigrants. The White category included students newly arrived from the Middle East and Eastern Europe. Many of these students have had a different experience with public education than have the students who have grown up in the American public education system. Additionally, SES data is based on students enrolling in the federal Free and Reduced Lunch program. Data collected by the districts in the study indicate participation decline in this program the higher a student moves up the system. The assumption has been made than Free and Reduced Lunch status is under reported at the high school level.

CHAPTER FOUR

SIMILARITIES AND DIFFERENCES BETWEEN MINORITY AND WHITE STUDENTS

The purpose of this study was to investigate the differences between minority students and non-minority students' academic performance, achievement orientation, and perceptions of their teachers' attitudes about their academic ability to identify factors that influence college readiness. The study also was designed to analyze how these factors related to each other; and to determine whether there is a difference in the pattern and relative influence of these factors on college readiness. In this chapter, the results of the statistical analysis around academic performance, student attitudes and student perceptions are shared. Analysis results to determine if there is a difference in the pattern and relative influence of those factors on college readiness will be presented in Chapter Five.

Academic Performance Differences

In order to compare the response of different groups' academic performance Analysis of variance (ANOVA) was used to analyze the mean responses grouped by ethnicity. One-way ANOVA was calculated on academic variables against ethnicity to determine whether the mean scores of these variables differed significantly from each other by ethnic sample group. Based on initial analysis, another ethnic grouping was created to look at minority students as a group compared to their White peers. Asian students were excluded from that grouping based on their high mean scores. The new variable became Non-Asian Minority. Further discussion on findings for this unique ethnic grouping is found later in the chapter.

Several academic variables were selected to measure academic achievement. Those academic variables were cumulative GPA, course rating cumulative, college

ready index, total credits, 7th grade WASL results for reading, writing and math and high school WASL results for reading, writing and math. Ethnicity was broken down into seven distinct categories using state recognized definitions: African American, Asian, Hispanic, Native American, Pacific Islander, Multiracial, and White. The additional Non-Asian Minority grouping was added after initial analysis indicated an interesting pattern.

Achievement indicators were analyzed for school level achievement factors such as grades and specific course completion and for state level achievement factors represented by WASL results for 7th and high school assessments in reading, writing and math. At the school level, Cumulative GPA represents the cumulative grade point average of all courses a student took between their first semester of ninth grade and completion of their first semester of their eleventh grade year. The Credits variable represents the total number of credits earned in grades 9, 10 and first semester of grade 11.

Two additional school level variables were used to measure of the rigor of course taking and students' achievement in those courses. Several researchers have shown that the rigor of courses taken in high school is the strongest predictor of academic achievement, high school graduation, and enrollment in post-secondary education (ACT, 2004; Adelman, 1999). To indicate the specific level of courses a student took (below grade, on grade level or advanced) a course rating cumulative variable was created. The variable course rating cumulative represents ratings for courses students had taken in core courses needed for college entrance. Core courses were identified as English, math, science and foreign language. For each of these core courses, students were given a rating on a scale of 1 to 5 based upon the course taken. The higher the course rating the more rigorous the course was. A rating of 5 indicated a course above

grade level or at an honors, Advanced Placement or International Baccalaureate level. A rating of 4 indicated a course at grade level with a passing grade. A rating of 3 indicated a grade level appropriate course taken with a corresponding support level course in the same discipline and with a passing grade. A rating of 2 indicated a below grade level course or a grade level course with a failing grade. A rating of 1 indicated a special education or English Language Learner level course. Core course ratings in the seven areas were added to create an aggregate rating in which a minimum of 28 indicates grade level course enrollment in each of the seven areas and a maximum of 35 indicates above grade level enrollment in each of the seven areas. The final school level achievement indicator was college ready index. This variable is the sum of each student's cumulative grade point average (GPA) and core course cumulative rating. The more rigorous the courses and the higher the GPA indicate a higher mean score which suggests greater academic preparedness for college.

When ethnic groups were compared by academic achievement variables the data indicated that minority students achieve at different levels compared to White students and compared to individual ethnic groupings (see Table 5). However, two ethnic groups showed a different pattern from their minority peers, these two groups were Asian and Multiracial students. Asian students showed a consistent pattern of being the highest achieving ethnic group for school level achievement variables as compared to other ethnic groups that had the lowest mean scores (African American, Hispanic and Native American). For state level achievement variables, Asian students out performed all of their minority peers, except for Multiracial students, in all WASL areas that were found to be significant. This finding is not surprising as it mirrors state and national achievement

results (OSPI, 2006; NCES, 2007). Multiracial students mean scores were consistent with their Asian and White peers.

Table 5. *Academic Performance Outcomes by Ethnicity*

Ethnicity	Cum GPA	Credits	Course Rating Cumulative	College Ready Index
African American	2.46 (110)	13.62 (110)	21.46 (107)	23.95 (107)
Hispanic	2.57 (93)	13.82 (91)	21.62 (92)	24.29 (92)
Native American	2.32 (17)	13.08 (16)	21.59 (17)	23.90 (17)
Pacific Islander	2.54 (23)	12.93 (23)	20.65 (23)	23.19 (23)
Multiracial	2.96 (49)	14.81 (49)	27.13 (48)	30.08 (48)
Asian	3.07 (289)	14.21 (285)	27.53 (287)	30.60 (287)
White	2.84 (1224)	14.16 (1199)	25.22 (1218)	28.06(1218)
	F=12.74	F = 2.36	F= 16.00	F = 16.55
	Sig. = .00	Sig. = .03	Sig. = 00	Sig. = .00

Table 5 (continued). *Academic Performance Outcomes by Ethnicity*

Ethnicity	HS WASL Reading	HS WASL Writing	HS WASL Math	7th WASL Reading	7th WASL Writing	7th WASL Math
African American	410 (122)	18.8 (119)	375 (120)	386 (80)	8.9 (80)	374 (80)
Hispanic	410 (106)	18.9 (108)	380 (109)	394 (78)	8.3 (80)	385 (79)
Native American	420 (19)	19.5 (20)	391 (20)	397 (15)	8.2 (14)	361 (15)
Pacific Islander	418 (17)	18.9 (17)	386 (17)	405 (9)	9.3 (10)	400 (10)
Multiracial	434(52)	21.1 (50)	410 (51)	388 (35)	9.3 (35)	401 (223)
Asian	432 (301)	20.8 (303)	409 (301)	394 (223)	9.4 (221)	401 (223)
White	433 (1222)	20.7 (1231)	406(1222)	402 (1066)	9.2 (1063)	402 (1063)
	F=12.62	F=14.54	F= 9.66	F= 1.44	F= 4.69	F = 4.33
	Sig.=.00	Sig.=.00	Sig.=00	Sig. = .19	Sig. = .00	Sig. = .00

As stated previously, Asian students performed as high as or higher than their White peers and consistently out scored other minority groups. To account for this difference when looking at minority compared to White academic performance differences, the researcher created an additional ethnic grouping titled Non-Asian Minority to observe if minorities as an aggregate group minus Asian students would have a similar mean difference as each minority group individually against their non-minority counterparts in the sample. The Non-Asian Minority student grouping mean scores were more similar to the separate student groups of African American, Hispanic and Native American than to the Asian minority group (see Tables 5 & 6). Based on this data analysis, when the researcher refers to minority versus white achievement gap minority refers to the Non-Asian Minority ethnic groups. Table 6 provides a clear picture of the difference between White and minority academic achievement differences.

Table 6. *Academic Performance Outcomes by Non-Asian Minority*

Ethnicity	Cum GPA	College Ready Index	Course Rating Cumulative	Credits
Asian	3.07 (289)	30.60 (287)	27.53 (287)	14.21 (285)
White	2.84 (1224)	28.06 (1218)	25.22 (1218)	14.16 (1199)
	F=12.74	F = 16.55	F= 16.00	F = 2.36
	Sig. = .00	Sig. = .00	Sig. = 00	Sig. = .03
Non-Asian Minority	2.58 (292)	24.99 (287)	22.40 (287)	13.80 (289)
	F= 37.43	F= 48.40	F= 46.79	F= 13.80
	Sig. = .00	Sig. = .00	Sig. = .00	Sig. = .04

Table 6 (continued). *Academic Performance Outcomes by Non-Asian Minority*

Ethnicity	HS WASL Reading	HS WASL Writing	HS WASL Math	7th WASL Reading	7th WASL Writing	7th WASL Math
Asian	432 (301)	20.8 (303)	409 (301)	394 (223)	9.4 (221)	401 (223)
White	433 (1222)	20.7 (1231)	406(1222)	402 (1066)	9.2 (1063)	402 (1063)
	F=12.62	F=14.54	F= 9.66	F= 1.44	F= 4.69	F = 4.33
	Sig.=.00	Sig.=.00	Sig.=00	Sig. = .19	Sig. = .00	Sig. = .00
Non-Asian Minority	415 (316)	19.3 (314)	384 (317)	391 (217)	8.7 (216)	384 (219)
	F= 57.40	F= 63.33	F= 41.67	F= 4.46	F= 14.64	F= 15.16
	Sig. = .00	Sig. = .00	Sig. = .00	Sig. = .00	Sig. = .00	Sig. = .00

To look more closely at which ethnic group differs more or less to their White peers' data was analyzed by each individual ethnic group. A significant difference in mean scores was found between African American, Hispanic, Native American, and Pacific Islanders compared to Asian and White students (see Table 5) on all achievement variables. This pattern of difference appears to be consistent with what previous research indicates around differences in minority and white achievement (OSPI, 2006; NCES, 2007). Asian students consistently ranked at the top in all academic achievement variables followed by White students.

The purpose of this study was to investigate what factors affected college readiness, therefore of particular interest to this purpose is the findings for the course rating cumulative and college ready index variables. A significant gap in mean scores is evident between African American and Hispanic and their White and Asian peers for course rating cumulative and college ready index variables. Both of these variables represent aspects of course taking patterns. As evidenced on Table 5, there is a

significant difference in mean scores on these two variables between African American, Hispanic, Native American and Pacific Islander students compared to their White and Asian peers. The average mean difference is 5 points. Both course rating cumulative and college ready index measure the level of course rigor a student took in English, math, science and world language; courses required for college entrance. The data suggests that minority students (excluding Asian) may have a pattern of taking less rigorous courses than their White peers. This would be consistent with what researchers, like Oakes (1985) and Darling-Hammond (1998) found that minority students participate at higher rates in low-track courses than their White peers. The data may also suggest that they may earn lower grades than their White peers. The GPA difference would be consistent with state GPA averages (OSPI, 2006).

Achievement results for minority students follow a similar pattern for state level achievement variables represented by 7th and high school WASL variables as they did for school level achievement variables. Only one WASL variable was not found to be significant, that variable was 7th grade WASL reading. All other WASL variables indicate a consistently significant gap between African American, Hispanic and their White peers (see Table 5). This finding is not surprising; the pattern of achievement seen in the data analysis of the study sample is consistent with achievement results found at the state level in Washington on the high school WASL in reading where about 17% fewer African American and Hispanic students meet standard than their White peers; in Math about 30% fewer meet standard than their White peers (OSPI, 2006). National statistics show a similar pattern of White students scoring higher in both reading and mathematics than African American and Hispanic students on the National Assessment of Educational

Progress (NAEP) taken in eighth grade; these differences do not increase substantively over the next four years (NCES, 2007).

African American and Hispanic students' mean scores for the reading WASL at both 7th grade and high school show a significant gap of between 24 to 27 points even though the 7th grade WASL was not found to be significant (see Table 5). This same gap is found in the math WASL variable of between 26 to 35 points with the gap growing wider on the high school WASL. The achievement differences are also found for the WASL writing variable.

The findings for academic achievement differences suggest a pattern of disparity between White and minority students that is consistent with state and national data. The lack of difference between findings described for the study participants on achievement variables indicate that the sample taken from the two Washington school districts in this study are not fundamentally different from other districts across the nation.

Student Attitude Differences

In order to compare the response of differences around student attitudes about achievement orientation One-way ANOVA was used to determine whether the mean scores of these variables differed significantly. The student attitude variables were academic self-perception, motivation and self-regulation and concrete achievement attitudes. To more fully understand the findings for each of the attitude variables a description of each variable is provided below.

Academic self-perception variable represents a student's confidence in their perceived academic ability. The more confidence students are about their skills the more engagement and influence this attitude plays on the types of activities they select

around academic behaviors (Mc Coach, 2002). Academic self-perception also influences the level to which a student challenges themselves and how persistent they are with involvement in the activities they choose. Academic self-concept is a significant predictor for academic achievement (Lyon, 1993; Wigfield & Karpathian, 1991) and therefore is important to this study. Research suggests as much as one third of variance in achievement can be attributed to academic self-concept (Lyon, 1993). Survey questions that were used to measure academic self-perception included: I am confident in my scholastic abilities; I do well in school; I am confident in my ability to succeed in school.

Motivation self-regulation variable represents a student's ability to initiate and maintain goal directed behavior as well as their ability to start and sustain cognitions and behaviors that are consistently orientated toward obtaining their goals (McCoach, 2002). Actions related to this attitude include time management and having strategies to achieve goals. Survey questions relating to this variable included: I work hard in school; I am a responsible student; I complete my schoolwork regularly. In McCoach's 2002 study she found that academic self-perception and motivation self-regulation were the strongest predictors for academic achievement. McCoach stated, "Students that had high academic self-perceptions and motivation self-regulations can succeed despite being disenfranchises with school (2002, p.73).

Concrete achievement attitude variable represents a student's belief that education will result in future opportunity. Survey questions to measure this attitude were taken from a study done by Michelson in 1990 where she found that attitudes toward education are multidimensional. Students hold two sets of attitudes toward schooling. One set is based on a belief that education is a vehicle for success and

upward mobility – the American Dream. Michelson labeled that attitude abstract achievement attitude and because it is abstract it cannot predict achievement behaviors. The second set of attitudes is based on a persons experience with respect to return on education. Do wages relate to educational attainment level? She labeled this attitude concrete achievement attitude because it reflects the material world in which a student lives (Michelson, 1990). Concrete achievement attitude, based on the findings from her 1990 study, can predict achievement behaviors. Because this study is focusing on factors affecting college readiness, concrete achievement attitude questions were used to measure achievement behaviors. Survey questions for this attitude variable include: when our teachers give us homework, my friends never think of doing it; people in my family haven't been treated fairly at work no matter how much education they have; studying in school rarely pays off later with good jobs.

Of interest, academic self-perception was not found to be significant when measuring attitude differences between minority and White students (see Table 7). The significance for this achievement variable was .71. This finding could indicate that students in different ethnic groups believe they are capable of achieving and have a positive attitude about their abilities. This is of interest especially when looking at the academic achievement differences discussed earlier in this chapter that indicate there is a significant difference between ethnic groups on academic achievement indicators. Michelson (1990) refers to this difference as the attitude-achievement paradox.

The other two achievement orientation variables, motivation self-regulation and concrete achievement attitude, were found to show significant difference for all independent ethnic groups (see Table 7). Findings for motivation self-regulation show that all the minority groups had higher mean scores than their White peers (see Table

7). This is both interesting and promising. These findings indicate minority students believe they work hard and have skills and strategies needed to achieve academically.

Findings for the concrete achievement attitude variable found in Table 7 indicate significant differences for African American, Pacific Islander and Hispanic students compared to their White peers. These minority groups showed the highest mean scores which indicate they have a greater belief that education will not result in future opportunities. The lowest mean score was recorded by White students (2.62) indicating they have the highest belief of any student group in the study that education will result in future opportunities. This finding is not surprising as it is similar to the findings in Michelson's 1990 study which found that for Blacks, student perception of what their effort and accomplishment in school will get them in the larger society is influenced by the economic conditions they see with their families and peer groups. This finding is also not surprising for the African American and other minority groups as they are often highly represented in the lower socioeconomic status (free/reduced lunch) groups.

Table 7. *Achievement Orientation Outcomes by Ethnicity*

Ethnicity	Academic Self-Perception	Motivation Self-Regulation	Concrete Achievement Attitude
African American	3.80 (134)	3.67 (133)	2.83 (134)
Hispanic	3.71 (126)	3.75 (125)	2.92 (126)
Native American	3.58 (22)	3.63 (22)	2.69 (22)
Pacific Islander	3.66 (28)	3.80 (28)	3.19 (28)
Multiracial	3.76 (58)	3.69 (58)	2.66 (58)
Asian	3.79 (325)	3.80 (323)	2.72 (322)
White	3.73 (1305)	3.61 (1300)	2.62 (1289)
	F = .63	F= 2.45	F= 6.73
	Sig. = .71	Sig. = .02	Sig. = 00

Student Perception Differences

To compare the response of differences around student perceptions' of their teachers' attitudes and behaviors One-way ANOVA was used to calculate these variables against ethnicity to determine whether the mean scores of the perception variables differed significantly by ethnicity. The student perception variables were the survey scale scores for accessible, expectations, feedback, invested and positive regard. To more fully understand the findings for each of the perception variables a description of each variable is provided below.

Five student perception variables were drawn from survey questions designed by McWhirter, Rasheed, & Crothers (2007). Each of the survey questions began with the same stem, "My teacher in my high school ..." and was followed by a series of

statements. The first variable, accessible, represents students' perception that their teacher is available and open to their seeking support or information. Survey questions for this variable included: try to answer my questions, answer my questions about how to do better; will listen if I want to talk about a problem and; take the time to help me get better grades. The second variable, expectation, represents students' perceptions that teachers' covey positive expectations for a students' educational success. Survey questions for this variable included: expect me to study; expect me to work hard in school; think I should go to college; believe I am capable of achieving and; want me to do well in school. The third variable, feedback, represents the perception that teachers provide feedback to help the student know how they are doing academically and how they can improve. Survey questions for this variable included: let me know how to improve my grades; tell me if I'm not working hard enough; take time to get to know me and; evaluate my work carefully. The fourth variable, invested, represents perceptions that teachers engage in behaviors that are seen as helpful and geared toward a student's future success and achievement. Survey questions for this variable included: challenge me to think about my future goals; are interested in my future; help me to understand my strengths; and push me to succeed. And the final perception variable, positive regard represents perceptions that teachers are caring and emotionally connected and available to students. Survey questions for this variable included: enjoy interacting with me; think I am a hard work; care about me as a person and; would tell other people good things about me.

Table 8. *Student Perceptions by Ethnicity*

Ethnicity	Accessible	Expectation	Feedback	Invested	Positive Regard
African American	3.67 (136)	4.01 (136)	3.39 (134)	3.41 (136)	3.53 (135)
Hispanic	3.74 (126)	4.01 (126)	3.51 (126)	3.55 (126)	3.50 (126)
Native American	3.70 (23)	4.01 (23)	3.51 (23)	3.34 (23)	3.37 (23)
Pacific Islander	4.07 (28)	4.25 (28)	3.62 (28)	3.72 (28)	3.62 (27)
Multiracial	3.69 (59)	4.04 (59)	3.28 (58)	3.27 (59)	3.30 (59)
Asian	3.68 (326)	4.01 (326)	3.36 (325)	3.40 (326)	3.43 (325)
White	3.63 (1317)	3.98 (1317)	3.27 (1311)	3.32 (1317)	3.41 (1314)
	F=2.29	F= .94	F=3.61	F=3.52	F=1.36
	Sig.=.03	Sig.=.47	Sig.=.00	Sig.=.00	Sig.=.23

When calculated against ethnicity, significant difference in means were found for accessible, feedback, and invested (see Table 8). Findings for the accessible variable showed that all the minority ethnic groups had higher means than their White and Asian peers (see Table 8). Pacific Islanders had the highest mean (4.07) followed by Hispanic (3.74), Native American (3.7) and African American (3.67). White students had the lowest mean (3.63). Since the accessible variable represents informational teacher support this is an interesting finding. Perhaps this finding represents the need minority students have for information about how to improve academically and that the teacher provides them information that their families may not be able to provide due to limited experience with certain academic knowledge.

The same pattern of minority mean scores showing higher than their White peers was repeated for the feedback variable (see Table 8). Pacific Islanders had the highest

mean (3.62) followed by Hispanic and Native American (3.51) and African American (3.39). White students had the lowest mean (3.27). The feedback variable represents assessment support from teachers. Again, it is interesting to see that minority students indicate they receive this kind of teacher support to a greater degree than their White peers. It may be as Adams and Singh (1998) found in their research, when minority students felt their teachers cared about them and praised them that interaction affected their academic achievement in a positive way. Since providing assessment feedback can be a way of showing interest and care, minority students may have responded more favorable to the survey questions than their White peers for this variable.

The invested variable, representing helping/supportive behaviors from teachers showed the following findings. Pacific Islanders again had the highest mean (3.72) followed by Hispanic (3.55) African American (3.41) students. White students again had the lowest mean score (see Table 8). This finding represents minority students' perceptions that their teachers provide them support and interest to a greater degree than their White peers. This is interesting because many researchers have found just the opposite; (Adams & Singh, 1998; Ferguson, 2003; Payne, 1992) more often minority students are not provided the same level of support as their White peers.

Of greatest interest is that the variables expectation and positive regard were not found to have significant difference in means. Expectation represents attitudinal support teachers provide and positive regard represents emotional teacher support for students. This finding is very different than what other researchers have found about the impact of teacher perceptions and behaviors on different ethnic groups (Smith, Atkins & Connell, 2003; Ferguson, 2003; Jussim et al., 1996). That there was no significant difference may indicate that teachers are doing a better job providing equal support to all students

regardless of race in the two Washington school districts used in this study. This lack of significant differences between minority students and their White peers on expectations and positive regard may also indicate that students from different areas of the country may have a different understanding of what the questions represent.

Relationship of perceptions, attitudes and academic performance

Academic performance variables were correlated with student attitude and perception variables to examine the relationship between actual achievement and achievement characteristics (see Table 9). For sample size information for correlations in Table 9 see Appendix G. Academic performance variables included 7th grade WASL results in reading, writing and math, high school WASL results in reading, writing and math, course rating cumulative, credits, core GPA and cum GPA. Student perception variables included scale scores for accessible, expectation, feedback, invested and positive regard. Student attitude variables included scale scores for academic self perception, motivation self regulation and concrete achievement attitude.

The accessible variable correlations showed limited and relatively weak significance for only three achievement outcomes, credits (r=.10**), core GPA (r=.12**) and cumulative GPA (.09**). There was no significant correlation with course rating cumulative or any of the 7th or high school WASL assessments. It is of interest that the accessible variable which represents informational teacher support for responding to questions and taking time to assist students in getting better grades showed no correlation for WASL scores or course rating cumulative. This finding may help explain, in part, why there is an academic achievement gap between minority and White students.

For the expectation variable, correlations were somewhat stronger (see Table 9) for WASL scores. There were significant correlations for 7th WASL writing (r=.16**), 7th WASL math (r=.06*), high school WASL reading (r=.07**) and high school WASL math (r=.10**). Expectation was more strongly correlated to core GPA (r=.19**) and weakly correlated with course rating cumulative (r=.11**). This variable represents teachers conveying positive expectations for educational success. It makes sense therefore that there are significant correlations for most of WASL variables, core GPA and course cumulative rating as these are all variables that factor strongly into college readiness.

Feedback showed weak significance and negative correlation with 7th WASL writing (r=-.08**), 7th WASL math (r=-.07**) and high school writing (r=-.12**). Feedback also showed a negative correlation with course rating cumulative (r=-.10**). The only achievement variable that showed significance and was positively correlated with feedback was high school WASL reading (r=.11**) and that correlation was relatively weak. Since feedback represents teacher assessment support, the results may represent a student feeling judgment rather than support when the teacher provides suggestions on how to improve their grades or lets a student know if they are not working hard enough. The findings may suggest that students perceived the survey questions to mean something different than the author may have intended.

The invested variable representing encouragement and helping behaviors on the part of the teacher showed a positive but weak significant correlation with credits (r=.09**), core GPA (r=.07**) and high school WASL reading (r=.11**). Correlations were negative and weak for invested with 7th WASL reading (r=-.07**), 7th WASL math (r=-.06*) and high school WASL writing (r=-.08**). This negative correlation suggests that teachers helping behaviors hindered rather than helped students achieve on those

academic variables. What is also of interest is that there was no significant correlation with course rating cumulative. This finding could suggest that students may not feel their teachers demonstrate much interest in their future goals and/or provided support to reach their goals. Several researchers have found that teacher expectations do affect academic achievement (Bennett, et al., 2004; McKenzie & Scheurich, 2004; Smith, Atkins & Connell, 2003).

The final perception variable, positive regard, showed strong correlation to one academic variable. The correlation between positive regard and core GPA (r=.22**). However, correlations with this variable and WASL scores showed either no significance or with one variable, 7th WASL reading, a weak and negative correlation (r=-.05*). Positive regard represents student perceptions that teachers are caring and emotionally connected and available to students. The fact that there were so few significant findings for WASL variables may indicate that students did not see their teachers demonstrating they cared about their success on these assessments. Since there were positive correlations for credits (r=.14**) and GPA variables, which teachers have more influence on, it could also suggest that teachers may have displayed some negative attitudes about the WASL assessments.

Stronger correlations were found between student attitude variables and achievement variables than were found between perception variables and achievement variables. Concrete achievement attitude showed significant correlation with each academic variable. For nine of the ten achievement variables the correlation was relatively strong (see table 9), with the highest correlation of any of the perception or attitude variables with course rating cumulative (r=.32**). This appears to be an important finding because course rating cumulative represents the rigor of the courses a

student has taken. The higher the rigor of courses taken the better the chances a student will be ready for college (Oakes, 1985; Carbonaro, 2005). Concrete achievement attitude is the variable that reflects a students experience with respect to returns on their education. The higher the correlation with this variable the stronger the belief the student has that education will provide them opportunities for their future.

Academic self-perception also showed strong and positive correlations with nine of the ten academic variables (see Table 9). The only variable not showing a significant correlation with academic self-perception was 7th WASL reading (r=-.01). All other WASL variables showed a significant correlation of between r=.16** and r=.22**. Since academic self-perception represents the level of confidence a student has about their academic ability and their persistence in engaging in activities that will assist them in achieving, it is not surprising to see the strength of the correlations with the WASL variables. However, it is interesting that 7th WASL reading was not significant and in fact had a negative correlation. The same high level of significant correlation was also evident for core GPA (r=.43**), cum GPA (r=.40**), credits (r=.18**) and course rating cumulative (r=.26**). Again, this is not surprising if a student has a strong academic self-perception they would more likely engage in behaviors that help them to sustain that belief.

Motivation self-regulation showed a similar pattern as academic self-perception of correlation and strength with achievement variables. This variable also had a negative and not significant correlation with 7th WASL reading (r=-.03). The correlation with the other WASL variables was positive and slightly weaker than findings for academic self-perception (see Table 9). Motivation self-regulation represents the initiating and maintaining of goal directed behavior. With that understanding, it is not

surprising that students who are motivated and self-regulated would work to be successful on state and local assessments. The correlation for motivation self-regulation and core GPA was the highest of any of the correlation findings (r=.44**) and only slightly lower but still very strong for cum GPA (r=.40**). Course rating cumulative had a positive correlation of r=.20** which indicates students are motivated to take college track or above courses and demonstrate behaviors to keep them on track for meeting college entrance requirements.

Of particular interest is the difference in strength and significance between the student attitude variables for 7th grade WASL reading and high school WASL reading (see Table 9). The 7th grade WASL reading correlations show negative and not significant correlation results for academic self-perception (r=-.01), motivation self-regulation (r=-.03) and a weak positive correlation with concrete achievement attitude(r=.06*). Contrast those results with correlation strength and significance for high school WASL reading; academic self-regulation had a positive correlation significantly higher (r=.16**) than that found for the 7th grade variable. Motivation self-regulation again was positive and much stronger (r=.09**) than found with the 7th grade correlation and concrete achievement attitude (r=.26**) was almost five times as strong. This may indicate that when the WASL counted for graduation student attitudes about how well they did on that assessment increased. If this were the case, it would then be expected to see this same pattern of change with the other WASL variables (writing and math). However, this same pattern of change between 7th and high school WASL was not found for either math or writing to the same level of difference. In fact, motivation self-regulation correlation strength for WASL writing from 7th to high school results decreased in writhing from 7th WASL (r=.17**) to high school WASL (r=.13**). There

was a small increase of correlation strength found with the 7th math WASL (r=.07*) to high school WASL math (r=.11**).

Table 9. *Correlation of Outcomes by Attitudes*

	WASL 7th Reading	WASL 7th Writing	WASL 7th Math	WASL HS Reading	WASL HS Writing	WASL HS Math
Accessible Scale	-.05	.02	.01	.01	-.03	.01
Expectation Scale	-.01	.16**	.06*	.04	.07**	.10**
Feedback Scale	-.04	-.08**	-.07**	.11**	-.12**	-.04
Invested Scale	-.07**	-.04	-.06*	.11**	-.08**	-.04
Positive Regard Scale	-.05*	.05*	.01	-.01	.02	.03
Academic Self Perception Scale	-.01	.21**	.18**	.16**	.18**	.22**
Motivation Self-Regulation Scale	-.03	.17**	.07*	.09**	.13**	.11**
Concrete Achievement Attitude Scale	.06*	.27**	.25**	.26**	.26**	.21**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 9 (continued). *Correlation of Outcomes by Attitudes*

	Credits	Core GPA	Cum GPA	Course Rating Cumulative
Accessible	.10**	.12**	.09**	.01
Expectation	.14**	.19**	.18**	.11**
Feedback	.05	-.01	-.05*	-.10**
Invested	.09**	.07**	.04	-.04
Positive Regard	.14**	.22**	.18**	.05
Academic Self-Perception	.18**	.43**	.40**	.26**
Motivation Self-Regulation	.16**	.44**	.41**	.20**
Concrete Achievement Attitude	.17**	.27**	.27**	.32**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

College Readiness and Academic Performance

Pearson's correlations were also done for college readiness. College readiness was quantified as the variable college ready index. Students' cumulative grade point averages and their courses cumulative ratings were added together to create an index incorporating the level of the core courses the student took and the student's over all academic performance as measured by their cumulative grade point average. When correlated with academic performance on 7th and high school WASL variable for reading, writing and math (see Table 10), high school WASL writing had the strongest correlation (r=.61**) followed by 7th WASL writing (r=.55**). This finding was surprising due to the fact that there has been extensive research done indicating the level and ability in math is the strongest indicator for success and persistence in college. Perhaps, writing correlated stronger than math for the college ready index correlations in this study because the WASL assessment measures not only content knowledge but a

students ability to apply that content knowledge by showing their thinking (processing) about how they arrived at their answer.

Table 10. *Correlation of College Readiness by WASL Results*

	College Ready Index	G7 WASL Reading	G7 WASL Writing	G7 WASL Math	HS WASL Reading	HS WASL Writing	HS WASL Math
College Ready Index	1 (1806)	.11** (1373)	.55** (1369)	.48** (1374)	.52** (1692)	.61** (1698)	.50** (1695)
G7 WASL Reading		1 (1511)	.15** (1504)	.13** (1507)	.16** (1442)	.10** (1447)	.08** (1437)
G7 WASL Writing			1 (1505)	.51** (1502)	.51** (1438)	.61** (1443)	.34** (1432)
G7 WASL Math				1 (1510)	.42** (1441)	.44** (1447)	.36** (1436)
HS WASL Reading					1 (1848)	.51** (1827)	.39** (1811)
HS WASL Writing						1 (1857)	.41** (1819)
HS WASL Math							1 (1850)

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

A summary of the findings from the correlations are presented in Table 11. The positive significant relationships are indicated with a “+” and the negative significant relationships are indicated with a “-“. Student attitude variables had the highest number of correlations. Concrete achievement attitude was correlated with all ten achievement variables. Academic self-perception and motivation self-regulation were correlated with nine of the ten achievement variables. Of the perception variables, expectation correlated with eight of the ten variables. The other perception variables were correlated less and often with negative correlations.

Table 11. *Summary of Correlations for 0utcomes by Attitudes*

	Accessible	Expectation	Feedback	Invested	Positive Regard	Academic Self-Perception	Motivation Self-Regulation	Concrete Achievement Attitude
7th Reading				-	-			-
7th Writing		+	+		+	+	+	+
7th Math		+	-	-		+	+	+
HS Reading			+	+		+	+	+
HS Writing		+	-	-		+	+	+
HS Math		+				+	+	+
Course Rating		+	-			+	+	+
Cum. Credits	+	+		+	+	+	+	+
Core GPA	+	+	-	+	+	+	+	+
Cum GPA	+	+	-		+	+	+	+

Note: Positive significant relationships indicated by "+". Negative significant relationships indicated by "-"

CHAPTER FIVE

RELATIONSHIPS BETWEEN ETHNICITY, ATTITUDES, OUTCOMES AND COLLEGE READINESS

This chapter will focus on the analysis of the various academic achievement, student attitude and perception factors collected for this study and how they affect college readiness for minority students. As discussed in an earlier chapter, there is a gap between minority student entrance and persistence in college when compared to their White and Asian peers. Researchers have shown that a critical factor in this disparity is the lack of preparedness or readiness of minority high school graduates for post secondary education. Some of the strongest predictors of college attendance and completion, especially for minority and low-income students are academic preparation, social support, and access to information (Adelman, 1995; Martinez & Klopott, 2005). This chapter provides information to asses the percentage of variance explained by each of the independent variables associated with student perceptions and attitudes, and academic performance on the dependent variable pertaining to college readiness. Multiple regression analysis identifies the contributions that each of the independent variables entered into the model provides for the dependent variable while controlling for all other independent variables. Stepwise regression was the method conducted to determine the predictor (independent) variables with the best estimate, or predictive power for the selected criterion (dependent) variable.

The dependent variable used in the regression models was college ready index. The college ready index is the students' cumulative grade point average and their courses cumulative ratings added together to create an index incorporating the level of rigor of the core courses the student took and the student's over all academic

performance as measured by their cumulative grade point average. The independent variables selected for the regression models were 7th grade WASL scores in reading, writing and math, high school WASL scores in reading, writing and math, each of the perception scales; accessible, expectation, feedback, invested and positive regard, the student attitude scales of academic self-perception, motivation self-regulation and concrete achievement attitude. Because individual course ratings and the GPA variables are included in the calculation of college ready index, they were omitted from the model.

In total, eleven stepwise linear regressions were conducted. The statistics presented from the stepwise regression include model summary data, specifically R, R^2, adjusted R^2, F value, and significance of F. The variable statistics include the standardized Beta coefficient (β), the t value and the significance of t value. The first seven models were run independently, each time adding a unique independent ethnic variable to observe the relative impact of that specific ethnicity on the over all model (see Tables 12-18). An additional three regressions were run using only cases specific to a unique ethnic group or combinations of ethnic groups (see Tables 19-21). And a final regression was run adding total SES (see Table 22).

For each of the models, studentized residuals were calculated and evaluated to identify outlier cases (Allison, 1999); student residual scores greater than 2.5 or less than -2.5 were omitted. Influence statistics were calculated and evaluated to identify cases which might unduly influence the outcome regression. None were identified in any of the models. Each of the models was run again with the outlier cases omitted. Due to the fact the independent variables varied greatly in scale and were not normally

distributed, variable raw scores ere converted to standard scores before running the regressions (Shavelson, 1996).

The seven models run with an ethnic variable had an adjusted R^2 of .52 for African American, Multiracial, Native American, and Pacific Islander, an adjusted R^2 of .53 for Hispanic and White, and an adjusted R^2 of .54 for Asian indicating the models account for about 52% to 54% of the variation in college ready index (see Tables 12-18). Similar patterns of significance were found in all seven models even with a different ethnicity for a variable.

Achievement Relationships

When analyzing the seven regressions with a different ethnicity as the only variable difference, common results were found in each multiple regression model run using a unique ethnicity. The variables of 7th grade WASL writing and math, high school WASL reading, writing and math showed significance in each model. In addition, the three attitude variables; academic self-perception, motivation self-regulation and concrete achievement attitude all showed significant results in each model. These findings are consistent with findings from ANOVA and Pearson's correlation statistical analysis presented in the previous chapter. Of interest is that 7th grade WASL reading did not show significance for any of the models where all the other WASL variables were significant. However, this is consistent with the findings of the ANOVA and Correlation statistical analysis presented in Chapter Four.

The Beta coefficients for significant variables in each of the models were nearly identical with only a few exceptions. The largest coefficient was found for high school WASL writing score (β = .30) for models with African American, Hispanic, Multiracial, Native American and Pacific Islander and almost as large (β = .29) for Asian and White

(see Tables 12-18). This finding was consistent with the correlation findings for college ready index by WASL cores. As briefly discussed in Chapter Four, this is an interesting finding because the importance of writing as a predictor for college preparedness has been absent from most research findings. High school WASL reading had the next largest coefficient (β = .16) for all ethnicity models except the model run with African American (β = .15) which was only slightly less powerful. High school WASL math had coefficient strength of β = .16 for the model with African American; β = .15 for models with Hispanic, Multiracial, Native American, Pacific Islander and White and; β = .14 for Asian (see Tables 12-18). 7th grade WASL writing showed a similar yet smaller Beta coefficient (β = .12) for African American, Asian, Multiracial, Native American and White and a β =.11 for Hispanic, and Pacific Islander for each of the models run. For the coefficient 7th grade WASL math, the model with White (β =.13) was .01 higher than in the models for with the other ethnicity variables.

Perception Relationships

There was only one perception variable that was found to be significant in each of the models. The expectation variable was the only perception variable found to contribute to college ready index for each individual ethnic group. This is interesting and not surprising as expectation represents students' perceptions of teachers' conveyance of positive expectations for educational success. Expectation had a significant yet relatively small Beta coefficient (β = .06) in all models run with an ethnic variable except for the Asian model (see Table 13) which showed a significance of .06. Since college readiness index represents a student's academic readiness for furthering their education, which in turn could provide additional opportunities for their future;

finding that expectation contributes to college readiness appears to make sense even if the relative influence is weak. What is interesting is that expectation was not found to be significant for the Asian student group. Possible cultural influence would need to be explored to explain this finding.

There was only one other student perception variable that was found to be significant and it was only found in the model where the Native American variable was added (see Table 16). The Native American student group had an additional perception variable, accessible, that showed a contribution however, that contribution was weak and negative ($\beta = -.03$). The negative finding for accessible for Native American students indicated a negative contribution toward college readiness. Accessible variable represented students' perceptions that their teachers are available and open to their seeking support or information. This is a significant finding as it may help to explain factors that hinder Native American students from academic success in high school.

It was not surprising that student perception scales on the whole, failed to show significance as they showed the weakest correlation with the college ready index and with each other. What is interesting is that findings from this study indicating teachers' perceptions don't appear to impact college readiness for minority or White students is very different from what most educational researchers have found.

Attitude Relationships

In all seven of the models run with ethnic variables, student attitude variables showed a weak but significant contribution to the dependent variable, college ready index. There was only a small difference in Beta values (.01) between certain models

(see Tables 12–18). Motivation self-regulation showed the largest coefficient (β = .10) of the three attitude variables. African American, Hispanic, Multiracial, Native American and Pacific Islander all had the same Beta (β = .10). White and Asian were lower by .01 (see Tables 12-18). The student attitude variable of motivation self-regulation represented a student's belief that they worked hard in school, concentrated on schoolwork, were responsible and regularly completed school work. This finding is consistent with previous research by McCoach (2002) that indicated student motivation self-regulation was a strong predictor of academic achievement.

Academic self-perception had a weak positive significant contribution to college ready index (see Tables 12-18). For all ethnic groups academic self-perception had a β = .08, Native American was slightly lower with a β = .07. The academic self-perception variable represented a student's belief that they are confident in their scholastic abilities, learn new concepts quickly, and are confident in their ability to succeed in school. This finding is consistent with other researchers (Ross & Broh, 2000; McCoach, 2002) findings that high academic self-concept was a strong predictor of academic achievement.

The final attitude variable, concrete achievement attitudes also showed a weak positive significant contribution to college ready index. The Beta of .08 was found for all ethnic models except for Hispanic (β = .07). Concrete achievement attitudes represent a student's belief that people like them are not always paid or promoted according to their education, that all they need to learn for their future is to read, write, and make change, and studying in school rarely pays off later with good jobs. This finding was consistent to correlational findings in the previous chapter.

Ethnicity Relationships

One of the most interesting findings was the finding for ethnicity's influence on college ready index (see Tables 12-18). Finding of negative contribution for ethnicity on college readiness would be consistent with the body of research showing low numbers of minority students attending college as compared to their White peers (NCES, 2007). In the regressions run, there were two ethnicity groups that showed that ethnicity resulted in a negative contribution to college ready index. Hispanic (see Table 14) had a weak negative contribution of $\beta = -.05$ which was not a surprising finding. What was surprising was that White students (see Table 18) also showed a negative contribution ($\beta = -.08$) which was even stronger than Hispanic. This finding would seem to be inconsistent with previous research about the higher percentage of White graduating from high school and attending college. For the other regressions run by ethnicity, African American, Native American, Pacific Islander and Multiracial, ethnicity was not found to have significant contribution to college readiness index. This too, is a finding that is inconsistent with the body of research about minority achievement and college entrance and persistence. Only one ethnicity, Asian, showed a positive and significant contribution to college ready index. This finding is consistent with previous research showing the high rate of Asian students attending and persisting in college.

Table 12. *Multiple Regression of College Ready Index using African American*

Variable	Beta	t	Sig. t
(Constant)	-.15	-7.54	.00
7th WASL Reading	.01	.46	.64
7th WASL Writing	.12	4.34	.00
7th WASL Math	.12	5.17	.00
HS WASL Reading	.15	6.15	.00
HS WASL Writing	.30	11.47	.00
HS WASL Math	.16	7.12	.00
Accessible	-.03	-0.79	.43
Expectation	.06	2.02	.04
Feedback	-.03	-1.20	.23
Invested	-.02	-.60	.56
Positive Regard	-.01	-.23	.82
Academic Self-Perception	.08	2.98	.00
Motivation Self-Regulation	.10	4.12	.00
Concrete Achievement Attitudes	.08	3.68	.00
African American (yes = 1)	-.01	-.33	.74
R	.73		
R^2	.53		
Adjusted R^2	.52		
F	94.01		
Sig. F	.00		
N	1270		

Table 13. *Multiple Regression of College Ready Index using Asian*

Variable	Beta	t	Sig. t
(Constant)	-.15	-7.59	.00
7th WASL Reading	.02	.80	.42
7th WASL Writing	.12	4.50	.00
7th WASL Math	.12	5.30	.00
HS WASL Reading	.14	6.07	.00
HS WASL Writing	.29	11.41	.00
HS WASL Math	.16	7.18	.00
Accessible	-.02	-.70	.48
Expectation	.05	1.89	.06
Feedback	-.04	-1.23	.21
Invested	-.02	-.62	.54
Positive Regard	-.00	-.10	.92
Academic Self-Perception	.08	3.20	.00
Motivation Self-Regulation	.09	3.83	.00
Concrete Achievement Attitudes	.08	4.00	.00
Asian (yes = 1)	.12	6.43	.00
R	.74		
R^2	.54		
Adjusted R^2	.54		
F	99.85		
Sig. F	.00		
N	1270		

Table 14. *Multiple Regression of College Ready Index using Hispanic*

Variable	Beta	t	Sig. t
(Constant)	-.15	-7.53	.00
7th WASL Reading	.01	.47	.64
7th WASL Writing	.11	4.174	.00
7th WASL Math	.12	5.26	.00
HS WASL Reading	.15	6.26	.00
HS WASL Writing	.30	11.53	.00
HS WASL Math	.16	7.10	.00
Accessible	-.03	-79	.43
Expectation	.06	2.00	.05
Feedback	-.03	-1.11	.27
Invested	-.02	-.61	.54
Positive Regard	-.01	.22	.83
Academic Self-Perception	.08	2.99	.00
Motivation Self-Regulation	.10	4.19	.00
Concrete Achievement Attitudes	.07	3.61	.00
Hispanic (yes = 1)	-.05	-2.39	.02
R	.73		
R^2	.53		
Adjusted R^2	.53		
F	94.80		
Sig. F	.00		
N	1270		

Table 15. *Multiple Regression of College Ready Index using Multiracial*

Variable	Beta	t	Sig. t
(Constant)	-.15	-7.53	.00
7th WASL Reading	.01	.48	.64
7th WASL Writing	.12	4.34	.00
7th WASL Math	.12	5.20	.00
HS WASL Reading	.15	6.12	.00
HS WASL Writing	.30	11.46	.00
HS WASL Math	.16	7.15	.00
Accessible	-.03	-.79	.43
Expectation	.06	2.01	.04
Feedback	-.03	-1.19	.23
Invested	-.02	-.57	.57
Positive Regard	-.01	-.23	.82
Academic Self-Perception	.08	2.98	.00
Motivation Self-Regulation	.10	4.09	.00
Concrete Achievement Attitudes	.08	3.69	.00
Multiracial (yes = 1)	.00	.22	.83
R	.73		
R^2	.53		
Adjusted R^2	.52		
F	94.00		
Sig. F	.00		
N	1270		

Table 16. *Multiple Regression of College Ready Index using Native American*

Variable	Beta	t	Sig. t
(Constant)	-.15	-7.52	.00
7th WASL Reading	.01	.47	.64
7th WASL Writing	.12	4.34	.00
7th WASL Math	.12	5.20	.00
HS WASL Reading	.15	6.15	.00
HS WASL Writing	.30	11.45	.00
HS WASL Math	.16	7.16	.00
Accessible	-.03	-.78	.04
Expectation	.06	1.99	.05
Feedback	-.03	-1.18	.24
Invested	-.02	-.57	.57
Positive Regard	-.01	-.27	.79
Academic Self-Perception	.07	2.94	.00
Motivation Self-Regulation	.10	4.15	.00
Concrete Achievement Attitudes	.08	3.70	.00
Native American (yes = 1)	-.02	-1.04	.30
R	.73		
R^2	.53		
Adjusted R^2	.52		
F	94.14		
Sig. F	.00		
N	1270		

Table 17. *Multiple Regression of College Ready Index using Pacific Islander*

Variable	Beta	t	Sig. t
(Constant)	-.15	-7.55	.00
7th WASL Reading	.01	.47	.64
7th WASL Writing	.11	4.27	.00
7th WASL Math	.12	5.21	.00
HS WASL Reading	.15	6.18	.00
HS WASL Writing	.30	11.51	.00
HS WASL Math	.16	7.16	.00
Accessible	-.03	-.81	.42
Expectation	.06	2.01	.05
Feedback	-.03	-1.15	.25
Invested	-.02	-.60	.55
Positive Regard	-.01	-.20	.85
Academic Self-Perception	.08	2.99	.00
Motivation Self-Regulation	.10	4.10	.00
Concrete Achievement Attitudes	.08	3.74	.00
Pacific Islander (yes = 1)	.02	1.15	.25
R	.73		
R^2	.53		
Adjusted R^2	.52		
F	94.18		
Sig. F	.00		
N	1262		

Table 18. *Multiple Regression of College Ready Index using White*

Variable	Beta	t	Sig. t
(Constant)	-.15	-7.61	.00
7th WASL Reading	.01	.68	.50
7th WASL Writing	.12	4.43	.00
7th WASL Math	.13	5.30	.00
HS WASL Reading	.15	6.20	.00
HS WASL Writing	.29	11.45	.00
HS WASL Math	.16	7.30	.00
Accessible	-.03	-.82	.41
Expectation	.06	1.93	.05
Feedback	-.03	-1.23	.22
Invested	-.02	-.47	.64
Positive Regard	-.00	-.15	.88
Academic Self-Perception	.08	3.11	.00
Motivation Self-Regulation	.09	3.81	.00
Concrete Achievement Attitudes	.08	3.94	.00
White (yes = 1)	-.08	-3.96	.00
R	.73		
R^2	.54		
Adjusted R^2	.53		
F	96.21		
Sig. F	.00		
N	1270		

The next three regressions were run using only cases specific to a unique ethnic group or combinations of ethnic groups (see Tables 19-21). These models look at the specific impact of the independent variables only for that unique ethnic group or combination of ethnic groups on college ready index. The N size for each model is relatively small (N=52 to N=355) compared to the previous models (N=1270) where ethnicity was used as a variable. The results for these regression models show a different pattern of significance than when ethnicity was used as a variable rather than a factor to separate into unique sample groupings.

The regression model for college ready index by African American showed only three significant variables; high school WASL writing, positive regard and concrete achievement attitude (see Table 18). The largest coefficient was found with positive regard (β = -.50), followed by high school WASL writing (β = .43) and concrete achievement attitude (β = .30). The adjusted R^2 was .55 indicating that the model accounted for about 55% of the variation in college ready index. Positive regard was not found to be significant in any of the models using ethnicity as a variable. When using only African American students for the sample group, positive regard contributes the most to college ready index of any of the variables in an a negative way (β =-.50). Positive regard represents perceptions that teachers are caring and emotionally connected and available to students. The strength of this contribution found in the African American only regression model is consistent with findings by Adams & Singh (1998) and Ferguson (2003). Also of interest is the degree of strength concrete achievement attitude had (β = .30) in this regression run only for African American students as compared to the regression run when African American was run as just a variable (β = .08). This finding is similar to Michelson's 2002 research findings. The last

significant variable in the African American only regression was high school WASL writing. The contribution was stronger for African Americans in this separate regression (β = .43) than when African American was just a variable (β = .30) indicating for African Americans it may be even more important to their academic futures than to other ethnic groups.

The model for college ready index by Hispanic (see Table 20) showed three significant variables; 7th grade WASL reading (β = .19), academic self-perception (β = .37), concrete achievement attitude (β = .19). The adjusted R^2 for this model is .70 indicating that the model accounts for about 70% of the variation for college ready index. This model represents the strongest adjusted R^2 of any model run. However, the N is the smallest (N=52) of any model run. It was surprising that 7th grade WASL reading was found to be significant in this model when it was not found to be significant in any other regression model run. This finding may be influenced by the larger number of English Language Learners found in the Hispanic ethnic group as compared to White or African American groups. When using only Hispanic students to run the college ready index regression model, the coefficient for 7th grade WASL reading was (β = .19). Another coefficient showing significance in this model was academic self- perception (β = .37); it was much stronger in this model as compared to the model run with Hispanic as only a variable (β = .08). This finding is interesting and is similar to other research that indicates prior academic achievement in one of the strongest indicators of future academic achievement. The final coefficient showing significance in this model, concrete achievement attitude (β = .19), like the other two significant coefficients, showed a stronger contribution in this model than in the Hispanic as a variable model (β = .07).

The final ethnic grouping regression model combined all Minority students (see Table 21). The adjusted R^2 of .53 is similar to the regression models run when ethnicity was a variable. The coefficients from this model that were significant were high school WASL reading (β = .11), high school WASL writing (β = .37), high school WASL math (β =.20), and concrete achievement attitude (β =.10). Different in this regression run only using Minority students is the addition of high school WASL reading as a significant coefficient. The fact that reading appeared as a significant coefficient for Hispanic only students may explain this finding. High school WASL reading and math were a little stronger in for Minority only students than when each ethnicity was run independently. And concrete achievement attitude was also slightly higher in this model. Difference in strength in this model compared with previous individual ethnicity models could be the fact that Asian students were included in the Minority sub grouping. Previous findings in this chapter and in Chapter Four indicated that Asian students consistently out perform their minority peers so including them in the Minority regression model may account for stronger contributions.

Table 19. *Multiple Regression of College Ready Index by African American*

Variable	Beta	t	Sig. t
(Constant)	-.24	-2.35	.02
7th WASL Reading	.00	.00	.99
7th WASL Writing	.11	.80	.43
7th WASL Math	-.08	-.75	.45
HS WASL Reading	.05	.50	.62
HS WASL Writing	.43	2.67	.01
HS WASL Math	.13	.92	.36
Accessible	.12	.67	.51
Expectation	.08	.51	.61
Feedback	-.13	-.93	.36
Invested	.28	1.18	.25
Positive Regard	-.50	-2.83	.01
Academic Self-Perception	.15	1.14	.26
Motivation Self-Regulation	.14	1.16	.25
Concrete Achievement Attitudes	.30	2.82	.01
R	.81		
R^2	.65		
Adjusted R^2	.55		
F	6.31		
Sig. F	.00		
N	63		

Table 20. *Multiple Regression of College Ready Index by Hispanic*

Variable	Beta	t	Sig. t
(Constant)	-.40	-4.35	.00
7th WASL Reading	.19	2.12	.04
7th WASL Writing	.09	.53	.60
7th WASL Math	-.09	-.43	.66
HS WASL Reading	.08	.61	.55
HS WASL Writing	.17	1.38	.18
HS WASL Math	.34	1.86	.07
Accessible	-.30	-1.95	.06
Expectation	.13	.88	.49
Feedback	.25	1.70	.10
Invested	-.00	-.02	.98
Positive Regard	-08	-.52	.60
Academic Self-Perception	.37	2.78	.01
Motivation Self-Regulation	-.03	-.27	.79
Concrete Achievement Attitudes	.19	2.12	.04
R	.89		
R^2	.78		
Adjusted R^2	.70		
F	9.62		
Sig. F	.00		
N	52		

Table 21. *Multiple Regression of College Ready Index by Minority*

Variable	Beta	t	Sig. t
(Constant)	-.03	-.87	.39
7th WASL Reading	.01	.36	.72
7th WASL Writing	.07	1.36	.17
7th WASL Math	.08	1.55	.12
HS WASL Reading	.11	2.43	.02
HS WASL Writing	.37	7.32	.00
HS WASL Math	.20	4.34	.00
Accessible	-.04	-.66	.51
Expectation	.04	.68	.50
Feedback	-.01	-.17	.86
Invested	-.01	-.16	.87
Positive Regard	-07	-1.24	.21
Academic Self-Perception	.09	1.88	.06
Motivation Self-Regulation	.09	1.82	.07
Concrete Achievement Attitudes	.10	2.35	.02
R	.74		
R^2	.55		
Adjusted R^2	.53		
F	29.37		
Sig. F	.00		
N	355		

Socioeconomic Relationships

Socioeconomic status (SES) is often closely correlated with race so a final multiple regression was run using (SES) as a variable (see Table 22). Findings for this regression were similar to the regressions run with ethnicity as variables. WASL variable significance was similar to those found in previous regressions (See Tables 13-

18). High school writing had the strongest contribution with a Beta of .29. The other WASL variables had about half the contribution strength of high school writing and were similar to those in previous regressions. There were no perception variables that were found to be significant when SES was added as a variable. Attitude variables also showed similar contribution strength here in the SES regression as those regression models run with ethnicity variables (see Tables 12-18) with motivation self-regulation being the strongest contributor ($\beta = .10$). SES was shown to be a significant but relatively weak factor with a Beta of .09. This finding indicates that although SES is a factor in college readiness is a relatively weak factor.

Table 22. *Multiple Regression of College Ready Index using SES*

Variable	Beta	t	Sig. t
(Constant)	-.15	-7.61	.00
7th WASL Reading	.00	.17	.87
7th WASL Writing	.11	4.10	.00
7th WASL Math	.13	5.15	.00
HS WASL Reading	.15	6.10	.00
HS WASL Writing	.29	11.49	.00
HS WASL Math	.15	6.70	.00
Accessible	-.01	-.19	.85
Expectation	.05	1.87	.06
Feedback	-.03	-1.09	.27
Invested	-.03	-.80	.43
Positive Regard	-.02	-.53	.60
Academic Self-Perception	.07	2.55	.01
Motivation Self-Regulation	.10	3.92	.00
Concrete Achievement Attitudes	.06	2.69	.01
Total SES (yes = 1)	.09	4.24	.00
R	.73		
R^2	.53		
Adjusted R^2	.53		
F	95.44		
Sig. F	.00		
N	1276		

Summary

Each of the regressions run with ethnicity added as an independent variable indicate that high school WASL writing contributes the strongest to college readiness. This finding is consistent with the findings from Chapter Four and it provides opportunity

for further analysis and study. However, it is different from the large body of research on math being the strongest contributing factor to college readiness. Consistent with that large body of research high school WASL reading and math were also found to be positive contributing factors for college readiness. Perceptions played a weak and limited contribution to college readiness which is not consistent with the large body of previous educational research. Student attitude variables contributed to college readiness indicating student ownership and self concept plays a greater role than teacher perceptions. Ethnicity and SES showed minimal contributions. Further discussion on these findings can be found in Chapter Six.

CHAPTER SIX

DISCUSSION OF FINDINGS

This chapter will provide a summary of the research problem and methods used to examine the problem. Major findings will be reviewed and discussed for each research question and implications for future research will be examined.

Research Problem

There has been much attention given to inequitable outcomes for minority students in American public schools. Closing the achievement gap is an issue both at the high school and post secondary school level. A person's level of educational attainment is a strong predictor of occupational status, earning power, and influences future occupational and socioeconomic status (Education Trust, 2003; Jacobson et al., 2001; Lee, 2002; Scurry, 2003). Life's opportunities expand with the level of educational attainment. To change economic and occupational opportunity students must leave high school prepared for college. Regardless of ability, if a student performs poorly in high school, they generally have lower paying jobs and educational status than their higher achieving peers leading to long inequities in socioeconomic status. According to Day & Newburger (2002), dropouts earned $18,900 annually compared to $25,900 for high school graduates, and $45,400 for graduates of 4-year colleges.

Researchers have shown that the rigor of courses taken in high school is the strongest predictor of academic achievement, high school graduation, and enrollment in post-secondary education (ACT, 2004; Adelman, 1999). The rate of college enrollment for African American and Hispanic students are lower than White and Asian students (Education Trust, 2003), making the academic achievement gap concern greater than just high school graduation rates. According to Martinez and Klopott (2005), a critical

factor for this disparity is due to lack of preparedness or readiness of minority high school graduates for post secondary education. The level of college students' high school curricula is strongly related to their persistence in post secondary education therefore, it is important for educators to examine college readiness factors, especially for Minority students. The National Center for Educational Statistics (2001) reported that African American and Hispanic students were much less likely than their White peers to complete rigorous curricula. Twenty percent of White students completed rigorous courses as compared to only 8% African American and 16% Hispanic students. Therefore, the achievement gap in college preparatory courses becomes an issue of lifetime occupational and socioeconomic status.

As discussed in Chapter Two, there is a large body of research on unequal access to educational resources, tracking, teacher quality, teacher perceptions, and student attitudes, which can help educators to understand potential causes for the achievement gap. There has been little research done about students' perceptions of their teachers' attitudes/behaviors about their academic ability and how those perceptions may affect their academic achievement. Educators need more information about what factors influence students' course selection in order to develop strategies or programs to increase the number of minority students enrolling and succeeding in college preparatory classes. The purpose of this study was to investigate minority students' perceptions of their teachers' attitudes about their academic ability, their own achievement attitudes and their college readiness. The goal of this study was to address the following questions:

1. What are the differences between minority students and their non-minority peers on: a) academic performance, b) college readiness based on enrollment in

college gateway courses and grade point average, c) achievement attitudes, and d) perceptions of their teachers' attitudes about their academic ability and performance?

2. How are academic performance, college readiness, achievement orientation and perceptions of their teacher's attitudes about their academic ability and performance related to one another?
3. Is there any difference in the pattern and relative influence of these factors for minority students and non-minority students?

Methods

This study examined factors that affect college readiness for minority students in two large Washington school districts. The sample consisted of 11th grade students in two large school districts in Washington. These students were surveyed about their perceptions of teacher support behaviors and attitudes, academic self-perception, motivation self-regulation, and concrete achievement attitudes using survey items from McWhirter (2007), McCoach (2003) and Michelson (1990). Students were also asked about their parents' level of education and employment. Academic performance and demographic data were downloaded from each districts' student record systems and matched with individual students' survey data. Demographic information included ethnicity, gender, special program involvement and Free and Reduced Lunch status. Academic performance data included high school and 7th grade WASL scores in reading, writing and math, core course information, credits earned and grade point averages. Courses were analyzed for their academic level and then rated for their level of rigor; below grade level, on grade level or advanced. A college readiness index was

established by adding courses cumulative rating with the cumulative grade point average for each student.

Student responses to survey items were averaged to determine scores for each of the attitude variables: academic self-perception, motivation self-regulation and concrete achievement attitude. Survey responses for items taken from the Teacher Support Scale Revised were analyzed using principal component analysis and five sub-scales were identified: accessible, feedback, invested, expectation, and positive regard.

To identify the significant differences in mean scores between ethnic groups' academic performance, attitude, perception and college readiness variables analysis of variance was used. Relationships between academic performance, attitudes and perceptions were evaluated by calculating correlations between these variables. To examine the pattern and relative influence of ethnicity, academic performance, attitude and perception variables on college readiness multiple regression was conducted. The dependent variable was college ready index and the independent variables included WASL academic performance, ethnicity, attitudes, perceptions and socioeconomic status.

Summary of Findings

Factors affecting college readiness for minority students are discussed in this section. The results of this study indicate there are some relationships between academic performance, student attitudes and perceptions and college readiness and that the relationships are complex and have many interacting factors that are often hard to measure. Findings from this study indicate that ethnicity doesn't seem to make much of a difference, previous academic achievement (intelligence) does make a difference on academic achievement, teacher perceptions have weak and limited affect and writing

and student attitudes provide the strongest contributions to college readiness factors. Some of the findings appear to be somewhat different than previous research findings have indicated. Discussion of these findings is organized into sections corresponding to the three research questions: a.) academic, attitudes and perception differences, b.) relationships of perceptions, attitudes and academic performance and c.) influence of ethnicity, attitudes and outcomes on college readiness.

Academic Performance, Attitude and Perception Differences

The purpose of this section is to illustrate the findings from this study which suggest which factors affect college readiness for minority students. The findings in this study suggest that teacher behaviors had limited impact on academic performance for minority and White students. Findings showed student attitudes have a greater impact on academic performance. An examination of the ANOVA's revealed that the perception variables accessible, feedback and invested were the only perceptions that appeared to affect minority students and the means for those variables were not largely different for White students. The significant perception variables represent informational teacher support (accessible variable), assessment teacher support (feedback) and instrumental teacher support (invested). Accessible was represented in this study by survey questions that asked if teachers: answer my questions about how to do better; take time to help me get better grades; are easy to talk to about school things. Feedback was represented in this study by survey questions that asked if teachers: let me know how to improve my grades; tell me if I am not working hard enough and; evaluate my work carefully. Invested was represented in this study by survey questions that asked if teachers: challenge me to think about my future goals; are interested in my future; push me to succeed and; support my goals for the future. Perhaps these teacher

actions represented care and interest to students and therefore findings would be consistent with previous research by Adam and Singh (1998) and Ferguson (2003) that have shown when Minority students felt their teachers cared about them and praised them the interaction between teacher and student affected their academic achievement in a positive way. Perhaps these variables had a greater mean score for minority students because they may get little feedback regarding academic achievement from their peers or family. Providing feedback can be taken as demonstrating interest and care, minority students may have responded more favorably to the survey questions than their White peers.

What was of greater interest, also drawn from an examination of the ANOVAs, was the two perception variables, expectation and positive regard were found to have no significant difference for minority or White students. Expectation, which represents attitudinal support teachers provide and positive regard that represents emotional teacher support, did not appear to have an affect on students. Expectation was represented by survey questions that indicate teachers: expect me to study; expect me to work hard and; think I should go to college. Positive regard was represented by survey questions that indicate teachers: think I am a hard worker; would tell other people good things about me and; care about me as a person. The findings from this study would appear to be very different from what other researchers (Smith, Atkins, & Connell, 2003; Ferguson, 2003; Jussim et al., 1996) found around the impact of teacher perceptions on different ethnic groups. Those researchers found that teachers' attitudes and behaviors appear to influence student academic performance, especially for minority students. These findings may suggest that teachers in the two study school

districts were doing a good job of providing equal support to all students regardless of race.

On a whole, these findings suggest that the perception scales did not show much affect on students. The different results may be an outcome of what part of the country a student lives in. When exploring the findings of this study with the author of the survey, she indicated that students in the mid-west region of the country where she did her study tended to have very strong opinions and either strongly agreed or strongly disagreed on their responses to survey questions. Perhaps students in Washington State have a different range of opinions. An additional reason for this finding might be how students interpreted the questions; indicating that questions written to determine level of care and support were interpreted as teachers judging instead of offering helpful feedback. These findings may indicate that despite what we may have thought about teachers' actions being different depending on a students' background, teachers are doing a better job of connecting with all students. It may also indicate teachers are being too nice to students and not pushing them to achieve to their full potential. The results may also have been affected by the timing of the survey. Does grades/achievement precede relationships or do relationships precede grades? Students took the survey shortly after they received their semester grades. As students were responding to the survey were they thinking about their teachers' and how they may have influenced their academic achievement or were they resigned to the grades they received and teacher actions played a very small role in the grades they received?

There were significant differences in mean scores found between African American, Hispanic, Native American, and Pacific Islanders compared to Asian and White students on all achievement variables. Because the purpose of this study was to

investigate what factors affect college readiness for minority students', examination of the findings for course cumulative rating and college ready index were important. The data suggested that minority students may have a different pattern of course taking than their White and Asian peers. The average difference in their mean scores was 5 points indicating that the level or rigor of the courses minority students took was lower than non-minority (and Asian) students. This finding was not surprising; a great deal of previous research (Carbonaro, 2005; Oakes, 1985 & 1995; Darling-Hammond, 1998; Michelson, 2005) has shown that minority students participate at a higher rate in low-track courses than their White and Asian peers. Study findings also showed that minority students had lower GPA's than their White and Asian peers. Since college ready index represents both level of courses taken and the grades taken in those courses, the findings for lower GPA for minority students would support the lower mean scores for college ready index as well.

Achievement results, as measured by WASL scores, showed a similar pattern of difference as the other academic variables previously discussed. Mean score differences for African American and Hispanic students showed gaps of between 24 and 35 points on the reading and math WASL scores as compared to their White peers. For WASL writing that has a different scoring system the gap was still significant, indicating African American and Hispanic students achieve at a much lower level on state assessments than do their White and Asian peers. The findings in this study are similar to those done by the National Center for Educational Statistics (2007) using 8th grade NAEP scores looking at both state and national results. The gap between White and African American and Hispanic student average point differences in reading at the national level were 27 point difference for African American and 25 point difference for

Hispanic. At the state level, the reading difference is 23 points for both African American and Hispanic students compared to White students. For math, the average point difference nationally is 32 points for African Americans and 26 points for Hispanics. Math results at the state level show similar gaps, African American at 26 points and Hispanic students at 27 points different than White students. Writing shows a similar pattern with an average point difference at the national level for African Americans of 23 points and Hispanics at 22 points. For state writing results, African American students did slightly better at only a12 point gap while Hispanic students did worse with a 23 point gap.

The findings for academic achievement differences suggest a pattern of disparity between White and minority students that is consistent with state and national data. The lack of difference between findings in this study and those at the state and national level indicate that the sample taken from the two Washington school districts are not fundamentally different from other districts across the nation.

Examination of student attitudes about their achievement orientation revealed some interesting findings. A brief description of each of the attitude variables is provided to more fully understand the findings. The first attitude variable was academic self-perception which represents a students' confidence in their perceived academic ability. Academic self-perception influences the level to which a student challenges his/her self and their level of persistence. Academic self-concept is a significant predictor for academic achievement (Lyon 1993, Wigfield & Karpathian, 1991) and therefore is important to this study. Research suggests as much as one third of variance in achievement can be attributed to academic self-concept (Lyon, 1993). The second attitude variable was motivation self-regulation representing a students' ability to

initiate and maintain goal directed behaviors as well as their ability to start and sustain behaviors consistently oriented toward obtaining their goals. In McCoach's 2002 study, she found that academic self-perception and motivation self-regulation were the strongest predictors for academic achievement. The third attitude variable was concrete achievement attitude representing a students' belief that education will result in future opportunity and reflects the material world in which a student lives (Michelson, 1990).

In this study, motivation self-regulation and concrete achievement attitude were found to show significant difference for all ethnic groups. These findings are promising as they provide hope for students and indicate a belief in hard work in school will result in greater opportunities for their future. What is interesting is the finding that academic self-perception was not significantly different between minority students and White, this too is a promising finding. This finding could indicate that students in different ethnic groups believe they are capable of academic achievement and have positive attitudes about the abilities. This finding is especially of interest when looking at the academic achievement differences discussed above. Michelson (1990) refers to the difference in attitude and results as the attitude-achievement paradox. Students believe they are capable yet their beliefs are not realized in their academic outcomes.

Relationships of Perceptions, Attitudes and Academic Performance

The purpose of this section is to interpret findings comparing the relationship between perceptions, attitudes and academic performance variables to provide an avenue for understanding how these relationships may provide information about which factors affect minority students' college readiness. An examination of the correlations between academic performance, attitudes and perceptions revealed findings that suggest attitudes play a stronger role in academic achievement and therefore college

readiness for students than do perceptions. These findings were similar to the findings for the previous section that explored differences between minority and White students on those same variables.

There was one perception variable that indicated significant correlation with seven of the eight achievement variables; that variable was expectation. As explained earlier, expectation represents the attitudinal support teachers provide to students. This variable represents teacher behavior and attitudes about positive expectations for a students' educational success, it makes sense that there were significant correlations to achievement variables. Accessible showed weak but significant correlations with credits and grade point averages. This variable represents taking time to assist students in getting better grades so it makes sense that there was a correlation to credits and grades. Of interest was there was no correlation between accessible and either courses cumulative rating or any of the WASL scores.

The feedback variable showed surprising negative results. Feedback represents the assessment type of responses/interaction a student receives from their teacher about how they are performing academically. Weak and negative significant correlations were found with feedback and 7th and high school WASL writing, 7th grade WASL math, core GPA, cumulative GPA and course rating cumulative. A possible interpretation of these results may represent a student feeling judged rather than receiving an honest assessment of their current effort. Teachers intending to provide helpful feedback may be perceived by students instead as telling then they are not as capable or smart enough to do the work at a particular level of rigor. This explanation may provide possible insight into the correlation results being negative rather than positive as one might expect. Earlier findings indicated that minority students had

higher mean scores for feedback than White students. Findings also showed that minority students had lower academic achievement than their White and Asian peers. This may indicate minority students are receiving feedback but they perceive that feedback as negative so are therefore not acting on that feedback resulting in lower grades and academic achievement.

The results for invested, which represent teachers encouraging and helping behaviors, showed negative correlations for 7th grade WASL reading and math as well as high school writing. There was no significant correlation finding for course rating cumulative, which is the variable that indicates course level/rigor a student has completed. This finding could suggest that teachers may not demonstrate sufficient interest in minority students' future goals to influence their course taking decisions. Overall, the perception variables showed relatively weak or negative significant correlations with most achievement variables indicating that student achievement behavior may not be affected significantly by teachers' attitudes and behaviors.

Stronger correlations were found between student attitude variables and achievement variables. Each of the attitude variables showed stronger correlations than any of the perception variables. Concrete achievement attitude showed significant correlations with each of the academic variables. Academic self-perception and motivation self-regulation each correlated significantly with nine of the ten achievement variables. Concrete achievement attitude showed the highest correlation with course rating cumulative (r =.32**) than any other variable. This seems to be an important finding regarding college readiness factors for minority students. Course rating cumulative represents the rigor of the courses a student has taken; indicating that the more rigorous the courses the stronger the correlation with college readiness. This

finding is consistent with previous research by Carbonaro (2005) that showed the higher the rigor of courses a student takes in high school the better the chances are a student will be college ready upon graduation. The higher the correlation between concrete achievement attitude and courses rating cumulative represents a stronger belief that academic achievement in rigorous courses will provide them with greater opportunities for their future, thus allowing them the potential for greater economic, civic, and cultural gains. Couple this finding with the strong correlations between WASL writing and math scores and it appears that concrete achievement attitude is an important factor for minority students' college readiness.

Academic self-perception and motivation self-regulation when correlated with core and cumulative grade point averages showed the highest correlations between any of the perception or attitude variables. Grades are often equated by both teachers and students as an indicator of academic achievement so therefore this finding is not surprising. If a student has a strong academic self-perception then it makes sense they would engage in behaviors that help them sustain that belief. Academic self-perception also showed strong correlations with five of the six WASL scores. Of interest 7th WASL reading was not shown to be significant with academic self-perception. Perhaps due to the state and national focus on reading, students in 7th grade consistently do well on the reading WASL so therefore the correlation between belief in their ability and something they already excel at influenced the results found. Motivation self-regulation correlation results showed a similar yet slightly weaker pattern. Since motivation self-regulation appears to be closely tied with academic self-perception this finding was not surprising.

A particularly interesting finding was the difference between 7th grade and high school WASL reading for these three achievement variables. For 7th grade WASL

reading scores the correlations with attitude variables are either not significant and negative or weakly significant. Contrast that with high school correlations between attitudes and WASL reading scores which are significantly stronger and all positive. One possible explanation for this finding may be that the high school reading WASL is a requirement for graduation where as the 7th grade reading WASL is not. The more important the assessment (WASL test) to their "ticket" out of high school, the more important attitude became. Also of interest is the pattern described for attitude variables and 7th to high school WASL was not found for either writing or math which might suggest the previous explanation may not be accurate.

The significance of the findings described in this section suggests students' beliefs about their academic ability play a much greater role in their academic achievement than what their teachers believe about them. School leaders may want to further explore this finding and potentially focus their school efforts on early academic success and teaching students how to set and attain goals.

Factors Influencing College Readiness

To examine the interaction of the variables described in this chapter and how they contribute to college readiness multiple regressions of the variables was calculated. The variables used were of different scales and they lack normality so raw scores for each of the variables were transformed to standard scores. The dependent variable used was college ready index. This variable captures important college admissions factors: rigorous course selection and grade point average. The independent variables were the perception and attitude variables, 7th and high school WASL scores, SES, and ethnicity.

Only one perception variable, expectation, showed significance in each regression run. This was not surprising since earlier data analysis indicated strong correlation to academic achievement. Expectation also represents how teachers convey positive expectations for educational success. Accessible, feedback, invested, and positive regard did not show significance for any of the ethnic groups (except accessible was significant for Native American). It was not surprising that perception variables had so little contribution to college readiness index given earlier discussion of data analysis. This finding suggests that teacher behaviors and attitudes don't appear to affect college readiness to the degree many researchers have indicated.

It was not surprising to find that the three attitude variables, achievement self-perception, motivation self-regulation and concrete achievement attitude all showed significant results on college readiness index given earlier discussion of findings. Previous research by McCoach (2002) and Ross & Broh (2000) found that high academic self concepts and motivation self-regulation were strong predictors of academic achievement that support the study findings. Educators can have an impact on student attitudes by providing programs that teach and support academically productive behaviors and goal setting. Advancement via Individual Determination (AVID) is one such program that could provide needed support to students to increase their academic self-perception and motivation-self regulation.

Not surprising, given earlier data analysis, each model showed that all WASL variables except 7th grade reading were found to be significant. The interesting finding, as discussed earlier, was that writing was found to have the strongest contribution to college ready index. High school WASL writing showed a Beta of .30 for African American, Hispanic, Multiracial, Native American and Pacific Islander students and

almost as strong (β = .29) for White and Asian students. The other significant WASL variables showed coefficient contributions of only half the strength of writing. With writing having such a large contribution to college ready index it suggests that educators need to take a deeper look at this variable. Writing is a foundational skill used to demonstrate understanding of content and/or skills and is found in every content area. The ability to write well is essential to success in advanced classes and may be overlooked as a critical skill for academic achievement in rigorous courses. Perhaps having all content area teachers' focus on improving writing and critical thinking skills may go a long way to increasing academic achievement in all content areas for minority students.

An interesting finding from the regressions was that ethnicity either failed to show significance or had only very weak negative significance. It was surprising to the researcher to find that ethnicity had such a limited contribution to college ready index. Especially since a large body of research exists that indicates low minority achievement is a critical link to lower graduation rates and lower participation in college preparatory courses resulting in lower percentages for minority students entering and persisting in college. This finding suggests that minority student college entrance rates are less a factor of ethnicity and more a factor of attitude and prior academic achievement.

Implications for Future Research

This study of factors that affect college readiness for minority students in two Washington school districts has provided an opportunity for additional research. To further explore why perceptions seemed to have limited influence on student academic achievement, research could be conducted using different sample groups. Further research at a younger age might show a very different pattern of influence. For

instance, a study using the same survey with upper elementary of middle school students would provide for an interesting comparison. Additional research done earlier in a students' academic experience might shed light on when students' might shift from being influenced by teacher behavior to being influenced by their own attitudes and behaviors.

Conducting research of a similar nature to this study with younger students may also capture some of the students, especially minority students, who might be at risk of dropping out of school by the time this research study was conducted halfway through a student's 11th grade year. It might also be useful to attempt to track down the students from the study school districts that dropped out earlier in their high school career and have those students complete the survey and compare their responses to those students who persisted to second semester of their junior year

A follow-up study utilizing qualitative methods to explore the weak findings for perception variable or even just the negative correlations with the feedback scale would provide good insight about the perception data collected through this study. A qualitative study might provide a test for the accuracy of students' perceptions of the feedback their teachers provide and how they perceive that feedback. This kind of study might also provide insight into student responses and the relationship between the perceived teacher support and academic performance.

Further research to explore the impact of writing on academic achievement might also prove to be influential to educators in their efforts to close the achievement gap and increase graduation rates. Since writing is a foundational skill used in all content areas increasing the ability to write effectively and skillfully may lead to increased critical

thinking and greater academic success for minority students who want to take more advanced courses like honors and Advanced Placement.

Findings from this study indicate student attitudes are a factor of college readiness for minority students. Further exploration by researchers and educators on strategies or programs that could influence school practices to provide students support to develop the skills and behaviors that will strengthen their academic self-perceptions and motivation self-regulation skills is needed.

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APPENDIX

Appendix A

Student Academic Achievement Survey

Washington State University-Everett Public Schools District-Kent School District

Students:

Attached is a survey which asks you to share your perceptions about your experiences and attitudes about school and about your personal academic characteristics. The voice of students is often missing in educational research. This is an important opportunity for you to share your perceptions. **You are not required to complete the survey.** If there are any questions that you feel uncomfortable responding to, you may skip those questions. There are no right or wrong answers. Please do not write on the survey itself but instead mark your responses on the separate answer sheet.

Please read each statement, beginning with "My teachers in my high school..." and think carefully about whether you agree or disagree. Please look on your separate answer sheet. Find the question number that matches the statement number on your survey sheet. Next to that number, fill in the circle on your answer sheet with the answer choice that best matches your answer. Note that the circle under A represents "Strongly Disagree," B matches "Disagree," and so forth. There are no right or wrong answers.

MY TEACHERS IN MY HIGH SCHOOL:	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1. expect me to work hard in school.	A	B	C	D	E
2. try to answer my questions.	A	B	C	D	E
3. are interested in my future.	A	B	C	D	E
4. take the time to help me get better grades.	A	B	C	D	E
5. will listen if I want to talk about a problem.	A	B	C	D	E
6. are helpful when I have questions about career issues.	A	B	C	D	E
7. answer my questions about how to do better.	A	B	C	D	E
8. would tell other people good things about me.	A	B	C	D	E
9. are easy to talk to about school things	A	B	C	D	E
10. challenge me to think about my future goals.	A	B	C	D	E
11. believe I am capable of achieving.	A	B	C	D	E
12. help me understand my strengths.	A	B	C	D	E
13. want me to do well in school.	A	B	C	D	E
14. enjoy interacting with me.	A	B	C	D	E
15. care about me as a person.	A	B	C	D	E

Please read each statement, beginning with "My teachers in my high school..." and think carefully about whether you agree or disagree. Please look on your separate answer sheet. Find the question number that matches the statement number on your survey sheet. Next to that number, fill in the circle on your answer sheet with the answer choice that best matches your answer. Note that the circle under A represents "Strongly Disagree," B matches "Disagree," and so forth. There are no right or wrong answers.

MY TEACHERS IN MY HIGH SCHOOL:	Strongly Disagree	Disagree	Not Sure	Agre e	Strongly Agree
16. expect me to study.	A	B	C	D	E
17. tell me if I'm not working hard enough.	A	B	C	D	E
18. support my goals for the future.	A	B	C	D	E
19. think I am a hard worker.	A	B	C	D	E
20. push me to succeed.	A	B	C	D	E
21. are easy to talk to about things besides school.	A	B	C	D	E
22. let me know how to improve my grades.	A	B	C	D	E
23. take time to get to know me.	A	B	C	D	E
24. evaluate my work carefully.	A	B	C	D	E
25. think I should go to college.	A	B	C	D	E

Please read each statement and think carefully about whether you agree or disagree. Please look on your separate answer sheet. Find the question number that matches the statement number on your survey sheet. Next to that number, fill in the circle on your answer sheet with the answer choice that best matches your answer. Note that the circle under A represents "Strongly Disagree," B matches "Disagree," and so forth. There are no right or wrong answers.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
26. I am confident in my scholastic abilities.	A	B	C	D	E
27. I do well in school.	A	B	C	D	E
28. I learn new concepts quickly.	A	B	C	D	E
29. I am successful.	A	B	C	D	E
30. I am confident in my ability to succeed in school.	A	B	C	D	E
31. I work hard in school.	A	B	C	D	E
32. I concentrate on my schoolwork.	A	B	C	D	E
33. I am a responsible student.	A	B	C	D	E
34. I complete my schoolwork regularly.	A	B	C	D	E
35. Based on their experiences, my parents say people like us are not always paid or promoted according to our education.	A	B	C	D	E
36. All I need to learn for my future is to read, write, and make change.	A	B	C	D	E
37. Although my parents tell me to get a good education in order to get a good job, they face barriers to job success.	A	B	C	D	E
38. When our teachers give us homework, my friends never think of doing it.	A	B	C	D	E
39. People in my family haven't been treated fairly at work no matter how much education they have.	A	B	C	D	E
40. Studying in school rarely pays off later with good jobs.	A	B	C	D	E

Please read each statement below. Decide upon your answer. Then please look on your separate answer sheet. Find the question number that matches the statement number on your survey sheet. Next to that number, fill in the circle on your answer sheet with the answer choice that best matches your answer. Note that the circle under A represents "Yes," B matches "No," and C represents "Don't Know or Not Applicable." There are no right or wrong answers.

	Yes	No	Don't Know or Not Applicable
41. My father finished high school.	A	B	C
42. My mother finished high school.	A	B	C
43. My father finished college.	A	B	C
44. My mother finished college.	A	B	C
45. My father finished an advanced degree.	A	B	C
46. My mother finished an advanced degree.	A	B	C
47. My father is employed.	A	B	C
48. My mother is employed.	A	B	C
49. My father works in a management or professional job.	A	B	C
50. My mother works in a management or professional job.	A	B	C

Thank you for participating in this survey.

Appendix B

WWSD's-WSU Student Academic Achievement Survey

DIRECTIONS FOR ADMINISTRATION

Survey Administration – Key Points

- The Student Academic Achievement Survey is to be administered to Grade 11 students.
- The survey is voluntary and students may to choose not to participate or not to respond to item(s).
- The survey requires linking student responses to individual student academic and demographic information. Therefore, accurate bubbling in of student IDs is essential.
- Students will use their KSD ID – the 6-digit one they use for lunch.
- This multiple choice survey has 50 items and should be completed in one class period. Actual administration time is about 30 minutes.
- Students receive a 5-page survey item document and a separate Scantron form to record their responses.
- All survey materials are to be returned to the Assessment Office for tabulating.

BACKGROUND AND SURVEY PURPOSE:

The Student Academic Achievement Survey will provide educators with valuable information about student attitudes toward learning and how those attitudes may be shaped by a student's background. It is being conducted jointly with two western Washington School Districts and Washington State University. This study has been reviewed and approved by the WSU Institutional Review Board for human subject participation.

Survey Materials

- 50-item Multiple Choice Survey (One per student)
- Multiple Choice Response Scantron sheet (One per student)

Student Supplies

- No. 2 pencil

Accommodations

The accommodations for students in your classroom are to be adhered to for this survey as well. Follow similar procedures.

Directions

Scantron form information must be complete and accurate in order to assure scoring. Fill out response sheet in accordance with the following directions. Errors in a student ID will void the usefulness of the student's responses.

1. Say to the students:

"I will be distributing a survey and response form that asks your perceptions about your experiences and attitudes about school. This is an important opportunity for you to share your perceptions. This survey is voluntary and you may choose not to participate. You may skip any items you do not wish to respond to. As I distribute the survey, please read the cover statement addressed to students."

2. Distribute survey items and response form.

(Continued on back)

3. Have students complete the following sections on the Scantron form:
   a. Student ID (be sure to start with four zeroes)
   b. Birth date
   c. Please do not enter names
4. After students have had the opportunity to read the statement to students please say to the students:

   "Do you have any questions at this time? [pause to respond to questions] You may also ask questions of me during the survey. As these are your perceptions, please do not discuss items on the survey during the survey administration but feel free to discuss them in the future."

   "You may choose to skip any items you do not wish to respond to."
5. Allow students to complete the survey. You may help to clarify items as appropriate.
6. Upon completion ask students to check for correct bubbling of their IDs (precede with 4 zeroes).
7. Upon completion please collect the surveys and survey response sheets.
8. Please thank the students (and a thank you to you also).

Return of Survey Materials

1. Check student response forms for completion of ID.
2. Check for accuracy of bubbling student ID (4 zeroes followed by the 6-digit ID)
3. Please put survey materials in the box in which they were received with:
   a. Response sheets oriented in the same direction
   b. Survey item sheets stacked separately
   c. Return the box to your school office for pick up.

Thank you.

QUESTIONS? Please call 7225

Appendix C

February 4, 2008

Dear Parents/Guardians of WW Public Schools Class of 2009 Students,

During the week of February the 11th, WWSD students in the Class of 2009 will be participating in the Student Academic Achievement Survey which is sponsored by WWSD and Washington State University. Results from this survey are important to making your child's school one that successfully prepares all students for their future.

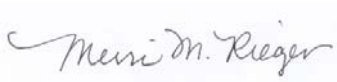
While the Student Academic Achievement Survey is not anonymous in order to get course enrollment and high school academic history, the individual student names will be deleted once the information from the survey has been connected to course information. Students will not be asked questions about social issues such as religion, substance abuse, or sexual activity.

Students will complete the survey in class. In the survey, students are asked to provide their opinion about questions that focus on teacher expectation and support, academic self-concept, and motivation. There will also be some general questions about family economic status similar to those questions asked on the Scholastic Achievement Test (SAT).

This survey is voluntary and you or your student has the option not to participate in the survey. In addition, your child can choose to skip any question(s) they wish.

This study has been reviewed and approved by the WSU Institutional Review Board for human subject participation. If you have questions about the study please contact the researchers listed below. If you have questions about your rights as a participant please contact the WSU Institutional Review Board at 509-335-3668 or irb@wsu.edu. If you have questions about this survey please, you may also contact the district's Assessment Office at 425.385.4057.

Sincerely,



Director, Assessment	Catherine Matthews, Washington State University	Merri Rieger, Washington State University

Appendix D

Table D1. Total Variance Explained

	Initial Eigenvalues		
Component	Total	% of Variance	Cumulative %
1	10.51	42.04	42.04
2	1.50	5.99	48.03
3	1.13	4.50	52.53
4	1.04	4.15	56.69
5	.81	3.22	59.91
6	.74	2.96	62.86
7	.68	2.74	65.60
8	.66	2.66	68.26
9	.62	2.48	70.73
10	.60	2.41	73.14
11	.57	2.29	75.43
12	.55	2.18	77.61
13	.53	2.12	79.74
14	.51	2.03	81.77
15	.49	1.95	83.72
16	.47	1.87	85.60

Table D1 (continued). Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
17	.452	1.810	87.405
18	.44	1.77	89.18
19	.44	1.76	90.93
20	.41	1.65	92.58
21	.40	1.58	94.16
22	.39	1.56	95.72
23	.37	1.48	97.20
24	.36	1.43	98.63
25	.34	1.37	100.00

Appendix E

Table E1. *Principle Component Analysis of Survey Items 1-25*

Rotated Component Matrix(a)					
	Component				
Survey Item	1	2	3	4	5
Q14: enjoy interacting with me	.69				
Q19: think I am a hard worker	.64			.34	
Q8: would tell other people good things about me	.62				
Q15: care about me as a person	.62		.33		
Q21: are easy to talk to about things besides school	.56				.36
Q23: take time to get to know me	.53				.49
Q20: push me to succeed	.44		.38	.31	.39
Q2: try to answer my questions		.69		.34	
Q7: answer my questions about how to do better		.67			
Q5: will listen if I want to talk about a problem		.62	.31		
Q4: take the time to help me get better grades		.61	.33		

Table E1 (continued). *Principle Component Analysis of Survey Items 1-25*

Rotated Component Matrix					
	Component				
Survey Item	1	2	3	4	5
Q9: are easy to talk to about school things	.36	.55			
Q10: challenge me to think about my future goals			.69		
Q3: are interested in my future		.40	.62		
Q6: are helpful when I have questions about career issues		.50	.55		
Q12: help me understand my strengths	.37		.53		
Q18: support my goals for the future	.42		.52		.31
Q16: expect me to study				.72	
Q1: Expect me to work hard in school.		.30		.69	
Q25: think I should go to college	.38			.57	
Q11: believe I am capable of achieving	.41	.34		.46	
Q13: want me to do well in school		.43		.44	

Table E1 (continued). *Principle Component Analysis of Survey Items 1-25*

	Rotated Component Matrix				
	Component				
Survey Item	1	2	3	4	5
Q22: let me know how to improve my grades		.44			.67
Q17: tell me if I'm not working hard enough			.31	.32	.63
Q24: evaluate my work carefully	.32				.54

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Appendix F

Table F1. *Component Score Coefficient Matrix*

	Component				
	1	2	3	4	5
Question 1	-.12	.03	.07	.35	-.17
Question 2	-.05	.39	-.21	.08	-.12
Question3	-.06	.04	.40	-.04	-.22
Question 4	-.14	.27	.04	-.11	.07
Question 5	-.03	.28	.04	-.13	-.10
Question 6	-.17	.15	.32	-.12	-.05
Question 7	-.12	.32	-.06	-.01	.00
Question 8	.30	-.04	-.04	.06	-.23
Question 9	.06	.23	-.20	.01	-.01
Question 10	-.13	-.16	.51	.03	-.06
Question 11	.09	.02	-.02	.17	-.11
Question 12	-.01	-.11	.30	-.05	.04
Question 13	-.01	.11	-.12	.15	.03
Question 14	.33	-.04	-.10	-.06	-.07
Question 15	.24	-.02	.03	-.07	-.09
Question 16	-.13	-.10	-.07	.40	.15

Table F1 (continued). *Component Score Coefficient Matrix*

	Component				
	1	2	3	4	5
Question 17	-.22	-.23	.16	.12	.45
Question 18	.04	-.17	.27	.00	.04
Question 19	.35	-.16	-.15	.14	-.09
Question 20	.07	-.17	.10	.07	.13
Question 21	.22	.04	-.10	-.25	.14
Question 22	-.12	.17	-.25	-.06	.46
Question 23	.17	-.03	-.08	-.19	.25
Question 24	.03	-.02	-.17	.01	.33
Question 25	.15	-.10	-.15	.28	-.02

Appendix G

Table G. *Correlation of Outcomes by Attitudes with sample size data*

		7th Reading	7th Writing	7th Math	HS Reading	HS Writing	HS Math
Accessible Scale	r (N)	-.05 (1508)	.02 (1502)	.01 (1507)	.01 (1845)	-.03 (1854)	.01 (847)
Expectation Scale	r (N)	-.01 (1508)	.16** (1502)	.06* (1507)	.04 (1845)	.07** (1854)	.10** (1847)
Feedback Scale	r (N)	-.04 (1500)	-.08** (1494)	-.07** (1499)	.11** (1837)	-.12** (1845)	-.04 (1838)
Invested Scale	r (N)	-.07** (1508)	-.04 (1502)	-.06* (1507)	.11** (1845)	-.08** (1854)	-.04 (1847)
Positive Regard Scale	r (N)	-.05* (1505)	.05* (1499)	.01 (1504)	-.01 (1840)	.02 (1849)	.03 (1842)
Academic Self Perception Scale	r (N)	-.01 (1494)	.21** (1488)	.18** (1493)	.16** (1830)	.18** (1838)	.22** (1832)
Motivation Self-Regulation Scale	r (N)	-.03 (1491)	.17** (1485)	.07* (1490)	.09** (1822)	.13** (1830)	.11** (1824)
Concrete Achievement Attitude Scale	r (N)	.06* (1481)	.27** (1475)	.25** (1480)	.26** (1811)	.26** (1819)	.21** (1813)

Table G (continued). *Correlation of Outcomes by Attitudes with N data*

		College Ready Courses	College Ready Courses & GPA	Course Rating Cumulative	Credits	Core GPA	Cum GPA
Accessible Scale	r (N)	.03 (1805)	.05* (1805)	.01 (1805)	.10** (1786)	.12** (1805)	.09** (1818)
Expectation Scale	r (N)	.14** (1805)	.16** (1805)	.11** (1805)	.14** (1786)	.19** (1805)	.18** (1818)
Feedback Scale	r (N)	-.09** (1795)	-.06* (1795)	-.10** (1795)	.05 (1776)	-.01 (1795)	-.05* (1808)
Invested Scale	r (N)	-.00 (1805)	.02 (1805)	-.04 (1805)	.09** (1786)	.07** (1805)	.04 (1818)
Positive Regard Scale	r (N)	.08** (1800)	.13** (1800)	.05 (1800)	.14** (1781)	.22** (1800)	.18** (1813)
Academic Self Perception Scale	r (N)	.27** (1789)	.33** (1789)	.26** (1789)	.18** (1770)	.43** (1789)	.40** (1802)
Motivation Self-Regulation Scale	r (N)	.24** (1781)	.31** (1781)	.20** (1781)	.16** (1762)	.44** (1781)	.41** (1794)
Concrete Achievement Attitude Scale	r (N)	-.27** (1771)	.26** (1771)	.32** (1771)	.17** (1752)	.27** (1771)	.27** (1784)