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A model of student engagement and academic achievement: the role of teacher-student relationships and teacher expectations

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A MODEL OF STUDENT ENGAGEMENT AND ACADEMIC ACHIEVEMENT: THE ROLE OF TEACHER-STUDENT RELATIONSHIPS AND TEACHER EXPECTATIONS

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DEDICATION

This work is dedicated to my husband Scott, my daughter Alyssa, and all of my family, whose love and support never failed me throughout this process.

It is especially dedicated to my mother, who was my first – and best – teacher. She remains the most excellent example I know of intelligence, strength, and determination. This work is hers as much as mine.

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Introduction

The achievement of ethnic minority students is a topic that has received a significant amount of attention over the past four decades. As school districts and state education agencies search for ways to effectively educate the greatest number of students, the persistent underachievement rate of African Americans in particular has become of increasing concern. African American students, especially males, have consistently been shown to have some of the highest dropouts rates, special education placements and disciplinary actions while having the lowest rates of overall achievement, graduation, and gifted and talented placements (Carpenter & Ramirez, 2007; Cokley & Moore, 2007; Garibaldi, 2007; Gregory & Weinstein, 2008; Shernoff & Schmidt, 2008).

In recent years, education experts and legislators have charged educators at a state and local level with comprehensive school reform, aimed at narrowing the gaps in achievement seen between African Americans and Caucasians (Vanneman, Hamilton, Anderson, & Rahman, 2009). In 2009, the National Center for Education Statistics (NCES) published its report on the current status of the African American-Caucasian achievement gap as related to performance on reading and math portions of the National Assessment of Education Progress (NAEP). The NCES data shows that the achievement gap is closing (Vanneman et al., 2009). Other researchers also noted that African American students' growth rates have increased in recent years (McMillan, 2003; NCES, 2009; Vanneman et al., 2009). Despite this positive change, current trends in the academic achievement of African American students still show cause for much

concern. Caucasian students' scores continue to significantly surpass those of African Americans in all academic areas. This trend persists at both the elementary and middle school levels and by all accounts remains difficult to change. For example, in the area of mathematics, the gap between Caucasian and African American students remains virtually unchanged when compared to the previous assessment in 1999. In the area of reading, recent NAEP results showed slight improvement in the African American-Caucasian achievement gap over the previous ten years. However, the magnitude of this gap is not significantly changed from that seen in the first assessment in 1980.

Data such as these provided by NCES are not unique. Educators and the community at large have been aware for quite some time that African American student achievement lags significantly behind that of Caucasians, and that school reforms are needed to narrow the gap (Garibaldi, 2007; Kaba, 2005; Mickelson & Greene, 2006). Educational agencies and local school districts continue to look at creative ways to promote the achievement of African American students.

Despite the small gains for African American students as a whole, an alarming trend has emerged when looking at gender differences in achievement for these students. By almost all measures, African American female students outperform their male counterparts (Mickelson & Greene, 2006). As described by McMillan (2003), virtually all recent gains in the attainment rates of higher education among African Americans reflect gains made by African American women. This is in contrast to the growth in achievement rates of African American males, which has remained surprisingly flat (Garibaldi, 2007; Mickelson & Greene, 2006).

Kaba (2005) states that African American females have not only gained tremendous ground in their rates of higher education attainment, but also that they have significantly widened

the gap between themselves and their male counterparts. He attributes this to the high dropout and low college graduation rates for African American males as well as their over-representation in the U.S. military and prison settings. Gender disparities in achievement can be seen between African American males and females at relatively early ages (Mickelson & Greene, 2006). Factors associated with decreased achievement for all students tend to affect African American males' disproportionately, including school discipline rates, suspensions/expulsions, and retention rates (Gregory & Weinstein, 2008; Kaba, 2005). African American males also have some of the lowest achievement scores of any subgroup. High school dropout, a highly significant educational outcome, has been linked to each of these variables (Carpenter & Ramirez, 2007; Hickman, Bartholomew, Mathwig, & Heinrich, 2008). Studies using African American student samples have confirmed the particular vulnerabilities of male students to behavioral, academic, and other risk factors (Hughes, Gleason, & Zhang, 2005; Sirin & Rogers-Sirin, 2005), even as early as kindergarten or first grade (Hamre & Pianta, 2001; Pianta, 1999). These studies point out the implications that relatively early school experiences may have on the increasing gender gap in African American students' educational attainment.

Aside from data pointing to lags in academic skill, the literature also reveals a pattern of teacher-student interactions that negatively impacts African American male students' school experiences and achievement. Classroom observations and anecdotal assessments indicate greater levels of relational conflict and emotional disconnect between African American boys and their teachers (Kesner, 2000; Pianta & Stuhlman, 2004; Saft & Pianta, 2001). Generally, teachers tend to rate African American males as more behaviorally challenged (Decker, Dona, & Christenson, 2007; Gregory & Weinstein, 2008) and more often exhibiting symptoms of anger or depressive mood (Roeser, Eccles, & Sameroff, 1998).

In addition, studies show that African American male students tend to have lower levels of engagement in classroom activities (Miller & Byrnes, 2001), feel less bonded with school (Gordon Rouse & Austin, 2002), and have lower academic self-concept (Skinner, Furrer, Marchand, & Kindermann, 2008) when compared to other ethnic groups and African American females. They are also more likely to view their school environments as unsupportive or racially biased (Chavous, Rivas-Drake, Smalls, Griffin, & Cogburn, 2008; Roeser et al., 1998) and are the least likely to benefit from the protective effects of a quality relationship with their teacher (Decker et al., 2007; Gregory & Weinstein, 2004).

In summary, these studies suggest that African American male students may experience more negative interpersonal experiences in school, compared to other ethnic groups and African-American female students. The purpose of this study is to examine student-teacher relationships and teacher expectations in order to better understand African American students' academic achievement.

Theoretical Framework

Developmental Systems Theory is concerned with the impact of systematic change on the individual across their lifespan (Bornstein & Lamb, 2005). It is derived from the ideas found in Urie Bronfenbrenner's classic text, *The Ecology of Human Development* (1979). Bronfenbrenner asserted that human development occurs within a nested set of interrelated environmental contexts. His perspective, along with the work of other ecological psychologists over the past twenty-five years, has contributed to the current conceptualization of the Developmental Systems model. As applied to education and child development, it allows researchers to explore the complex influences operating simultaneously at any given time on a child (Pianta, 1999).

Addressing the ways in which schools influence children's development, Eccles and Roser assert that they can be conceptualized as dynamic systems that are regulated in multiple, interrelated ways (organizationally, socially, instructionally, etc.) (Bornstein & Lamb, 2005). These processes change as children interact with and move through each part of the system. It is in this way that schools promote and help regulate children's cognitive, social-emotional, and behavioral development.

In their earlier work, Roeser and Eccles suggested that normative development in the context of school requires consideration of both inter-dependent, individual-level processes as well as the impact of educational contexts on the intellectual and social development of children (Sameroff, Lewis, & Miller, 2000). This would include what students *do* (a quantitative conceptualization), as well as more qualitative assessments of *why* students demonstrate various school behaviors.

Research on student achievement trajectories supports the idea that academic skill progression is a multi-faceted phenomenon that requires an interdisciplinary approach. Hickman, Bartholomew, Mathwig, and Heinrich (2008) describe a body of research that has uncovered multiple quantitative contributors to negative student outcomes such as underachievement, school failure, and dropout in particular. In their work, students who dropped out evidenced several indicators of a poor academic trajectory as early as kindergarten. These included lower course performance grades and standardized test scores. Also noted were greater rates of retention, absenteeism, behavior problems and court involvement. In contrast, their higher-achieving peers showed better grades in English and math, better test scores, and regularly took more challenging coursework. Unfortunate, but central to this line of research, is the idea that these trajectories start early in a students' academic career, require intensive and early

intervention to impact, and tend to be cumulative as students move through the educational pipeline (Anderson & Sadler, 2009; Downer & Pianta, 2006; Hecht & Greenfield, 2002; Jimerson, Egeland, Sroufe, & Carlson, 2000; Videen, 2010). Given this, it is fair to say that prior achievement is perhaps the strongest quantitatively-defined factor impacting student achievement.

The qualitative conceptualization of student functioning provided by Roser and Eccles includes the idea of internalized distress that manifests as academic problems (Sameroff et al., 2000). In this pattern, children's academic problems result in faulty attributions to a fixed sense of incompetence. In addition, the authors also propose an additional pathway in which an excess of negative affect leads to mood-congruent "biases of memory and attention". In this case, emotional distress affects motivation by altering children's perceptions during learning tasks. This tendency only promotes a cycle of distress-inducing attributions related to classroom performance. Teachers are seen as central to students' development of adaptive coping skills. Their ability to structure appropriate academic tasks, encourage the development of appropriate goal orientations, and promote quality classroom practices is described as being vital to students' emotional well-being.

Pianta and Stuhlman (2004) describe child development as being either facilitated or impeded by the acquisition of skills across social and cognitive domains. In the case of young children, they find the relationship between child and adult to be asymmetric, with adults having much more power and thus more control over the quality of the interactions. Because of this, the relationships young children experience with important adults are key to their development of social skills, communication, effort and attention regulation, and curiosity about the environment (Pianta & Stuhlman, 2004). Parenting literature has strongly supported the idea that parent-child

relationships which foster secure attachments between child and adult produce the most positive child outcomes (Bornstein & Lamb, 2005). Pianta believes that this pattern of interaction can also be applied to academic outcomes, and sees the interactions between teacher and student as crucial to the child's successful negotiation of the school as a system. Within this framework, teachers have emerged as highly influential developmental agents in the lives of children, impacting their psychological well-being and overall adjustment.

As teachers attempt to manage the multiple cognitive, emotional, and social factors of individual students operating in their classrooms, they alter the academic experiences of the students placed there. These factors appear to affect achievement indirectly, largely via their encouragement or suppression of achievement-promoting behavior (O'Connor & McCartney, 2007). For students who struggle academically or behaviorally, studies have shown an increase in maladaptive classroom behaviors once low-performing children become aware of their standing in relationship to peers (Bornstein & Lamb, 2005). This can undermine their current learning and approaches to future learning situations. Social-emotional classroom factors such as the social interactions that occur between individual students, their teachers, and peers have been linked to student motivation (Cornelius-White, 2007), active engaged time (Decker et al., 2007), and self-regulation (Gregory & Weinstein, 2004). Students with poor social-emotional adjustment have also been shown to have substantially more under-achievement, maintenance of low self-estimates of ability, defiance of authority, and school dropout (Gregory & Weinstein, 2008; Hickman et al., 2008; Maccoby, 2006). Given these findings, researchers have become increasingly concerned with the processes and interactions occurring within a child's environment, as opposed to solely emphasizing within-child factors.

Teacher-Student Relationships and Student Engagement

Quality teacher-student relationships have been consistently linked with a variety of positive outcomes for all students. High achievement, positive behavioral adjustment into middle school, and low levels of negative work habits have each been associated with student-teacher relationships (Hamre & Pianta, 2001). O'Connor and McCartney's work (2007) showed that a positive pattern of relationship quality beginning in preschool supported continued growth in children's achievement trajectories. Hughes, Gleason, and Zhang (2005) indicated that teacher's academic expectations – another correlate of academic achievement – were also positively related to relationship quality. These studies suggest that the quality of interactions between students and their teachers are important to the development of behavior patterns, social skills, and work habits that promote achievement over the course of a child's school career.

Pianta's model of teacher-student relationships (Pianta, 1999) proposes that teachers provide rewards and punishments, manage behaviors, and assess students' skill in the classroom. In doing so, they become a primary source of information to a child relative to his/her ability to self-regulate and perform academically. Pianta points out that students lacking in supportive relationships, especially with adults, do not do well in school. This is because of the role that adults have to play in helping children develop the competencies to function in demanding environments.

Literature concerning the teacher-student relationship supports the idea that it can have an overall positive impact on a student's academic achievement. Students of teachers who are rated as caring or close tend to exhibit achievement-promoting behaviors at higher rates, including academic engagement (O'Connor & McCartney, 2007; Wentzel, 2002), work habits (Hamre &

Pianta, 2001), and feelings of academic competence (Hughes et al., 2005; Paulson, Marchant, & Rothlisberg, 1998).

Relationship quality has been shown to influence the performance-based messages that are transmitted between teachers and students. When teachers perceive poor relationships with students, they tend to rate students as less competent academically (Hughes et al., 2005), less motivated (Seifert, 2004), and less likely to do well in school (Bornstein & Lamb, 2005; Chavous et al., 2008; Wentzel, 2002). Similarly, students report feeling less academically competent (Paulson et al., 1998) experience more negative feelings of self-worth (Maccoby, 2006), and perceive less support and respect (Roeser et al., 1998) when they experience negative relationships with teachers. Behaviorally, negative teacher-student relationships have been shown to manifest in less willingness to academically engage (Wentzel, 2002), lower motivation for classroom tasks (Maccoby, 2006), and more adult-defiant classroom behaviors (Gregory & Weinstein, 2008).

In an effort to better understand teacher-student relationships, parenting models have been used. Although limited, much of the work in understanding teacher-student relationships has used or adapted Baumrind's (1971) parenting style framework (Bornstein & Lamb, 2005; Pellerin, 2005). In particular, two broad dimensions of parenting have been used to examine the quality of teacher-student relationships: responsiveness and demandingness. Wentzel's (2002) study found that students' reports about teachers' responsiveness (fairness and a lack of negative feedback) and demandingness (rule-setting and high expectations) were consistently associated with differences in their motivational, academic, and behavioral outcomes. Walker (2008) found that students in classrooms rated as authoritarian had greater levels of self-handicapping and lower academic self-efficacy. In addition, Paulson, Marchant, and Rothlisberg (1998) found that

students who perceived authoritative styles from the teacher reported having the most positive learning contexts.

Relevant to this study is a finding that students' feeling of relatedness with the teacher is significantly related to their feelings of engagement in the classroom (Skinner, Kindermann, & Furrer, 2009). Skinner, Furrer, Marchand, and Kindermann (2008) describe behavioral engagement as students' effort, attention, and persistence during the execution of learning activities. Skinner, Kindermann, and Furrer (2009) specified markers of emotional engagement, which include enthusiasm, interest, enjoyment, and other emotions that reflect an energized emotional state. Within these definitions, the absence of engagement, effort, or persistence is considered as student disaffection, instead of low motivation. Students with low engagement and high disaffection would display traditional behaviors of passivity and lack of initiation or effort, but also mental withdrawal and ritualistic participation ("going through the motions"). In this study, student engagement is conceptualized to mediate the relation between teacher-student relationship and academic achievement.

Teacher-Student Relationships, Teacher Expectations, and the Gender Gap among African American Students

As a whole, African American students are at greater risk for academic underachievement and increased referrals for discipline problems (Gregory & Weinstein, 2008). They are also more likely to be placed in teacher-directed and less positively rated classrooms (Pianta, Paro, Payne, Cox, & Bradley, 2002). Research on teachers' perceptions of their relationships with African American students has indeed shown disparities in comparison to Caucasian students. As young as kindergarten, teachers rate their relationships with African American students as more conflicted (Jerome, Hamre, & Pianta, 2009). Saft and Pianta (2001)

found that student ethnicity was a significant predictor of teacher-child conflict, especially when the ethnicities of the teacher and child differed. Literature concerned with African American students' perceptions of their relationships with teachers is limited. However, it does seem that African American students are aware of this dynamic and may alter their classroom behaviors consequently. In a study of the predictors of classroom defiance and cooperation among African American middle school students, Gregory and Weinstein (2008) found these students' behavior and attendance changed significantly as a function of the relationship with the classroom teacher. African-American students' reports of their academic engagement behaviors, which are linked to teacher-student relationship quality, are significantly different from Caucasian students (Sirin & Rogers-Sirin, 2005).

Given the dearth of research on teacher-student relationships among African American students, it is not surprising that literature relating this to the gap in achievement between African American males and females is even more limited. In comparison to females, African American males are more likely to be perceived by teachers as behaviorally difficult and relationally negative (Hamre & Pianta, 2001), less socially responsible (Wentzel, 1997), and less capable academically (Mickelson & Greene, 2006; Ross & Jackson, 1991). Therefore, it is not surprising that African American males also tend to perceive their school environments as more racially discriminatory (Chavous et al., 2008) and also disengage from them earlier than their female counterparts – impacting their ultimate academic potential (Sirin & Rogers-Sirin, 2005; Wood, Kaplan, & McLoyd, 2007).

In general, teachers have been found to hold lower expectations for the future educational attainment of African American students as compared to Caucasians (Jussim & Harber, 2005; Ross & Jackson, 1991; Wood et al., 2007). This may be due to many factors. For

example, relationship quality has been shown to have a unique contribution to teacher expectations for students. Hughes, Gleason, and Zhang (2005) found that teacher's feelings of support in their relationships with individual students predicted their ratings of students' academic ability. This variable accounted for an additional 8.8% of variance, even after controlling for students' previous achievement, parent's level of education, and child gender/ethnicity. Similarly, Hinnant, O'Brien, and Ghazarian (2009) found that elementary students who were rated by their teachers as more cooperative, friendly, and mature in handling conflict tended to be rated significantly higher in their reading and math skills.

Despite the general finding that teachers tend to hold lower expectations for the educational attainment of African American students as compared to Caucasians, some studies have shown that teachers hold higher expectations of African American females than males (Ross & Jackson, 1991; Wood et al., 2007). Many researchers have also found that teachers develop positive relationships with females more easily regardless of ethnicity (Christopher, Gregory, & Kelly, 2008; Sirin & Rogers-Sirin, 2005). As pointed out by Jerome, Hamre, and Pianta (2009), this may be in part due to the "head start" that girls have in relationship-building skills relative to boys, even at the time of school entry. This might make African American girls relatively better positioned to develop positive relationships with their teachers as compared to African American males.

Research Questions

The purpose of this study was to examine teacher-student relationships, teacher expectations, and classroom engagement as important variables for academic achievement. The following research questions were explored:

1. Are there gender and ethnicity differences in academic achievement?

2. How do students perceive teacher-student relationships?
3. Do teacher expectations differ by student gender and ethnicity?
4. Do teacher-student relationships affect classroom engagement and thus academic achievement, after controlling for previous academic achievement and behavioral adjustment?
5. Does gender moderate the relation between student perceptions of teachers (teacher-student relationship and teacher expectations) and achievement?

It was hypothesized that (1) male and minority students report lower teacher-student relationships, (2) minority students report lower teacher expectations, (3) teacher relationship quality affects student engagement in classroom, and thus academic achievement, and (4) students' perceptions of teacher-student relationship and teacher expectations has a significant effect on academic achievement, with the moderating effect of gender.

CHAPTER 2

Literature Review

Despite the persistent concern over the achievement of African American students over the last thirty years, research on factors contributing to this trend is wanting. This is especially true in terms of early school-age studies, longitudinal research, and/or early childhood factors that may contribute to the problem. Recently, researchers Hooper et al. (2010) conducted one of the few studies aimed at examining the factors that contribute to reading and math achievement trajectories for African American students.

Using data from the NICHD Study of Child Care and Youth Development (SECCYD) and the Early Childhood Longitudinal Study (ECLS-K), the authors explored the impact of a variety of early school predictors on the achievement of approximately 12,000 students in grades kindergarten through nine. As compared to Caucasian students in both samples, the authors found that African American students had lower reading and math scores. They also showed slower rates of skill growth at all time points. In the ECLS-K study, African Americans who had high teacher ratings of aggressive behavior in kindergarten tended to make slower reading gains through high school than Caucasians with similar ratings. Yet, when rated as high on internalizing symptoms in early school years, their reading gains were superior. A similar finding was seen in math scores, where African American students rated high in both internalizing behaviors and attention from the ECLS-K showed more rapid rates of math progress than Caucasians with similar ratings.

Results from the above study validate achievement trends seen over the last thirty years. It also gives some credence to the increasingly relevant issue of whether African American students are differentially affected by classroom social-emotional factors than other ethnicities.

Hooper et al.'s results were not replicated in the SECCYD sample; nor have they been consistently seen in any similar study. These authors generally offer that kindergarten math, reading, and attention skills (in order of importance) appear to be the best predictors of later academic achievement for African Americans. Acknowledging the perplexities of many of their results, they propose that the findings only underscore the complexities of the variables influencing African American students' achievement.

Indeed, there seems to be an overabundance of information detailing trends of underachievement in this population, including disproportionately high levels of school failure, lower grades and consistently low performance on national assessments in comparison to other ethnic groups (Carpenter & Ramirez, 2007; Cokley & Moore, 2007; Graham, Taylor, & Hudley, 1998; Levine & Eubanks, 1990; Shernoff & Schmidt, 2008; Vanneman et al., 2009). African American students are also less likely to participate in classroom activities, have more absences, experience more behavior problems in school, and have less overall educational attainment (Carpenter & Ramirez, 2007; Finn & Rock, 1997; Garibaldi, 2007; Gregory & Weinstein, 2008; Kaba, 2005; Mickelson & Greene, 2006; Strambler & Weinstein, 2010).

For those African American students who do have the option to consider higher education, they continue to be at a disadvantage. A review of national education statistics provided by Garbaldi (2007) shows that African American students graduate high school at significantly lower rates than Caucasians, although there is some evidence that this rate is increased when researchers consider an age range that has been widened by approximately five years. The average score for African Americans on the American College Test (ACT) remains the lowest of any ethnic minority group and was five full points below that of Caucasians in

2007. Thus, it is not surprising that in 2003 approximately five times more Caucasians than African Americans were enrolled in college.

Given the well-documented status of the education of African American students in this country, it is somewhat surprising that relatively little research has been conducted on within-group achievement trends. In an analysis of the current status of research on the early achievement of African Americans and males in particular, Davis (2003) writes,

> Although recent attention has been paid to the relative poor academic performance of African American boys in school, its scope and focus are clearly not enough. Much of this work, I contend, is not really about understanding the achievement gap among Black boys and their peers. Rather, the field has been concerned about documenting poor performance and achievement deficits of Black males…(p. 522)

The unique situation of the African American student necessitates a need to move beyond mere descriptions of the problem. Although many areas of research for this population are lacking, some areas of inquiry have produced interesting findings that call for further investigation. For example, social comparison theory (Festinger, 1954) generally dictates that poor performance in school would lead to losses in self-esteem if students' self-comparisons continually show others as experiencing more positive academic outcomes than they are. However, for African American students, no such trend has been found. By and large, the research shows that these students have levels of self-esteem that equal or exceed the levels of Caucasian students, *regardless of their actual achievement* (Finn & Rock, 1997; Osbourne, 1995; Porter & Washington, 1979). Second, assertions that African American students do not value academic achievement are not supported (Ford, 1992; Gordon Rouse & Austin, 2002; Graham et al., 1998; Steinberg, Dornbusch, & Brown, 1992; Wood et al., 2007). That is, the vast

majority of these students believe that a good education will benefit them in the future and endorse desiring a quality education. Yet, while they endorse the benefits of doing well in school, they seem to devalue its importance, as evidenced by their stable levels of self-esteem in the face of low achievement rates and low levels of engagement.

Two studies conducted by Graham, Taylor, and Hudley (1998) examined the achievement values of African American middle school students in disadvantaged, urban school districts. Each proposed that students' valuing of achievement would impact their nominations of classmates they respected and admired. Using a sample of 300 students in a largely African American sample, the first study compared results of peer nominations to teachers' own ratings. Overall, results showed that indeed these students tended to value academic effort and success, with students rated by teachers as high in those qualities being nominated more often by their peers.

For their second study, Graham, Taylor and Hudley polled 400 students from an ethnically diverse middle school using the same procedures. This time, the authors compared students' peer nominations to student's actual grade point averages. Again, they found that generally, students tended to nominate students who were high achievers. In both studies, the authors noted that these students were overwhelmingly female. Yet across studies, when males did not nominate a female, the likelihood of their nominating a high-achiever decreased significantly. Overall, Caucasian boys were as likely as girls of all ethnicities to value high achievers. However, among African American students, low achievers were found to be significantly over-nominated, supporting the idea that these students have less valuing of academic achievement. In addition, when asked about negative characteristics such as low

achievement and a lack of effort/engagement, African-American males were overwhelmingly nominated by students across ethnicities, including their own.

Sirin and Roger-Sirin (2005) conducted a study that speaks to the unique interactions of achievement expectations and engagement for African American students. The study looked at behavioral and emotional aspects of school engagement, as well as expectations for education in a sample of 600 middle and high school students. The authors found that student-based factors such as cognitive ability, current grade level, and parents' level of education explained approximately 21% of the variance in these students' achievement scores. However, levels of engagement explained an additional 13% of achievement score variance, with school participation and expectations for education emerging as significant predictors of academic performance in this African American sample. Gender differences were also explored in this study. Sirin and Rogers-Sirin confirmed the existence of a significant gap in engagement between African American males and females in this study, with females showing consistently higher levels of behavioral engagement. They also endorsed expectations for additional education in the future. Given these findings, the authors concluded that school engagement is very important to the academic success of African American students. It is especially important for African American boys, who compared to girls, tend to be less engaged, participate less in class activities, and experience lower levels of achievement.

Studies such as those outlined above demonstrate the difficulties that African American students (and males in particular) appear to have in navigating their academic environment and the disengagement and ultimate lack of achievement that tends to materialize as a result. Researchers such as Fordham and Ogbu (1986) believe that these students' poor performance may be due to feelings of ambivalence and interpersonal disconnect in school. In particular, they

propose that socialization processes that are unique to many African-American households may be in direct opposition of the mainstream achievement values at work in traditional education settings.

Chavous et al. (2003) comments that conceptual and research models of race and achievement are largely based on the idea of group identification. In a risk model, African American students who recognize racially based social disparities may come to believe that education has relatively little use for their own future life goals (Fordham & Ogbu, 1986; Mickelson, 1990; Ogbu, 1987; Steele, 1997). In response, they disengage from school. Alternatively, when conceptualized as a protective factor, group identification may provide some benefit, motivating students to achieve by increasing their awareness of cultural issues related to access and opportunity.

Certainly, research has shown that there are associations between socialization processes that contribute to feelings of group identification and academic achievement for African Americans. Miller and Macintosh (1999) examined the impact of racial socialization, racial identity, discrimination, and stress on the educational involvement of 130 at-risk African American adolescents. Participants in the study were high school students recruited from juvenile court and various community programs for at risk youth. Miller and Macintosh found that the daily stress of these youths' living environments was strongly related to their poor achievement. However, the impact of these stressors was lessened for students reporting a strong, positive racial identity.

Chavous et al. (2003) investigated the impact of racial identity on the academic attainment of African American students. For their study, 606 students in grade twelve were interviewed about their self-efficacy, school attachment, and feelings about relevance and

importance of school. Students were also asked to rate themselves on identity variables, including the extent to which being African American was central to their identity and ratings of both their own and society's perceptions of the group. Results of Chavous et al.'s study revealed a significant association between feelings of racial identity and academic achievement. Regardless of their level of group identification, school importance tended to be rated similarly by study participants. However, students with low ratings of group identification, low feelings of regard for African Americans, and low perceptions of society's ratings of the ethnic group showed the least interest in school and had the lowest efficacy ratings. In contrast, those who had the highest ratings on identity variables also had the highest ratings of school relevance, interest in school, and feelings of efficacy.

It appears that messages about race do have an impact on the achievement of African American students. However, patterns of achievement in this population are far from static and defy simplistic explanation. There is some evidence that these messages may affect the beliefs and actions of males and females differently (Chavous et al., 2008; Sirin & Rogers-Sirin, 2005). In comparison to many other ethnicities, the current structure of the African American family emphasizes the roles of extended family members and outside significant others (Cheng & Starks, 2002; Fordham & Ogbu, 1986). Cheng and Starks' (2002) study on the influence of significant others on students' educational expectations supports this. Using data from the National Education Longitudinal Study (NELS), the authors looked at data on educational expectations for approximately 17,000 Asian American, Hispanic American, African American, and Caucasian students. Students responded to questions related to their expectations for ultimate educational attainment as well as their perceptions of the expectations of parents, close relatives, friends, and teachers.

Results of Cheng and Starks' study showed sizeable racial differences in students' own expectations, with Hispanic- and African-American students holding the lowest expectations for future education. Compared to Caucasians, all ethnic minority students benefited from the perception of high educational expectations from significant others. The authors found that mothers' expectations had the most influence on students, followed by fathers, then significant others. However, given the high rates of father absenteeism in African American families, the authors pointed out the magnified impact of significant others in the family/community on the educational expectations of African American students.

Teacher-Student Relationships

Teacher-student relationships are now seen as tremendously important to student achievement. Given the highly complex nature of the school system, it follows that teachers would play a pivotal role in encouraging students' emotional and behavioral growth, in addition to their academic skill development. Indeed, the role of teacher in this area is becoming even more crucial, as educators become ever more responsible for the achievement of all students, even those subgroups who remain most stubbornly "at-risk".

Teacher-student relationships have been defined in a variety of ways, ranging from frequency of positive interactions (Hughes, Cavell, & Willson, 2001) to student perceptions of perceived pedagogical caring (Wentzel, 2002). Generally, the most well-accepted and replicated works draw heavily from aspects of parent-child attachment theories, particularly that of psychoanalyst John Bowlby (1969). Bowlby is most well known for his assertion that a child's primary caregivers promote the child's development of an *internal working model*. This model acts as a sort of prototype, representing the child's expectations for adults' level of proximity, responsiveness, and ultimately their trustworthiness. As children enter school, they are

challenged to generalize the relationships formed with one or two primary caregivers to a variety of adults. It is at this time that teachers become increasingly important.

Research on attachment theory has supported the idea that teachers become influential attachment figures for children, providing nurturance, structure, and information related to competence and self-worth (O'Connor & McCartney, 2007). The work of Robert Pianta has specifically examined many of these exchanges. He proposes that many of the factors that place students "at-risk" can be conceptualized in relational terms. In fact, he asserts that interventions and assessments conceived solely on the basis of within-child factors such as cognitive ability, language development, and attention are short-sighted in their approach (Pianta & Stuhlman, 2004).

Pianta's model of teacher-student relationships asserts that they can be thought of in terms of their degree of closeness, conflict and dependency. Closeness represents the degree of warmth and communication between a teacher and a child. Conflict is characterized by discordant interactions and a lack of rapport. Finally, dependency is seen as teacher-perceived possessiveness or "clinginess" in a child. Pianta believes that the degree to which these factors are present in the relationship is predictive of students' early adjustment to school.

Birch and Ladd (1997) tested the validity of Pianta's model of teacher-student relationships in a sample of 200 kindergarten students and their teachers. The results supported the use of the three relationship factors of closeness, conflict, and dependency. The study also found significant relations between these factors and behavioral correlates of achievement such as attitude towards school and classroom participation.

Hamre and Pianta (2001) applied these constructs in studies of older students. They hypothesized that teacher-child relationship quality in kindergarten would be associated with a

variety of academic and behavioral outcomes through the eighth grade. Several hypotheses were investigated in their study. First, the authors believed that children's social coping skills (as measured via teacher ratings) would show moderate correlations with outcome measures in later grades, even after controlling for the influences of cognitive ability and classroom behavior. It was also proposed that the teachers' perception of the relationship would be more predictive of behavioral than academic outcomes. Finally, teacher's ratings of conflict in the relationship were expected to be a particularly robust predictor of later academic and behavior problems in a student.

The results supported the idea that early teacher-student relationships could predict academic and behavioral outcomes in later school years. Their work also found significant associations between teachers' ratings of negative relationships with students and poorer student outcomes in terms of grades, standardized test scores, and work habits. Kindergarten teachers' ratings of student dependency and relationship conflict were especially associated with later academic and behavioral functioning. In support of the second hypothesis, teachers' ratings were indeed more predictive of behavioral as opposed to academic outcomes in later grades. Perhaps most interesting was that negative teacher ratings were more predictive of later outcomes for boys in general and those students in the top third of negative behavior ratings regardless of gender.

In a study of teacher-student relationships and teachers' perceptions of students' academic competence, Hughes, Gleason and Zhang (2005) found that relationship factors predicted teachers' perceptions of ability regarding first grade students above and beyond students' achievement scores. This suggests that teacher-student interactions have a direct influence on teachers' assessments of students' capabilities, regardless of students' actual skill

levels. The work of Liew, Chen, and Hughes (2010) found similar results. In this study, positive teacher-student relationships (measured by teachers' reports of warmth and conflict) in first grade were found to predict second-grade achievement in a sample of low-income, ethnic minority students.

Associations between teacher-child relationships and specific language and reading skills have been found. Burchinal et al. (2002) explored family and classroom factors as predictors of academic skill development. Results indicated a positive association between teachers' reports of close relationships and students' academic progress. They were especially predictive of improved language skills in children of color, suggesting that good teacher-student relationships are more important to the development of some academic skills for these students. In a study of classroom quality and child outcomes, Pianta et al. (2002) analyzed observation data, teacher reports, and outcome variables from two hundred kindergarten classes. Classrooms that tended to be rated highest in overall quality and had the best student outcomes (high student engagement and positive teacher reports of students' math and literacy skills) also tended to be those classrooms rated highest on the use of child-centered instructional approaches. Child-centered instructional approaches are characterized by low levels of negativity from teacher to student, a supportive style of interaction, and allowance of students' freedom and choice.

Parenting Research as Applied to Teacher-Student Relationships

Students' feelings of academic competency and feelings of self-worth suffer when they experience negative relationships with teachers (Paulson et al., 1998; Thompson, Davidson, & Barber, 1995). In an effort to understand the complexities of the social interactions that occur in the classroom between teachers and children, researchers have begun to apply aspects of

parenting theory to the study of these relationships. It is here that the work of Diana Baumrind (1971) is highly influential.

Baumrind's work in the parenting literature is well documented and highly replicated. Her classification of parenting styles has been widely used in many studies. *Authoritarian* styles are characterized by high levels of parent control with correspondingly low amounts of nurturance. Parents with permissive styles are seen as more lax in parent control, and highest in nurturance. Non-conformist (or neglectful) parents are also seen as somewhat permissive, but generally lack the nurturance demonstrated by parents using other styles. Finally, the authoritative parenting style has more moderate levels of parent control and nurturance; these parents encourage the child's need to explore, yet set firm limits. Many studies have documented that this style of parenting is associated with the most positive child outcomes (Power, 2004; Spera, 2005).

As outlined earlier, literature on parenting styles as they are applied to teacher-child relationships is somewhat limited. However, results thus far suggest that these parenting paradigms could be used to better understand teaching practices. Paulson, Marchant, and Rothlisberg (1998) examined patterns of suburban fifth- and sixth-grade students' perceptions of home and school factors and the impact of these patterns on achievement. They were particularly interested in whether a lack of congruence between students' perceptions of parenting and teaching styles was associated with more negative achievement outcomes. Parenting and teaching style were assessed using items developed from the work of Maccoby and Martin (Maccoby & Martin, 1983) and tapped dimensions of demandingness and responsiveness. In support of Bowlby's (1969) ideas of internal working models, results showed that overall, students tended to perceive high degrees of congruence in their relationship with parents and

teachers. However, students' achievement outcomes were most positive when students' perceived authoritative styles from both parents and teachers.

A study by Walker (2008) also applied Baumrind's parenting styles to student-teacher relationships. Expecting authoritative parenting styles to function similarly for teacher-child interactions, she hypothesized that an authoritative teaching style would promote the most positive student outcomes. Walker assessed students' perceptions of their teachers' style as measured by responsiveness and demandingness over the course of a semester. Student engagement, classroom based self-efficacy, and standardized math scores were the outcome variables assessed in the sample of 85 fifth grade students and teachers in a rural school district. Results of the study confirmed Walker's hypotheses about teacher style. Students in the authoritarian-rated classroom had greater self-handicapping tendencies and lower self-efficacy as compared to those in authoritative classrooms. They were also less self-efficacious as compared to peers in a permissive classroom. Differences were also seen for students in the permissive classroom, which showed smaller gains in math achievement over the semester as compared to other classrooms.

Overall, promoting a quality relationship from the perspectives of both teacher and student appears important to later positive student outcomes. As a whole, students who have more positive relationships with teachers tend to have more appropriate academic skills and improved emotional/behavioral adjustment in comparison to other students. They also appear to be less vulnerable to the impact of other factors that may place them at risk, including poverty, minority ethnic status, or poor relationships with parents. These findings further highlight the importance of teacher-student relationships.

Teacher-Student Relationships and African American Students

Previous research has established that African American students are at increased risk for negative academic outcomes as compared to Caucasians, even before one considers the additional impact of within-child cognitive, emotional, and social factors on their achievement. African American children are more likely to come from poorer economic circumstances (De Civita, Pagani, Vitaro, & Tremblay, 2004), have less school readiness (Fantuzzo et al., 2007) and have parents with lower expectations of educational attainment and less involvement in school (Englund, Luckner, Whaley, & Egeland, 2004; Mistry, White, Benner, & Huynh, 2009). They are more likely to have low academic skills and be referred because of learning problems (Halle, Kurtz-Costes, & Mahoney, 1997). In terms of teacher-child interactions, research conducted thus far solidly indicates a disconnection between African American children and their teachers at surprisingly young ages.

A study by Hughes et al. (2005) confirmed that teachers report having poorer relationships with African American students as compared to Caucasians and Hispanics. Relationship factors such as teacher's feelings about the quality of student-teacher support and their feelings of alliance with students' parents were significantly linked to teachers' estimates of students' ability for African American students, who were consistently rated as less academically capable compared to other ethnic groups. This pattern of negative teacher-student relationships for African American students is unfortunate, considering the fact that multiple studies have demonstrated that positive relationships with teachers can be a significant protective factor for those students considered to be at risk for poor academic outcomes (Baker, 2006; Decker et al., 2007; Gregory & Weinstein, 2004; Hamre & Pianta, 2001).

Jerome, Hamre, and Pianta (2009) found that African American children were more likely to be rated as having conflict in their relationships with their kindergarten teachers. The authors also found that students' ethnicity was one of the few predictors that remained significant in sixth grade. The pattern of teacher-student relationships over time was also alarming. African American kindergarteners started out with higher teacher ratings of conflict compared to Caucasians, and this gap in ratings increased over time through middle school. This finding of increased conflict ratings stood regardless of African American students' actual achievement, gender, behavioral problems, maternal sensitivity, maternal education, or time spent in childcare.

Other studies speak directly to the association between teacher-student relationships and student behavior in African American samples. Gregory and Weinstein (2008) studied discipline data for 400 students at an urban high school, looking at whether incidences of defiance were isolated or a general approach to interactions with teachers. They also took an in-depth look at factors influencing students' decisions to behave both defiantly and cooperatively with teachers. The authors expected that both students and teachers would report that students were more cooperative with some teachers than others. The authors also hoped to reveal teacher qualities that promoted or discouraged students' cooperation.

Results of Gregory and Weinstein's study showed that indeed African American students were over-represented in referrals for behaviors described as "defiant." A close examination of these incidences revealed them to be situation-specific and highly dependent on students' perceptions of their relationship with the teacher. Reports from African American students showed that they were aware of the differences in their behavior in classes headed by their most- and least- preferred teachers. The students' reports were consistent with those of teachers and indicated an awareness of being actively more rule-breaking, defiant, and truant for teachers with

whom their relationship was lacking. Generally, students reported feeling more cared for and trusting of teachers they had positive relationships with; in turn, this contributed to an increased sense of obligation to cooperate with them. Students' cooperative attitude was highest for teachers that they described as both caring and holding high academic expectations for students.

The work of Kathryn Wentzel (2002) has been particularly insightful to the examination of teacher-student relationships as applied to African American samples. Her study examined the applicability of Baumrind's parenting models to classroom contexts, with effective authoritative teaching expected to be associated with motivational and behavioral aspects of students' school adjustment. Wentzel pulled from Baumrind's ideas of parents as providers of structure and nurturance for their children. She was also interested in Baumrind's descriptions of parents' demands for self-reliance/control, and their usefulness in encouraging appropriate communication of opinions and feelings in their children.

Wentzel's model of social and cognitive competence consists of five dimensions that are seen as central to positive development. The first, *Control*, reflects consistent discipline and provision of structure to children. *Maturity Demands* speak to the teacher's expectations that the student perform to his/her potential. *Democratic Communication* refers to the use of communication styles that honor children's ideas and feelings. *Nurturance* describes expressions of warmth and approval and protection of the child's well-being. *Control* and *Maturity Demands* comprise the Demandingness component of Baumrind's model, while *Democratic Communication* and *Nurturance* make up her Responsiveness factor. Wentzel also identifies teachers' *Modeling of Motivation*, a measure of teacher's ability to convey interest in classroom subject matter.

Findings from Wentzel's study revealed that students' motivation was positively related to teachers' motivation, democratic communication, control, and maturity demands. It had an inverse relationship to negative feedback. Students' pro-social behavior was associated with teachers' democratic communication, high expectations and low negative feedback. Overall, the five factors were consistently associated with student differences in motivational, academic, and behavioral outcomes. Students' reports about teacher characteristics also distinguished teachers in the five areas, supporting the use of this model as a way to conceptualize student-teacher interactions. Making Wentzel's work perhaps more valuable is the fact that these findings were seen in a sixth-grade, suburban sample drawing from two schools. One sub-sample was primarily Caucasian, with few disadvantaged students, and more experienced teachers. The second was overwhelmingly African American, with a significantly higher percentage of disadvantaged students, and teachers with considerably less experience. The consistent results in the highly diverse samples further support the applicability of Baumrind's model to child-adult interactions across a variety of cultures and economic circumstances.

Teacher Expectations and African American Achievement

The role of teacher expectations in predicting later student achievement has a strong research base. Researchers have documented that students for whom teachers hold higher academic expectations receive more participation opportunities, more opportunities for feedback, and higher peer ratings (Bornstein & Lamb, 2005). Similarly, teacher expectations have been linked to achievement indicators such as grade-point average and standardized test scores (Mistry et al., 2009), reading and math ability (Hinnant et al., 2009), and feelings of academic competence (Benner & Mistry, 2007).

In a review of research on the effects of teacher expectancies on achievement, Jussim and Harber (2005) found evidence in the literature that teachers have some tendency to favor those students for whom they hold higher educational expectations. For these students, teachers' judgments of their skills and abilities were less likely to be influenced by relationship and other non-academic contextual factors, and more based on actual achievement levels and social-emotional skills. However, teachers' judgments of students for whom they held lower expectations were more likely to be influenced by non-academic factors including parent involvement and peer acceptance. Given this, there is reason for concern about the increased vulnerability of minority groups to the potential negative effects of biased teacher judgments on their achievement.

Indeed, African American students are at a disadvantage in ratings of teacher expectations throughout the literature (Jussim & Harber, 2005). In a study of early teacher perceptions and later academic achievement, Gill and Reynolds (1999) examined the associations between teacher expectations and sixth-grade reading and math achievement in a sample of African American students. The authors found that teacher expectations mediated the effects of early intervention outcomes, even after controlling for demographic variables (i.e., gender and family income) and prior achievement. Supporting the idea that teacher expectations are more strongly related to achievement for ethnic minority students, Hinnant, O'Brien, and Ghazarian (2009) found that first grade teachers' expectations of reading performance had no reliable linkages to third grade reading performance – except in the case of African American and Hispanic boys. The authors pointed out that these students had the lowest performance when their abilities were under-estimated; however, they showed the greatest gains when their abilities were over-estimated.

In a study of the interactions of teacher expectations, classroom context, and achievement, McKown and Weinstein (2008) revealed that ethnic diversity plays a significant role in teachers' expectations for student achievement. Drawing from previous research indicating that teachers' expectations have implications for their instructional practices, they hypothesized that the more teachers were perceived as highly biased towards high-achievers, the more their expectations for students would be associated with students' ethnicity. They also predicted that these patterns would have significant implications for the year-end ethnic achievement gap. McKown and Weinstein tested their hypotheses among children from 83 urban, lower- and upper elementary classrooms. Results supported the authors' hypotheses; teachers of ethnically diverse classrooms who were seen by students as biased in their treatment of high- and low-achievers tended to expect significantly more from Caucasian than African American and Latino students. Interestingly, teachers' expectations had an impact on achievement over and above the contribution of classroom contextual variables (such as single or mixed-grade level), and students' prior achievement. McKown and Weinstein estimated that teacher expectations might contribute up to 0.38 standard deviations (or approximately 0.8 grade equivalents) to the year-end ethnic achievement gap.

The work of Diamond, Randolph, and Spillane (2004) illustrates a more global impact of ethnic stereotypes on the teachers' expectations. In their work, teachers' overall sense of responsibility for student learning was assessed to provide a broader, organization-focused perspective. Diamond et al. proposed that ethnic composition of the student body would be associated with teachers' sense of ownership of students' learning. Results of their study indicated significant differences in teachers' collective feelings depending on student ethnicity. In schools with a majority-African American and low-income student body, teachers felt less

collectively responsible for student learning. The authors conclude that, "The reduction of teachers' expectations and sense of responsibility … suggests a process through which de facto segregation contributes to a perpetuation of educational disadvantage" (Diamond et al., 2004, p. 94).

Gender and African American Students' Relationships with Teachers

Throughout the literature on teacher-student interactions, males' relationships with their teachers have been found to be less positive than females' (Hamre & Pianta, 2001). Kopke and Harkins (2008) point out that these findings may be due to differences in our gender socialization processes, with females more likely to possess the verbal ability and social connection skills needed to develop positive relationships with teachers at early ages.

Much of the work on teacher-student relationships generally compares ethnic minority student ratings to those of Caucasian students. Studies on within-group differences are rare. Thus, literature addressing teacher-student relationships with respect to the gender gap in African American achievement is nonexistent.

Existing studies addressing teacher-child interactions for African Americans often speak to gender differences as they are uncovered by secondary analysis of a larger research question. Zand and Thompson (2005) studied the impact of demographic, individual, and contextual variables on African American students' achievement in a sample of 174 African American adolescents participating in a substance use/abuse prevention program. Overall, feelings of self-worth were linked to feelings of bonding towards the school and overall achievement. However, they found significant differences among indicators of self-worth between males and females.

Similarly, Gordon Rouse and Austin (2002) found that the relationship between African American students' grade point average and self-concept beliefs varied according to gender.

High-ability African American females emerged as more motivated than males, expressing high valuing for academics, more positive beliefs about ability, and an increased internal locus of control. This pattern was unique to African American females in this study; it was made even more interesting because it was the inverse of patterns seen among female students of other ethnicities. In a study of teacher characteristics and their impact on teacher-student relationships, Kesner (2000) found that teacher ethnicity affected ratings of teacher-student relationships. Asian, Hispanic, and Caucasian teachers perceived their relationships with African American students as more dependent than those they had with students of other ethnicities. Gender differences were also seen among African American students; with teachers' relationships with boys being described as more conflicted and less close.

A study by Ross and Jackson (1991) highlights differences between African American males and females in another correlate of teacher-student relationships – teacher expectations for achievement. In their study of 90 suburban teachers of kindergarten through sixth grades, the authors found that teachers showed preference for African American females as opposed to males in their predictions of future educational attainment based on descriptions of fictional student histories.

Studies clearly document the challenges that African American male students have with developing quality teacher-student relationships as compared to other ethnic groups. Given this void, an exploration of within-group differences may be useful to our understanding of factors that contribute to their underachievement as compared to African American females.

CHAPTER 3

Method

Participants

Participants in the study were 522 students from a suburban school district in Michigan. Community data indicated a median income of $28,610 with 86.7 percent of residents in the community reporting that they hold a high school diploma (Ferguson, 2009b). Students were drawn from three elementary schools: two housing grades 2-6, and the other housing grades K-6. Participants were fourth (*n* = 131), fifth (*n* = 209), and sixth (*n* = 181) grade students. The school district reports an enrollment of approximately 3900 students, with 68% documented as eligible to receive free or reduced lunch (Center for Educational Performance and Information, 2010). Well over half of the students in this study self-identified as African American. Ethnicity groups were defined according to U.S. Department of Commerce guidelines as described by Humes, Jones, and Ramirez (2011). Students whose self-reported ethnicity was American Indian or Alaskan Native, Asian or Pacific Islander, African American, Hispanic, or multi-race (*n* = 391) are considered ethnic minorities. Students reporting Caucasian or Arabic ethnicity were considered as non-ethnic minorities (*n* = 123). Eight participants declined to report their ethnicity. To facilitate data analysis, the ethnicity categories for this sample were collapsed. Final categories were African American, Caucasian, Hispanic, and "Other" Non-White. Demographic information is contained in Table 1.

Table 1

*Demographic Characteristics (*N *=522)*

	Frequency	Percent
Gender		
Female	272	52.11
Male	249	47.70
Missing	1	0.19
Ethnicity		
African American	311	58.58
Caucasian	123	23.56
Hispanic	32	6.13
"Other" Non-White	48	9.20
Missing	8	1.53

Measures

Instruments used in this study included a demographic form, the Teacher as Social Context measure (Belmont, Skinner, Wellborn, & Connell, 1992), Skinner et al.'s (2009) Engagement vs. Disaffection with Learning measure, and the Child Rating Scale (Furrer & Skinner, 2003). Students' perceptions of their teacher's expectations were also assessed. Student achievement data was collected from the district database.

Demographic form. A demographic form was used for this study. Students provided information on their age, grade, ethnicity, and gender. Their responses were prompted using a forced choice format where appropriate.

Teacher-student relationships. The short form of the Teacher as Social Context (TASC) (Belmont et al., 1992) was used to measure perceptions of teacher-student relationships in this study. It is an assessment of teacher-student classroom interactions that includes both teacher- and student reports. The student self-report form of the TASC evaluated students' experiences of

teacher behavior according to three dimensions. In keeping with the definitions of teacher care-giving outlined by Wentzel (2002), the *Involvement* scale was used as a measure of teacher responsiveness/nurturance. The *Autonomy Support* scale of the TASC was used to assess teachers' use of democratic communication and encouragement of student maturity. Finally, the *Structure* scale was used to measure teachers' demandingness, including enforcement of rules/expectations for self-control and provision of classroom structure.

The TASC-SF contains 24 items (eight items for each of these factors) that tap both positive and negative interactions between teachers and students. Items for each subscale were pulled such that all subcomponents *(Affection, Attunement, Dedication of Resources, Dependability, Contingency, Expectations, Help/Support, Adjustment/Monitoring, Choice, Control, Respect, Relevance)* of the long-form are represented on the short-form measure. Item examples include: "My teacher really cares about me" (*Affection*); "My teacher talks with me" (*Dedication of Resources*); "My teacher doesn't make it clear what he/she expects of me in class" (*Expectations*); "My teacher checks to see if I'm ready before he/she starts a new topic" (*Adjustment/Monitoring*); "My teacher listens to my ideas" *(Respect)*. Students rated all TASC items according to how often they occur in the relationship using a 4-point Likert scale (1 = *Not at All True*, 2 = *Not Very True*, 3 = *Sort of True*, 4 = *Very True*).

The TASC technical manual offers alpha coefficients for each of the subscales that range from .54 *(Attunement)* to .77 *(Respect)*. Belmont et al. validated the short form of the TASC using a sample of 500 children in grades three through six. Reported alphas for the scales used in this study were $\alpha = .80$ (*Involvement*), $\alpha = .76$ (*Structure*), and $\alpha = .79$ (*Autonomy Support*). Scales were computed by averaging the scores from relevant items. To calculate TASC scores for the variables assessing negative aspects of teacher-student relationships

(Negative Involvement, Negative Structure, Negative Autonomy Support), responses were reverse-coded. Cronbach's alpha for the total scale was α = .91 in this study. For the three study scales, alpha values for this study were α = .82 for teacher Involvement, α = .76 for teacher's Provision of Structure, and α = .74 for the teacher's Autonomy Support scale.

Student classroom engagement. The Student report of Engagement vs. Disaffection With Learning measure (Skinner et al., 2009) assesses student's engagement in classroom activities. It has four scales, each with five items that tap aspects of students' behavioral and emotional participation or disengagement in class. The items of the *Behavioral Engagement* scale are concerned with student effort, attention, and persistence (e.g., "I pay attention in class"). The *Emotional Engagement* scale has items that reflect positive emotional states, such as "Class is fun." *Disaffection* scales generally reflect a lack of effort, persistence, interest or enthusiasm for class activities. Examples include, "In class, I do just enough to get by." (*Behavioral Disaffection*) and "When we work on something in class, I feel bored" (*Emotional Disaffection*). Students responded to items using a Likert-type scale ranging from 1 = *Not At All True* to 4 = *Very True*.

Skinner et al. (2009) reported the reliability coefficient for the composite scale as α = .92 for the end of the school year. Separately, reliabilities for the dimensions of engagement and disaffection were reported as α = .86 and α = .89, respectively. Test-retest reliability coefficients showed that students' scores were somewhat stable over the school year (average r = .62). Skinner et al. reported that comparisons of teacher and student reports indicated some convergence in ratings of engagement and disaffection (on average, r = .30). Pearson correlations supported construct validity in that student engagement was positively related to many known personal and social indicators of motivation, including perceptions of the teacher as hostile of

neglectful (r = -.65), a tendency to avoid challenges (r = -.75), and effort-based capacity beliefs (r = .71). Internal reliability estimates for this study were calculated using Cronbach's alpha, with the following results: Behavioral Engagement α = .76, Emotional Engagement α = .76, Behavioral Disaffection, α = .56, and Emotional Disaffection α = .66. The alpha coefficient for the Engagement vs. Disaffection scale was α = .86.

Student behavioral adjustment. The Child Rating Scale (CRS) (Hightower et al., 1987) measures students' reports of how they think, feel, and behave in school. The CRS is based on the Teacher-Child Rating scale, originally developed by Hightower et al. (1986). It contains 24 items that assess students' feelings about their strengths and problems. Four scales are included: Rule Compliance/Acting Out, Anxiety/Withdrawal, Peer Social Skills, and School Interest. The Rule Compliance/Acting Out scale, which assesses children's perceptions of their conduct in terms of following typical classroom rules, was used in this study. Each item on the CRS required the student to rate him- or herself on a three-point Likert scale to reflect the frequency with which the behavior or feeling occurs (1 = *Usually No*, 2 = *Sometimes*, 3 = *Usually Yes*). Examples are, "I follow the class rules", "I'm nervous", and "I make friends easily."

Hightower et al. (2003) investigated the psychometric properties of the CRS by administering the measure to five diverse, independent samples of first through sixth grade students (n = 2,381) representing 19 urban and 15 suburban schools in the East Coast area. Cronbach's alpha values were reported for three of the five student samples and ranged from α = .76 to α = .78. Test-retest reliabilities at four and ten weeks were reported as satisfactory and consistent with other self-report scales (a median value of α = .60). Demographic comparisons were conducted to support construct validity of the CRS. Overall, Hightower et al. confirmed significant results in the expected directions between suburban and urban children (p < .001) and

between girls and boys ($p < .001$). Children being seen through a mental health program assessed themselves as being considerably less well adjusted than other children in the study using the CRS ($p < .0001$). Significant associations were found between CRS scales and many similar measures of student adjustment. Specifically, Pearson correlation coefficients ranging from $r = -.16$ to .33 (at $p < .01$) were found between the CRS and scales of the Teacher-Child Rating Scale (Hightower et al., 1986). The Rule Compliance scale of the CRS was also positively correlated with the Teacher Self-Control Rating Scale (Humphrey, 1982), ($r = .44$, $p < .0001$). Children's experiences Anxiety/Withdrawal showed significant associations (correlations ranged from .28 to .62, $p < .01$) with Spielberger's (1973) State-Trait Anxiety Inventory for Children. Finally, the CRS was associated with various parent reports of their child's adjustment. Significant associations (*rs* = .25 to .36, $p < .01$) were seen between scales of the CRS and those of the Parent Evaluation Form (Pedro-Carroll & Cohen, 1985). In addition, parent's estimations of the child's number of friends were significantly ($p < .05$) and positively correlated with the Anxiety/Withdrawal ($r = .20$) and Social Skills ($r = -.19$) scales of the CRS. The internal consistency estimate for the Rule Compliance/Acting out scale as was $\alpha = .80$ for this study.

Teacher's expectations for future educational attainment. Six items from Cook et al (1996) were used to measure future educational expectations. Three items asked their own ideas; three items asked students' thoughts about their teacher's future expectations for them. Students rated the items, "How sure is your teacher that you will finish high school?" "How sure is your teacher that you will go to college?" "How sure is your teacher that you will finish college?" on a 5-point Likert scale from 1 = *Not At All Sure* to 5 = *Very Sure.*

Cook and colleagues' study (1996) reported a Cronbach's reliability coefficient of $\alpha = .75$ for the expectations children in grades one through eight held for their own education. Results of

the study showed significant correlations between Cook's measure and other predictors of future education. Status of the student's school (poor vs. affluent) was significantly and positively related to reports of attainment expectations for older boys in the study (r = .20, p < .01). The authors also demonstrated associations between the measure and other factors related to the educational expectations of students, including living with one's parents (r = .22, p < .01), the reported number of role models in a child's life (r = .27, p < .01), and feelings of perceived obstacles to success (r = -.14, p < .05). Providing additional support for the validity of Cook et al.'s measure, Benner and Mistry (2007) later found significant relationships between youths' educational expectations and their standardized test scores (r = .25, p < .01), as well as their overall expectations for success (r = .28, p < .01). Cronbach's alpha values were computed for both the teacher and student item sets. Internal consistency was reported as α = .94 for teacher items and α = .86 for student items. Analogous to the author's procedure, items from the student and teacher scales were combined into an overall Future Educational Expectations construct for the purposes of this study. Internal reliability analysis yielded a Cronbach's alpha value of .88 for this sample.

Student perceptions of teacher treatment. The Teacher Treatment Inventory (TTI) (Weinstein & Middlestadt, 1979) has 44 items that measure students' perceptions of teacher's communication of achievement expectations. Ten items from the *High Expectations, Opportunity, and Choice* scale of the self-rating form (Brattesani, Weinstein, & Marshall, 1984) were used in this study to measure students' perceptions of teachers' trust, positive feelings, and provision of opportunities/autonomy. Examples are, "The teacher trusts me" and "The teacher lets me do as I like as long as I finish my work". The Teacher Treatment Inventory requires

students to rate their responses on a 4-point Likert scale, 1 = *Never*, 2 = *Sometimes*, 3 = *Often, 4 = Always.*

Weinstein, Marshall, Brattesani, and Middlestadt's validation study of the TTI (1982) used a sample of 234 fourth, fifth, and sixth graders from urban, ethnically diverse schools. Cronbach's alpha values for all TTI scales were reported at $\alpha > .71$. The self-rating form (Brattesani et al., 1984) parallels the original version of the TTI but is phrased in the first person. The reported alpha value for the *High Expectations, Opportunity, and Choice* scale was $\alpha = .80$. Patterns of perceived treatment were also consistent with those found during observations of teacher-student interactions. Cronbach's alpha obtained for this study was $\alpha = .85$.

Teacher's achievement related beliefs. Items from the Patterns of Adaptive Learning Scale (PALS) (Midgley et al., 2000) were used to measure students' perceptions of teacher demandingness (expectations) during academic tasks in this study. The PALS instrument was developed to quantify relationships between the classroom environment and student motivation, affect, and behavior based on goal orientation theory. Teacher and student versions are available. The student version contains five scales: *Personal Achievement Goal Orientations* (six subscales, 32 items), *Perceptions of Teacher's Goals* (three subscales, 12 items), *Perceptions of the Goal Structures in the Classroom* (three subscales, 14 items), *Achievement-Related Beliefs, Attitudes, and Strategies* (eight subscales, 45 items), and *Perceptions of Parents and Home Life* (four subscales, 22 items). The seven items of the *Academic Press* subscale of the Achievement-Related Beliefs, Attitudes, and Strategies scale measured students' perceptions that their teachers press them for understanding. An examples are, "My teacher doesn't let me do just easy work, but makes me think." Student responses were rated on a 5-point Likert scale ranging from *1 = Not At All True* to *5 = Very True.*

The PALS was originally validated in 1997, and last revised in 2000. Alpha values provided for each subscale ranged from α = .71 to α = .89 (*Academic Press* subscale, α = .79). Midgley et al. (2000) report that the PALS has been used in nine, highly diverse school districts (up to 55% ethnic minority) in three Midwestern states. Student samples from elementary, middle, and high school settings were drawn from public schools. The Cronbach's alpha coefficient was .68 for this study.

A summary of the internal consistencies for all study scales is reported in Table 2.

Table 2

Cronbach's Alpha Coefficients for Study Scales

	N of Items	Cronbach's α
Teacher as Social Context Scale	24	.91
Total Involvement	8	.82
Total Structure	8	.76
Total Autonomy Support	8	.74
Teacher Expectations		
Teacher's Academic Press	7	.68
Perceived Teacher Treatment	10	.85
Expectations for Educational Attainment	6	.88
Student Behavior Adjustment		
Rule Compliance	6	.80
Student Engagement vs. Disaffection	20	.86
Behavioral Engagement	5	.77
Emotional Engagement	5	.76
Behavioral Disaffection	5	.57
Emotional Disaffection	5	.66

Student grades. As with the prior years' grades, students' year-end grades in reading and math were collected for the study. District grades are maintained via a central, web-based system. They were exported into a database for use in this study. Student's first semester (second quarter/card-marking) and second semester (fourth quarter/card-marking) letter grades were converted into a grade point equivalent according to district guidelines. Grade point equivalencies were calculated using a 4-point scale, with a letter grade of "A" equivalent to a 4.00, "B" equivalent to 3.00, "C" to 2.00, and so on. The average grade point for students' reading and math grades across the two semesters of the 2010-2011 school year represented Overall GPA in this study. Prior GPA reflected students' reading and math grade point average for the fourth quarter of the previous (2009-2010) year only.

District assessment data. Student reading and math achievement were also examined using Winter and Spring scores on the Measures of Academic Progress (MAP) assessment (Northwest Evaluation Association, 2009). The MAP assessment is an individually administered, adaptive, computer-based test of achievement. It is commonly used and assesses reading, math, language usage, and science content. Scores on the MAP test are given on a RIT scale, an equal interval scale that accounts for item difficulty. The NWEA is administered tri-annually, in the fall, winter, and spring. Spring 2010 math and reading RIT scores were used as an additional measure of students' prior achievement. RIT scores from the winter 2011 and spring 2011 administrations were used in this study as measures of current achievement. The reading scores and math scores were each averaged to provide the District Reading and District Math Assessment scores.

The Northwest Evaluation Association provided reliability coefficients for the MAP assessment in 2009. Data presented in the norms study points out that the adaptive nature of the test makes traditional measures of reliability (test-retest, parallel form, etc.) inappropriate. However, the authors report a correlation coefficient of approximately r = .82 for repeated assessments using item pools of similar structure (Northwest Evaluation Association, 2009). Correlations of repeated test administrations using significantly different item pools were nearly identical (approximately r = .83). In terms of validity, the NWEA MAP assessment is aligned with state curriculum content standards and assessments. Reported correlation coefficients for 2007 (the most recent information available) between MAP assessment results and those of other states' accountability tests ranged from r = .57 to r = .83. No correlations were reported related to Michigan accountability assessments.

Data Collection Procedures

The Human Investigations Committee at Wayne State University approved all procedures prior to data collection (Appendix A). Letters of support were also secured from district administration prior to the study (Appendix B). To increase student comfort and ease potential interruptions during recruitment and survey administration, teacher classrooms served as data collection sites for this study. Teachers were informed about the procedures of the study at staff meetings before student recruitment began. Their input was solicited during the planning phase to allow for minimal interruptions to students' instruction time.

Parents were mailed an information sheet at least two weeks prior to data collection (Appendix C). This sheet included the study purpose, procedure, risks, benefits, confidentiality, and how to contact the principal investigator with questions. It also included a tear-off sheet by which parents could refuse consent for their child to participate. The principal investigator and/or

research assistant visited each classroom on the designated date and time and dismissed the teacher before speaking to students about the research. They then informed the students about the study. A script was used for this portion of the administration (see Appendix D). All students were provided with two independent, free-time activities (a crossword/word search and a Sudoku puzzle). Non-participating students were identified and allowed to immediately begin these activities or read silently. It was reiterated to remaining students that participation in the study was voluntary and choosing not to participate had absolutely no impact on their grades, relationships with school staff, or treatment by research staff. They were also informed that staff would not know their participation status. Students were provided with a small reward (their choice of a pencil and eraser) as an incentive; this reward was provided to all students regardless of their participation.

Participating students provided oral assent to the principal investigator or research assistant before participating. The demographic form (Appendix E) was completed with students prior to completion of the survey packet. Total administration took approximately 30-40 minutes, and was completed in a single session. The principal investigator and research assistants collected all forms at the end of the session and remained to answer all questions.

To maintain confidentiality, student forms were number-coded. The students' participant identification numbers were created by pairing the last four digits of their district identification number with a unique four-digit code provided by the principal investigator. Codes provided by the principal investigator allowed for her to identify student's building and classroom placement as needed for pairing with district achievement and attendance data. After participant numbers were assigned, the tear off sheets were removed from the questionnaires and stored in a locked drawer of the principal investigator's personal office. The electronic list linking the students'

names to their participant numbers is stored on a password-protected flash drive, which is kept in a separate locked drawer of the principal investigator's personal office. Tear-off sheets will be shredded and the electronic database destroyed upon acceptance of the dissertation by the research committee.

Data Analysis Procedures

Student data was collected and entered into a computer database. IBM SPSS v. 19 for Mac OS was used for statistical analysis. Multiple Analysis of Variance and Structural Equation Modeling procedures were used to evaluate study data according to the research questions. See Table 3 for a list of the research questions and corresponding statistical methods.

Table 3

Research Questions, Hypotheses and Statistical Analyses

Research Questions and Hypotheses	Variables	Statistical Analysis
Research Question 1: Are there gender and ethnicity differences in academic achievement?		
H_{1A}: There are differences in academic achievement among gender and ethnicity groups H_{1B}: Females evidence higher achievement than males. H_{1C}: Non-ethnic minorities evidence higher achievement than ethnic minorities.	Predictor Variables: Student Gender Student Ethnicity Criterion Variables Overall Grade Point Average Reading Assessment Scores Math Assessment Scores	Multivariate Analysis of Variance
Research Question 2: How do students perceive teacher-student relationships?		
H_{2A}: There are differences in students' perceptions of teacher-student relationships among gender and ethnicity groups. H_{2B}: Females perceive more positive teacher-student relationships than males. H_{2C}: Non-ethnic minorities perceive more positive teacher-student relationships than ethnic minorities.	Predictor Variables: Student Gender Student Ethnicity Criterion Variables: Teacher-student relationship	Multivariate Analysis of Variance

Table 3 (continued)

Research Questions and Hypotheses	Variables	Statistical Analysis
Research Question 3: Do teacher expectations differ by student gender and ethnicity?		
H_{3a}: Students' perceptions of their teachers' expectations will differ among gender and ethnicity groups. H_{3b}: Females will perceive higher teacher expectations than males. H_{3c}: Non-ethnic minority students will perceive higher teacher expectations than ethnic minority students.	Predictor Variables: Student Gender Student Ethnicity Criterion Variables: Teacher's Academic Press Perceived Teacher Treatment Expectations for Educational Attainment	Multivariate Analysis of Variance
Research Question 4: Do teacher-student relationships affect classroom engagement and thus academic achievement, after controlling for previous academic achievement and behavioral adjustment?		
H_4: The relation between teacher-student relationship and achievement is mediated by classroom engagement.	Criterion Variable Achievement Predictor Variables Teacher-Student Relationship Mediator Variable Classroom Engagement	Structural Equation Modeling
Research Question 5: Does gender moderate the relation between student perceptions of teachers (teacher-student relationship and teacher expectations) and achievement?		
H_{5a}: Gender will moderate the relationship between student perceptions of teachers and achievement. H_{5b}: For African American students, the moderating effect of gender on the relation between relationship variables and achievement is stronger for females.	Criterion Variable Achievement Predictor Variables Teacher-Student Relationship Teacher Expectations Moderating Variable Student Gender	Structural Equation Modeling

Sample Size and Power

To determine the appropriate sample size for this study, a power analysis was completed using Sample Power 2.0. The power for a multiple analysis of variance with two independent variables at an alpha level .05 can yield a power of approximately .65 with 270 participants. Structural Equation Modeling (SEM) procedures were also used to address study questions, with comparable power estimations (approximately .60) for this sample size.

CHAPTER 4

Results

This chapter contains the results of statistical analyses that were conducted to address the research questions of this study. The purpose of this study was to examine patterns of academic achievement and how these may be related to teacher expectations, teacher-student relationships, and students' levels of classroom engagement. Gender patterns were also of interest, particularly among African American students. Inferential statistics were used to test the research questions. A criterion alpha level of .05 was used to determine statistical significance.

Preliminary Analyses

Participants' fourth quarter reading and math grades from the 2009-2010 school year (n = 420) were collected as a measure of their previous achievement. Scores on the district's year-end reading and math assessments were also used. Table 4 provides descriptive information.

Table 4

*2009 – 2010 Assessment Scores and Overall GPA (*N = *522)*

	N	*M*	*SD*	Minimum	Maximum
District Reading Assessment	188	201.86	13.77	161.00	235.00
District Math Assessment	213	203.40	13.09	166.00	242.00
Prior Overall GPA	418	2.87	0.89	0.00	4.33

Students' current achievement was also assessed using an average of their mid- and end-of-year GPA, as well as scores on the district's reading and math assessments

during the 2010-2011 year. Table 5 provides descriptive information for the current achievement data.

Table 5

Descriptive Statistics – Student Achievement

	N	*M*	*SD*	Minimum	Maximum
District Reading Assessment	519	206.57	13.23	164.00	251.00
District Math Assessment	519	209.37	13.48	165.00	249.00
2010-2011 Overall GPA	516	2.94	0.77	0.00	4.25

Variables addressing teacher-student relationships, teacher expectations, and student classroom engagement were used in this study. Student behavior adjustment was also measured via the Rule Compliance/Acting Out scale of the CRS. The mean for this scale was 15.51 (*N* = 503, *SD* = 2.96). Tables 6 and 7 provide descriptive information for these study variables. Pearson correlations for the study variables are provided in Table 8.

Table 6

Descriptive Statistics – Teacher-Student Relationship and Teacher Expectations

	N	*M*	*SD*	Minimum	Maximum
Teacher-Student Relationship					
Teacher Involvement	460	2.53	0.40	1.00	4.00
Provision of Structure	441	2.64	0.39	1.38	3.75
Autonomy Support	438	2.61	0.37	1.50	3.80

Table 6 (continued)

	N	Mean	*SD*	Minimum	Maximum
Teacher Expectations					
Academic Press	498	25.94	5.75	4.00	35.00
Perceived Teacher Treatment	430	2.58	0.57	1.00	4.00
Expectations for Educational Attainment	479	26.32	5.34	5.00	30.00

Table 7

Descriptive Statistics – Student Engagement versus Disaffection

	N	*M*	*SD*	Minimum	Maximum
Behavioral Engagement	503	3.35	0.59	1.00	4.00
Emotional Engagement	503	3.03	0.70	1.00	4.00
Behavioral Disaffection	502	3.05	0.59	1.00	4.00
Emotional Disaffection	503	3.27	0.63	1.00	4.00

Table 8

Pearson Correlations for Study Scales

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Involvement															
2. Structure	.23**														
3. Autonomy Support	.30**	.49**													
4. Academic Press	.14**	.19**	.24**												
5. Perceived Treatment	.27**	.21**	.21**	.38**											
6. Future Expectations	.07	.09*	.03	.28**	.48**										
7. Behavioral Engagement	.02	.03	.02	.19**	.39**	.44**									
8. Behavioral Disaffection	-.05	-.18**	-.16**	.06	.13**	.25**	.35**								
9. Emotional Engagement	.13**	.16**	.14**	.24**	.48**	.38**	.56**	.29**							
10. Emotional Disaffection	-.08	-.13**	-.11*	.17**	.28**	.37**	.36**	.53**	.50**						
11. Rule Compliance	-.04	-.12**	-.13**	.13**	.19**	.27**	.43**	.35**	.22**	.32**					
12. Reading Assessment	-.08	-.22**	-.20**	.20**	.07	.23**	.14**	.27**	.03	.32**	.32**				
13. Math Assessment	-.08	-.24**	-.20**	.17**	.01	.17**	.09*	.21**	-.02	.27**	.25**	.75**			
14. Prior GPA	-.01	-.14**	-.16**	.14**	.08	.20**	.19**	.28**	.12**	.28**	.28**	.50**	.48**		
15. Overall GPA	.01	-.14**	-.16**	.17**	.12**	.25**	.22**	.28**	.08	.23**	.28**	.51**	.46**	.70**	

Note. * $p < .05$; ** $p < .01$

Research Questions

Research Question 1. Are there gender and ethnicity differences in academic achievement?

Hypothesis 1a. There are differences in academic achievement among gender and ethnicity groups.

Hypothesis 1b. Females evidence higher achievement than males.

Hypothesis 1c. Non-ethnic minorities evidence higher achievement than ethnic minorities.

Multivariate analysis of variance was used to explore the above research question. Box's M was used to test the assumption that the within-group covariance matrices were equal. Results were significant, suggesting that this assumption was violated (*Box's M* = 74.41, *F*(42, 26041.57) = 1.69, *p* = .003). Although Box's M is known to be robust despite this violation, results should be interpreted with this in mind.

Differences in students' achievement according to gender and ethnicity were analyzed with a 2 x 4 MANOVA. Means and standard deviations of achievement scores by gender and ethnicity are presented in Tables 9 and 10.

Table 9

Descriptive Statistics by Gender – Student Achievement

	N	*M*	*SD*	Minimum	Maximum
District Reading Assessment					
Female	269	207.60	12.47	170.50	251.00
Male	249	205.44	13.97	164.00	245.00

Table 9 (continued)

	N	*M*	*SD*	Minimum	Maximum
District Math Assessment					
Female	269	208.24	13.52	165.00	241.00
Male	249	210.61	13.37	174.00	249.50
2010-2011 Overall GPA					
Female	272	2.94	0.79	0.58	4.25
Male	243	2.93	0.75	0.00	4.25

Table 10

Descriptive Statistics by Ethnicity – Student Achievement

	N	*M*	*SD*	Minimum	Maximum
District Reading Assessment					
African American	309	204.40	12.49	164.00	236.00
Caucasian	122	211.77	14.90	176.50	251.00
Hispanic	32	207.56	11.53	176.00	231.00
“Other” Non-White	48	207.96	10.39	176.00	232.00
District Math Assessment					
African American	309	206.50	12.63	165.00	241.50
Caucasian	122	216.39	14.21	177.50	249.50
Hispanic	32	210.53	12.23	179.00	233.00
“Other” Non-White	48	210.29	11.58	180.50	231.50
2010-2011 Overall GPA					
African American	307	2.84	0.75	0.00	4.17
Caucasian	121	3.11	0.81	0.58	4.25
Hispanic	32	3.17	0.72	1.17	4.17
“Other” Non-White	48	2.99	0.78	0.75	4.25

Results of the MANOVA are presented in Table 11. The Pillai's Trace value of .03 was significant for the main effect of gender [$F(3, 495) = 5.29$, $p = .001$, $\eta^2 = .03$]. Ethnicity was also shown to be significant [Pillai's Trace = .10; $F(9, 1491) = 5.87$, $p = .000$, $\eta^2 = .03$], indicating that each of the factors significantly contributed to the group differences in achievement. No significant interaction effects were found.

Table 11

Multivariate and Univariate Analysis of Variance F *Ratios for Gender* x *Ethnicity Effects for Achievement Measures*

		ANOVA *F*		
Variable	MANOVA *F*	Overall GPA	District Reading Assessment	District Math Assessment
Gender[a,c] (G)	5.29***	2.23	0.02	5.43*
Ethnicity[b,d] (E)	5.87***	5.11**	8.99***	17.04***
G x E [b,d]	0.83	1.39	0.99	0.39

Note. Multivariate *F* ratios were generated from Pillai's Trace. ANOVA = univariate analysis of variance; MANOVA = multivariate analysis of variance.
[a]Multivariate *df* = 3, 495. [b]Multivariate *df* = 9, 1491. [c]Univariate *df* = 1, 497. [d]Univariate *df* = 3, 497.
*$p < .05$. **$p < .01$. ***$p < .001$.

To explore the group differences more specifically, between-subjects testing procedures were performed using Analysis of Variance (ANOVA) for each achievement variable according to gender and ethnicity. At this level of analysis, Levene's test was used to verify the assumption of equal variances within the sample. Results supported this assumption for all measures of achievement except students' district reading assessment score [$F(7, 497) = 2.61$, $p = .01$].

Gender Differences in Student Achievement

Overall GPA. As shown in Table 11, univariate *F* tests compared gender group differences in students' GPA across the 2010-2011 school year. Results showed that gender did not significantly contribute to differences in students' overall GPA: $F(1, 497) = 2.23$, $p = .136$, $\eta^2 = .00$.

District Reading and Math Assessments. Between-subjects tests were run to determine the role of gender in student's performance on the district's reading and math assessments across the school year. Results indicated a statistically significant difference between male and female performance on the math assessments, with the male group having a mean RIT score that was 2.39 points higher than that of the female group [$F(1, 497) = 5.43$, $p = .020$, $\eta^2 = .01$]. However, performance on the reading assessment did not show statistically significant differences by gender, $F(1, 497) = 0.02$, $p = .884$, $\eta^2 = .00$.

Ethnic Differences in Student Achievement

Univariate *F*-tests with post-hoc comparisons were also used to determine which types of achievement outcomes contributed to the significant main effect results for student ethnicity. Results appear in Table 11.

Overall GPA. Statistically significant results were found for students' overall GPA, with Caucasian students showing better GPAs on average than African American students (mean difference = .27 grade points, $p = .005$, $\eta^2 = .03$).

District Reading and Math Assessments. Between-subjects tests showed that ethnicity was also related to performance on district assessments (significant at $p = .000$ for both assessments). Post-hoc testing for the reading and math assessments using Tukey's HSD showed

that Caucasian students' RIT scores for the reading assessment were significantly higher than those of African American students (p = .000), surpassing them by an average of 7.04 points. On the math assessment, this pattern persisted. Results of post-hoc testing showed RIT scores for Caucasian students that were nearly ten points higher than African Americans' (mean difference = 9.69, p = .000). They also significantly out-scored the "Other" Non-White group (students of Native American, Asian, and Multi-ethnic heritage) by an average of 5.93 points on the math assessment (significant at p = .036).

Research Question 2. How do students perceive teacher-student relationships?

Hypothesis 2a: There are differences in students' perceptions of teacher-student relationships among gender and ethnicity groups.

Hypothesis 2b: Females perceive more positive teacher-student relationships than males.

Hypothesis 2c: Non-ethnic minorities perceive more positive teacher-student relationships than ethnic minorities.

A 2 x 4 MANOVA was used to examine the impact of gender and ethnicity on students' perceptions of teachers' Involvement, Provision of Structure, and Autonomy Support. Equality of the covariance matrices across the dependent variables was verified: Box's M = 54.00, F(42, 14283.00) = 1.21, p = .164. Levene's homogeneity of variance tests were performed and confirmed assumptions of homogeneity for all scales. Means and standard deviations by gender and ethnicity are provided in Tables 12 and 13.

Table 12

Descriptive Statistics by Gender – Teacher-Student Relationship

	N	*M*	*SD*	Minimum	Maximum

Teacher Involvement					
Female	244	2.54	0.42	1.00	4.00
Male	215	2.53	0.39	1.60	3.73

Table 12 (continued)

	N	*M*	*SD*	Minimum	Maximum
Teacher Provision of Structure					
Female	235	2.61	0.40	1.38	3.75
Male	205	2.67	0.39	1.50	3.75
Teacher Autonomy Support					
Female	237	2.60	0.38	1.50	3.70
Male	200	2.63	0.35	1.60	3.80

Table 13

Descriptive Statistics by Ethnicity – Teacher-Student Relationship

	N	*M*	*SD*	Minimum	Maximum
Teacher Involvement					
African American	267	2.54	0.42	1.00	4.00
Caucasian	114	2.55	0.40	1.73	3.50
Hispanic	31	2.48	0.37	1.60	3.10
“Other” Non-White	40	2.54	0.32	1.70	3.20
Provision of Structure					
African American	250	2.66	0.40	1.38	3.75
Caucasian	116	2.59	0.40	1.38	3.75
Hispanic	31	2.56	0.45	1.50	3.50
“Other” Non-White	36	2.68	0.27	2.13	3.25
Autonomy Support					
African American	252	2.62	0.38	1.50	3.80
Caucasian	112	2.55	0.37	1.97	3.70
Hispanic	28	2.59	0.28	2.03	3.10
“Other” Non-White	39	2.72	0.33	2.20	3.50

As demonstrated in Table 14, results of the 2 x 4 MANOVA show that the interaction of gender and ethnicity significantly impacted outcomes on teacher-student relationship measures (p = .023). Gender and ethnicity as main effects did not significantly impact students' perceptions of teacher-student relationships [gender, p = .272; ethnicity, p = .135]. However, between-subjects testing showed a significant interaction effect for the two factors on the Provision of Structure scale (p = .033).

Table 14

Multivariate and Univariate Analysis of Variance F *Ratios for Gender* x *Ethnicity Effects for Teacher-Student Relationship*

		ANOVA *F*		
Variable	MANOVA *F*	Teacher Involvement	Provision of Structure	Autonomy Support
Gender [a,b] (G)	1.31	0.62	2.56	0.39
Ethnicity [c] (E)	1.86	0.45	0.48	1.19
G x E [c]	3.21*	1.08	2.95*	1.16

Note. Multivariate *F* ratios were generated from Roy's Largest Root. ANOVA = univariate analysis of variance; MANOVA = multivariate analysis of variance.
[a]Multivariate df = 3, 382. [b]Univariate df = 1, 384. [c]Univariate df = 3, 384.
*p < .05.

Interactions of Gender and Ethnicity in Perceptions of Teacher-student relationships

To more specifically examine the group differences found in perceived teacher-student relationships, MANOVA testing was performed again after first splitting the data file according to ethnicity and re-running the MANOVA with gender as the single predictor variable. The equality of covariance matrices was supported for each ethnicity group at p >.05. The Pillai's Trace value of .27 showed significant gender differences for Hispanic students [F(3, 24) = 2.97,

p = .052, η^2 = .27], specifically on the Provision of Structure scale [univariate $F(1, 26) = 5.02$, p = .034, η^2 = .16]. Hispanic males reported higher scores on this scale, an average of 0.38 points higher than females.

The above procedure was reversed to examine the impact of ethnicity on experiences of teacher-student relationships for each gender group. Results did not show that ethnicity significantly contributed to differences in perceived teacher-student relationship for the male [Pillai's Trace = .05; $F(9, 552) = 1.05$, p = .399, η^2 = .02] and female [Pillai's Trace = .05; $F(9, 600) = 1.18$, p = .307, η^2 = .02] groups in this sample.

Gender and Ethnic Differences in Teacher-Student Relationships

Follow-up *F*-tests for showed no significant differences in males' and females' perceptions of their teachers' overall Involvement, Provision of Structure, or Autonomy Support. Ethnic group did not have a significantly impact on perceptions of their teacher's overall Involvement, Provision of Structure, or Autonomy Support.

Research Question 3. Do students' perceived teacher expectations differ by student gender and ethnicity?

Hypothesis 3a. There are differences in students' perceptions of their teachers' expectations among gender and ethnicity groups.

Hypothesis 3b. Females perceive higher teacher expectations than males.

*Hypothesis 3c***.** Non-ethnic minority students perceive higher teacher expectations than ethnic minority students.

Multivariate analysis was used for the third research question, which examined the effects of gender and ethnicity on students' perceptions of their teacher's school-related expectations for them. Box's *M* test of covariance was used to establish

foundational assumptions of homoscedasticity [$F(42, 18048.49) = 45.19$, $p = .44$] for the 2 x 4 MANOVA. Tables 15 and 16 show means and standard deviations according to gender and ethnicity.

Table 15

Descriptive Statistics by Gender – Teacher Expectations

	N	*M*	*SD*	Minimum	Maximum
Teacher's Academic Press					
Female	265	25.86	5.89	8.00	35.00
Male	232	26.00	5.60	4.00	35.00
Perceived Teacher Treatment					
Female	234	2.61	0.58	1.00	4.00
Male	195	2.55	0.56	1.10	3.60
Expectations for Educational Attainment					
Female	261	26.53	5.10	5.00	30.00
Male	217	26.04	5.62	6.00	30.00

Table 16

Descriptive Statistics by Ethnicity – Teacher Expectations

	N	*M*	*SD*	Minimum	Maximum
Teacher's Academic Press					
African American	295	25.72	6.08	4.00	35.00
Caucasian	119	26.38	5.30	11.00	35.00
Hispanic	32	25.00	5.58	15.00	35.00
"Other" Non-White	44	26.84	4.91	17.00	35.00

Table 16 (continued)

	N	*M*	*SD*	Minimum	Maximum
Perceived Teacher Treatment					
African American	247	2.62	0.57	1.10	4.00
Caucasian	110	2.53	0.57	1.20	3.90
Hispanic	29	2.49	0.63	1.00	3.40
"Other" Non-White	38	2.61	0.48	1.50	3.60
Expectations for Educational Attainment					
African American	282	26.50	5.34	5.00	30.00
Caucasian	116	26.28	5.20	9.00	30.00
Hispanic	31	26.45	5.16	13.00	30.00
"Other" Non-White	42	25.48	5.40	10.00	30.00

As indicated in Table 17, the multivariate analysis did not show statistically significant results for the main effect of gender or ethnicity on teacher expectations. Interaction effects for these factors also were not significant.

Table 17

Multivariate and Univariate Analysis of Variance F *Ratios for Gender* x *Ethnicity Effects for Teacher Expectations Variables*

		ANOVA *F*		
Variable	MANOVA *F*	Teacher's Academic Press	Perceptions of Teacher Treatment	Expectations for Attainment
Gender [a,c] (G)	0.45	0.29	0.11	0.51
Ethnicity [b,d] (E)	0.99	0.34	1.02	0.85
G x E [b,d]	0.84	0.23	1.98	0.12

Note. Multivariate *F* ratios were generated from Pillai's Trace. ANOVA = univariate analysis of variance; MANOVA = multivariate analysis of variance.
[a]Multivariate *df* = 3, 405. [b]Multivariate *df* = 9, 1221. [c]Univariate *df* = 1, 407. [d]Univariate *df* = 3, 407.

Research Question 4. Do teacher-student relationships affect classroom engagement and thus academic achievement, after controlling for previous academic achievement and behavioral adjustment?

Hypothesis 4. After controlling for behavior adjustment and prior achievement, the relation between teacher-student relationship and achievement is mediated by classroom engagement.

Structural Equation Modeling (SEM) was used to address the fourth research question. SEM is viewed as a more powerful alternative to traditional causal modeling techniques such as multiple regression, path analysis, factor analysis, analysis of covariance, etc. (Marshall & Weinstein, 1984). Advantages of this approach include flexibility of assumptions in cases of non-normal data, the reduction of measurement error via the use of multiple indicators for the latent variables teacher-student relationship, teacher expectations, and engagement, freedom to create comprehensive models that include multiple mediators and/or moderators, and the ability to compare model fit across groups of subjects.

A hybrid method of confirmatory and exploratory approaches was used to test the model proposed in Figure 1. Using procedures outlined by Garson (1984), a measurement model was created representing the proposed interactions between the latent variables teacher-student relationship, student classroom engagement, and the observed variable of student achievement. Although originally conceptualized as a latent variable including students' performances on district reading and math assessments as well as their GPA, fundamental problems with school assessment data prevented its inclusion in the student achievement factor of the model. Descriptive

information for the reading and math assessments from the end of the previous (2009-2010) school year showed that between one-half and two thirds of the participating students were missing at least one score (missing values were *n* =334 for reading and *n* = 309 for math). Thus, the observed variable of students' GPA was used. Observed variables addressing student behavior (Rule Compliance/Acting Out behavior) and prior achievement were also included. Sample size (*N* = 522*)* was adequate for this analysis. The AMOS 19 Maximum Method of Estimation was used to evaluate the model, and missing values were imputed using Maximum Likelihood imputation. Normality testing was also performed and suggested non-normal distribution of the data (Mardia's Coefficient = 28.31). Results should be interpreted with this in mind.

Figure 1.

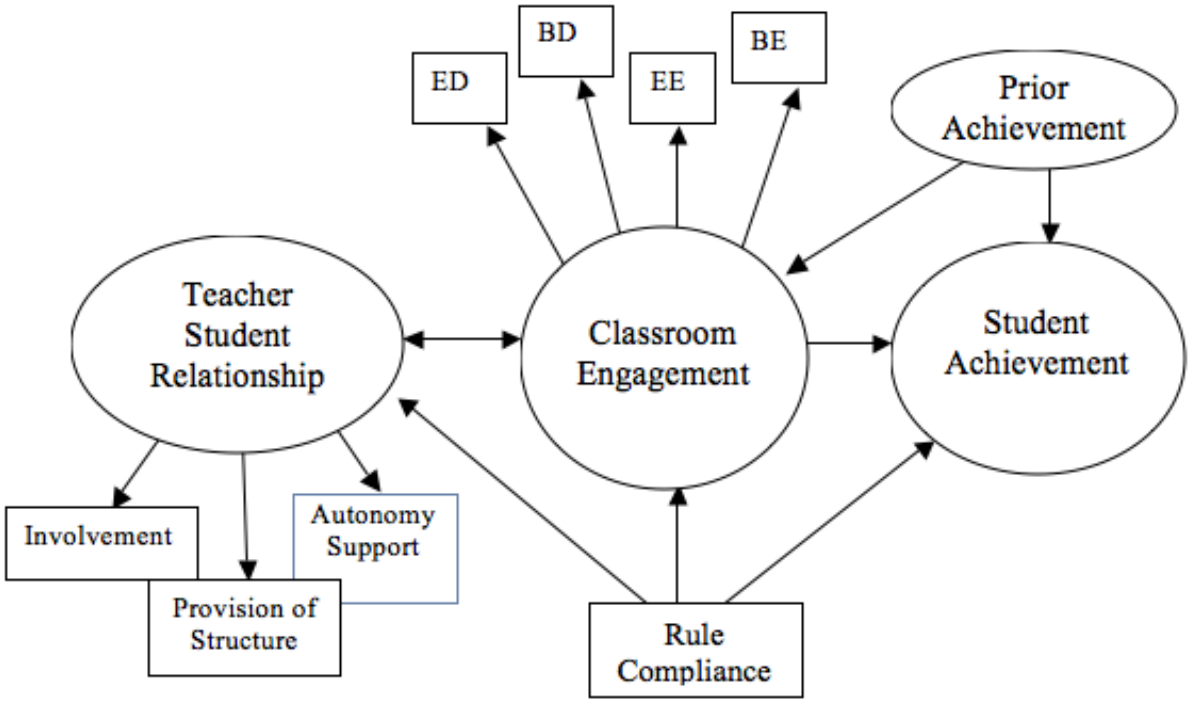

Figure 1. Proposed model for the interactions of teacher-student relationship, student behavior, classroom engagement, and student achievement. Latent constructs are shown in ellipses and observed variables are shown in rectangles. ED = Emotional Disaffection; BD = Behavioral Disaffection; EE = Emotional Engagement; BE = Behavioral Engagement.

Model fit was determined by entering the variables according to the initial conceptualization in Figure 1. This was followed by a review of modification indices. The resulting measurement model and corresponding path coefficients are shown in Figure 2.

Figure 2.

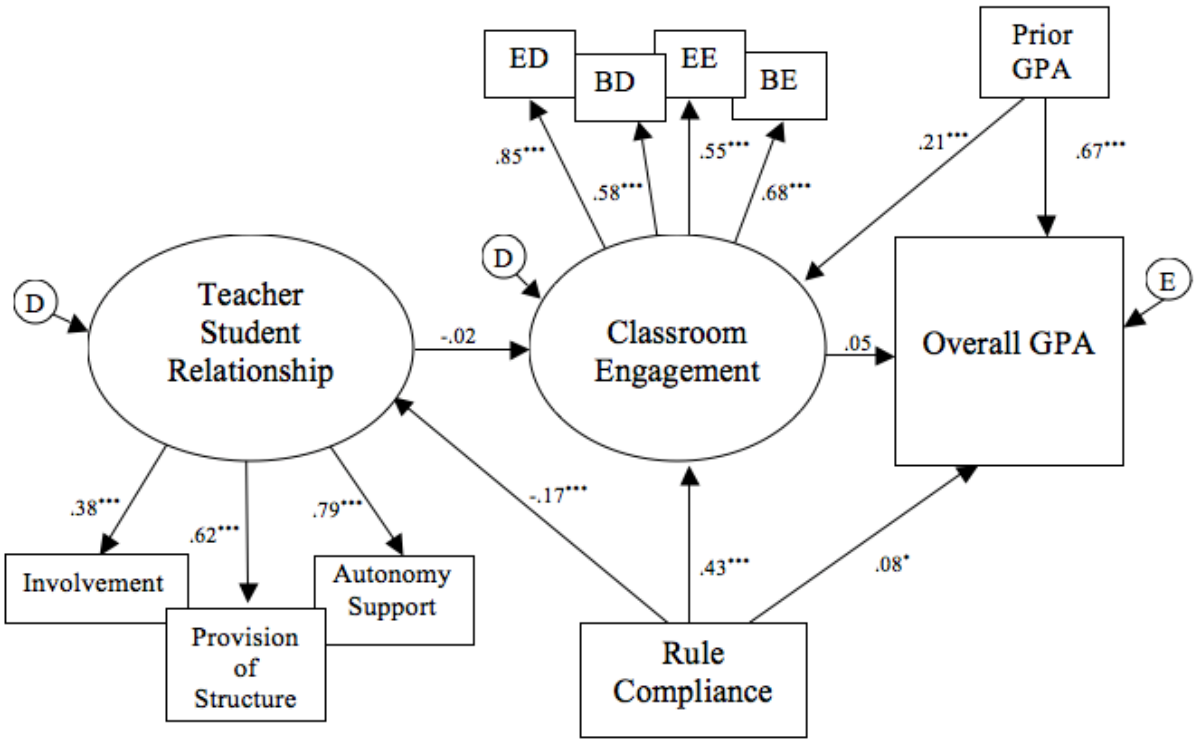

Figure 2. Confirmed model for the interactions of teacher-student relationships, student behavior, classroom engagement, and student achievement. Latent constructs are shown in ellipses and observed variables are shown in rectangles. ED = Emotional Disaffection. BD = Behavioral Disaffection. EE = Emotional Engagement. BE = Behavioral Engagement.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Goodness-of-Fit indices for the model were adequate, with a Comparative Fit Index (*CFI)* of .89. The Root Mean Square Error of Approximation (*RMSEA*) was also adequate, with a value of .08. Tests of model deviance using Relative Chi-square (*CMIN/df*) also indicated acceptable model fit ($\chi^2(29) = 6.04$). The significance level associated with the Chi-square statistic ($p = .000$) implies poor fit. Yet, Garson (1984) notes that this metric is prone to rejection of models with sample sizes over approximately 200. Given the adequate results from various other indices, it seems reasonable to retain the model. However, it should be noted that alternative models might exist that provide equivalent or better explanations for the variable interactions.

Standardized regression weights associated with the model are also indicated in Figure 2. Most were significant at $p < .01$. Student rule compliance negatively and significantly predicted teacher-student relationships (ß = -0.17, *SE* = 0.01, $p < .001$), indicating that students who reported better behavior also tended to have lower scores on TASC scales. Reports of more compliant behavior were also associated with increased classroom engagement (ß = 0.43, *SE* = 0.01, $p < .001$). Compliance also positively predicted students' overall GPA (ß = 0.08, *SE* = 0.01, $p = .024$)

Students' prior grades also positively influenced classroom engagement, a finding that was significant at $p < .001$ (ß = 0.21, *SE* = 0.02). Prior grades were positively associated with students' current achievement in this study (ß = 0.67, *SE* = 0.03, $p < .001$).

Two pathways showed non-significant associations: classroom engagement did not significantly predict students' overall GPA (ß = 0.05, *SE* = 0.08, $p = .219$). This is an unexpected result. Likewise, teacher-student relationships were also not predictive of classroom engagement (ß = -0.02, *SE* = 0.07, $p = .639$).

According to criteria outlined by Ferguson (2009a), the majority of the beta coefficients in the model reflect effect sizes that are moderate or better (ß > .5). Squared multiple correlations suggested moderate to strong effects for the modeled relationships. The latent variable Classroom Engagement explained between 32% and 79% of the variance in the observed engagement and disaffection variables. The latent variable Teacher-Student Relationship contributed to 14% of the variance in teacher Involvement, 38% of the variance in Provision of Structure, and 62% of the variance in teacher Autonomy Support. Finally, Rule Compliance, Teacher-Student Relationship, and Prior GPA contributed to 23% of the variance in Classroom Engagement. Overall, the model accounted for 48% of the variance seen in Overall GPA.

Research Question 5. Does gender moderate the relation between student perceptions of teachers (teacher-student relationship and teacher expectations) and achievement?

Hypothesis 5a. Gender will moderate the relationship between student perception of teachers and achievement.

Hypothesis 5b. Among African American students, the moderating effect of gender on the relation between relationship variables and achievement is stronger for females.

Structural Equation Modeling (SEM) was also used to examine the fifth research question, which was concerned with the associations of teacher-student relationships, teacher expectations, and achievement. It was believed that the effects of these factors on achievement might be stronger for African American females. This model is shown in Figure 3.

Figure 3.

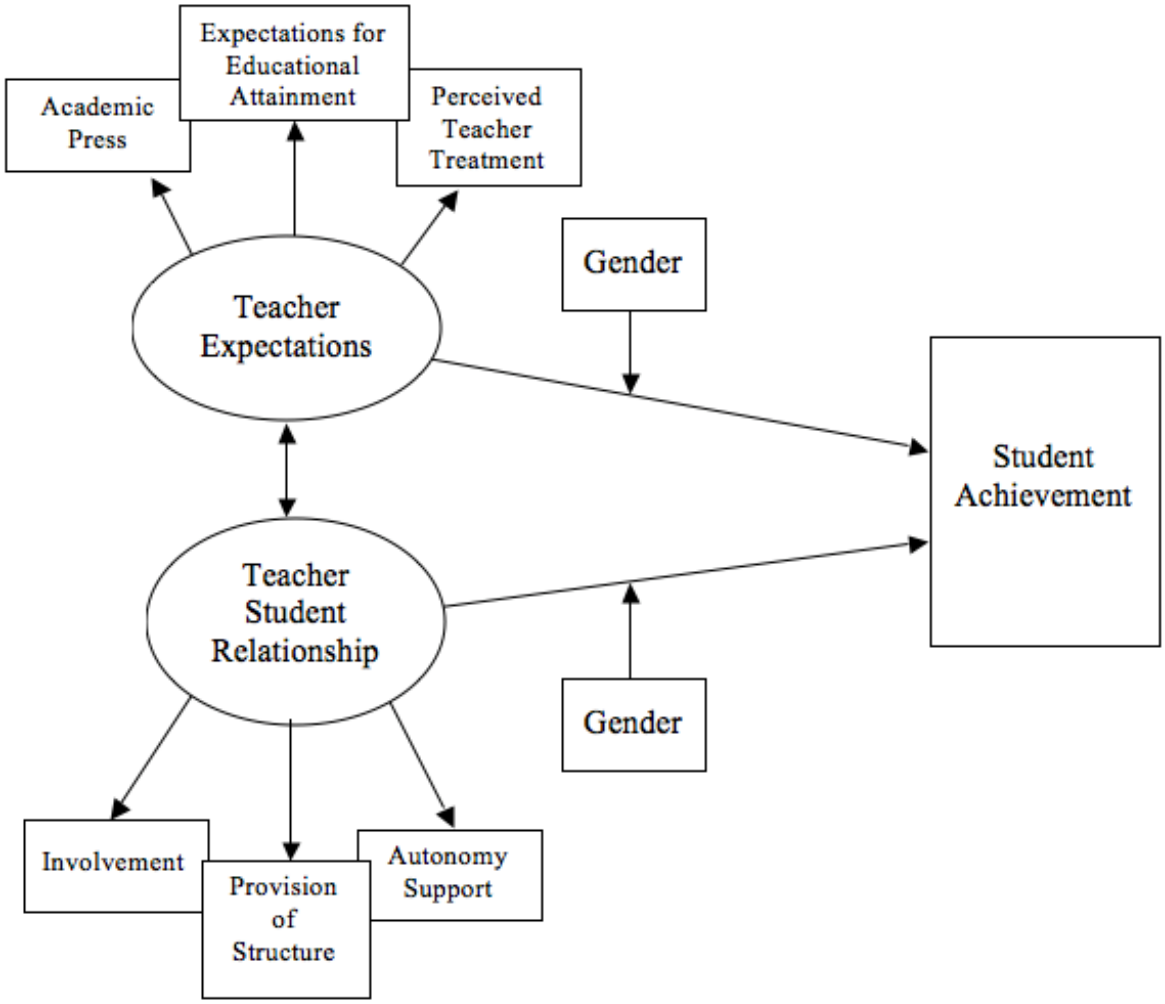

Figure 3. Proposed model for the moderating effect of gender on the interactions of teacher-student relationships, teacher expectations, and student achievement for African American students.

Analysis of the model fit for African American students required initial exploration of its appropriateness with the full sample. As with question four, a hybrid approach was used. The measurement model included the latent variables teacher-student relationship, teacher expectations, and the observed variable of student GPA. As with question four, normality testing indicated some non-normality (Mardia's Coefficient = 13.63).

Figure 4.

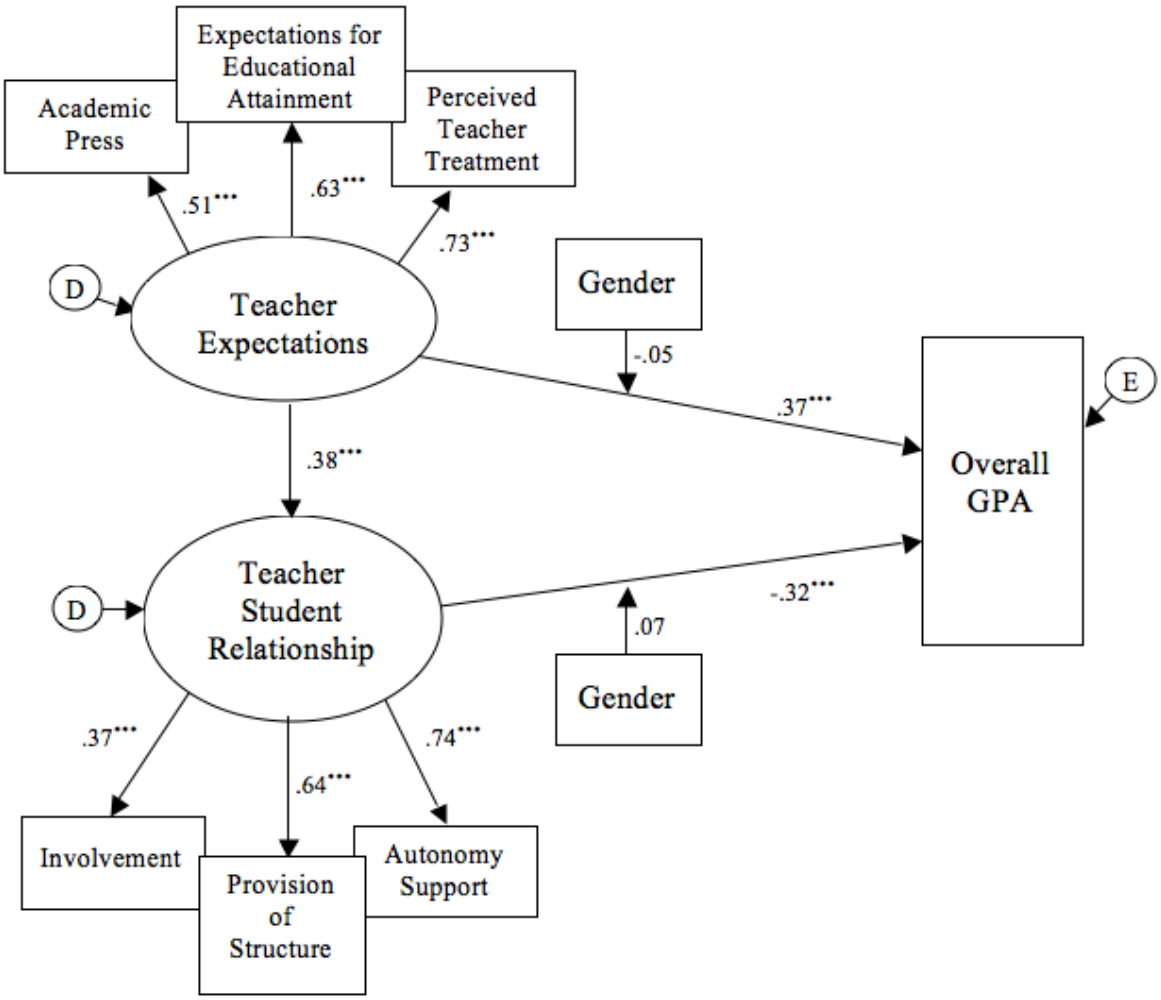

Figure 4. Confirmed model of the moderating effect of gender on the interactions of teacher-student relationships, teacher expectations, and student achievement using the full sample.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

The confirmed model is presented in Figure 4. Model fit was determined via analysis of the measurement model and review of modification indices. Goodness-of-fit indices for the model showed satisfactory fit according to Relative Chi-square, although the *p*-value remained low ($\chi^2(14) = 2.60$, $p = .001$). Overall, the model demonstrated satisfactory or better fit for a variety of indices (*CFI* = .96, *NFI* = .94, *RMSEA* = .06). Path weights for the sample were significant at $p < .001$ across the majority of pairings.

Students' perceptions of the teacher-student relationship were associated with their overall GPA in this sample (ß = -0.32, *SE* = 0.20, $p < .001$). The negative coefficient is noteworthy in that it implied that students with higher scores on the TASC scales also tended to have lower GPAs. Perceived teacher expectations were associated with students' overall grades (ß = 0.37, *SE* = 0.02, $p < .001$). Students' perceived expectations were also related to their perceptions of the teacher-student relationship (ß = 0.38, *SE* = 0.06, $p < .001$). Gender was not significantly associated with teacher expectations (ß = -0.05, *SE* =0.30, $p = .310$) or perceptions of teacher-student relationships (ß = 0.07, *SE* = 0.03, $p < .143$) for the full sample.

Beta coefficients indicated moderate to strong effect sizes overall. In terms of the modeled relationships, the model presented in Figure 4 accounted for 15% of the variance in Overall GPA. The latent variable Teacher-Student Relationship had moderate to strong associations with the observed variables Structure (41%) and Autonomy Support (56%), but a lesser contribution to the variance in teacher Involvement (13%). The latent variable Teacher Expectations also had moderate associations with Perceived Teacher Treatment (53% of the variance), Expectations for Future Educational Attainment (40%), and Academic Press (26%).

To fully explore question five, this model was tested again after entering African American students as a grouping variable. Results for African American students indicated satisfactory or better goodness of fit [*CMIN/df* : $\chi^2(14) = 1.73$, p = .043; *CFI* = .97; *NFI* = .94; *RMSEA* = .05]. Beta weights are shown in Figure 5.

Figure 5.

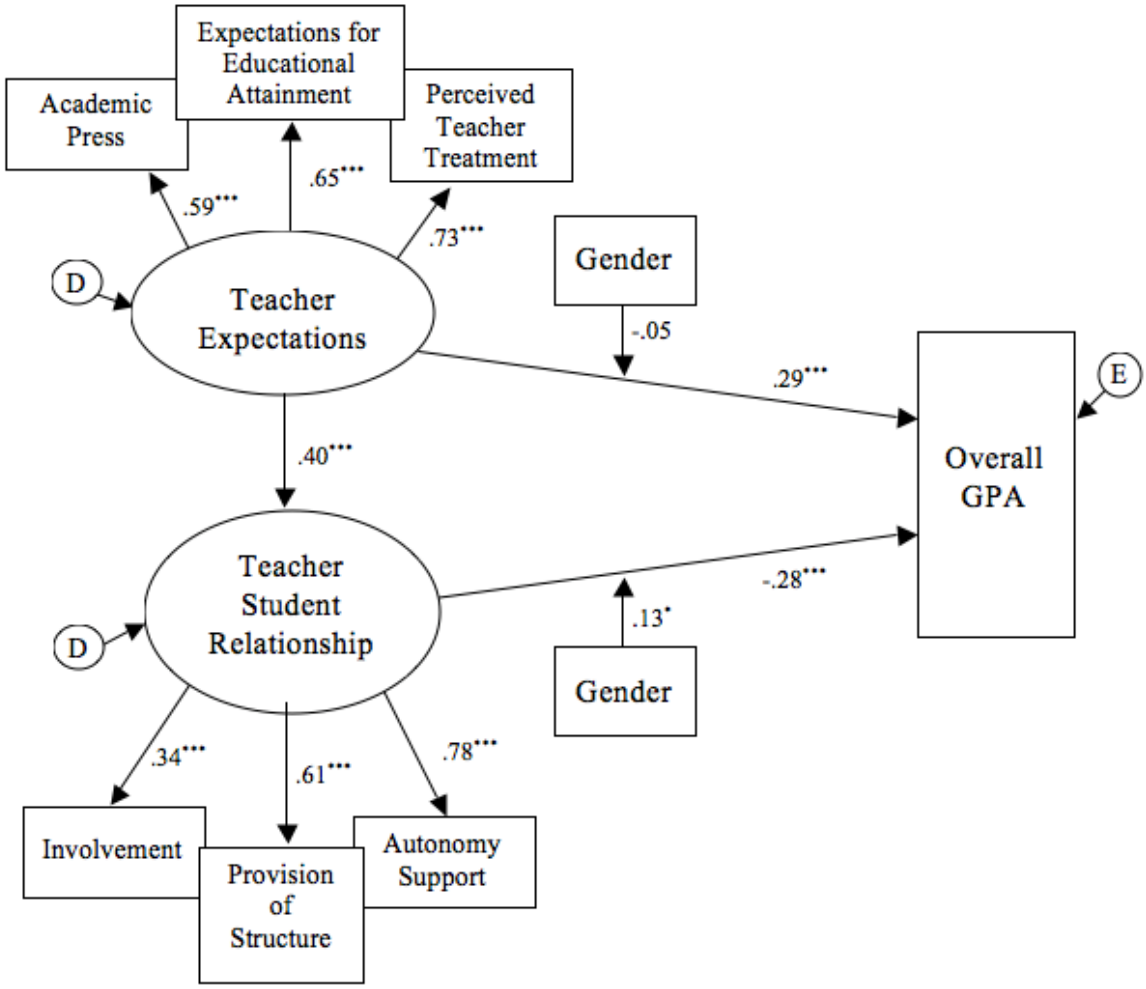

Figure 5. Confirmed model of the moderating effect of gender on the interactions of teacher-student relationships, teacher expectations, and student achievement for African American students.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Path coefficients for the African American sample were significant at p < .001. The single exception was the pathway representing gender and teacher expectations, which was not significant in this model (ß = -0.05, *SE* = 0.47, *p* = .460). Gender was significantly associated with teacher-student relationships (ß = 0.13, SE = 0.03, *p* = .047) for this group. Generally, associations were similar in direction and magnitude in comparison to the full sample.

Overall, the observed variables contributed 10% of the variance in Overall GPA for

African American students. Teacher Expectations explained between 59% and 73% of the variance in the observed variables Academic Press, Expectations for Educational Attainment, and Perceived Teacher Treatment. Teacher-Student Relationship had moderate to strong contributions to the variances in teacher Provision of Structure, Autonomy Support, and Involvement (61%, 78%, and 34%, respectively).

To determine the magnitude of the moderating effect of gender for African American male and female students, model estimates were run separately for each subgroup. For African American females, fit indices were adequate [*CMIN/df* : $\chi^2(11) = 2.30$, $p = .008$; *CFI* = .90; *NFI* = .84; *RMSEA* = .09]. However, the associations between teacher expectations (ß = 0.16, SE = 0.02, $p = .124$), teacher-student relationships (ß = -0.13, SE = 0.23, $p = .187$) and GPA were not shown as significant, and the model explained only 3.5% of the variance in their GPAs. The pathway from teacher expectation to teacher-student relationship also was not significant (ß = 0.20, SE = 0.01, $p = .113$), explaining 4% of the variance in teacher-student relationship (as compared to 23% for males). The model fit for African American males was improved [*CMIN/df*: $\chi^2(11) = 1.49$, $p = .126$; *CFI* = .97; *NFI* = .93; *RMSEA* = .06]. For these students, the associations of teacher expectations to GPA (ß = 0.46, SE = 0.02, $p < .001$) and teacher-student relationships to GPA (ß = -0.46, SE = 0.41, $p < .001$) were highly significant, with the model explaining 22% of the variance in African American male students' grades. Teacher expectations explained much more variance in teachers' academic press for males (41%) compared to females (29%). Similarly, teacher-student relationships explained 60% of the variance in perceived structure for males compared to 24% for females. Yet, perceptions of autonomy support seemed to be more relevant for female students, with teacher-student relationships explaining 87% of its variance, compared to 45% for males.

CHAPTER 5
Discussion

The purpose of this study was to examine patterns of academic achievement among minority students and investigate teacher-student relationship, teachers' classroom and future educational expectations for students, and students' levels of classroom engagement in order to better understand their patterns of academic achievement. This section presents the results of the analyses to answer five research questions.

The first question was concerned with whether there were differences in academic achievement (as measured by GPA and performance on district assessments) according to gender and/or ethnicity. Females and non-ethnic minority students were expected to have greater achievement in this study. Students' achievement differed significantly based on gender in this study. On district assessments of math skills, male students' skills were significantly superior to females. However, gender differences in overall GPA and reading assessment scores were not significant in this study.

This study also found significant differences among ethnic groups in student achievement. In particular, the Caucasian group of students had a significantly better GPA than the African American group by nearly a half letter grade. On district assessments, Caucasian students' reading scores surpassed those of African American students by nearly 7.5 points. On the district math assessment, African American students' scores were again inferior to Caucasian students, whose math skills were also significantly superior to the "other" ethnic minority group in this study. Results generally support the hypotheses associated with research question one.

Ethnicity-based differences in achievement were shown in this sample, with non-ethnic minority students showing higher levels of achievement.

Question two examined gender and ethnicity differences in students' perceptions of their teacher-student relationships. Neither gender nor ethnicity alone was related to students' ratings of their teachers. However, the interaction between gender and ethnicity was significant. Specifically, perceptions of teacher-student relationships were significantly different between Hispanic males and females. Males reported feeling more clarity of expectations, consistency of response, adjustment of teaching strategies, and instrumental help from their teachers compared to females.

This result provides mixed support for the hypothesis that students' perceptions of their teacher-student relationships differed by gender and ethnicity. Gender-based differences such as those seen for Hispanic students are consistent with previous research by Saft and Pianta (2001) and Hughes et al. (2005), who have each documented disparities in the way that students of differing ethnicity groups rate their relationships with teachers. It is possible that for these Hispanic students, the perceived needs of males (be them academic or non-academic) may encourage teacher proximity. Given that girls have been shown to have an advantage in forming close relationships with teachers even at young ages (Hamre & Pianta, 2001; Jerome et al., 2009; Saft & Pianta, 2001), it may also be the case that their "relationship sense" manifests as a more critical assessment of their interactions with teachers. Regardless, this study points to gender as an additional factor that may influence the perceptions of Hispanic students. However, given that the sample consists of only 32 Hispanic students, the finding should be replicated in future studies.

Question three was related to whether gender and ethnicity differences were present in students' perceptions of their teachers' expectations. Results did not support a significant role for gender or ethnicity in students' reported perceptions in this study. There may be several explanations for this. This may indicate that teachers indeed hold equivalent expectations for the performance of students from different ethnic groups and that students from different ethnic groups see teachers to hold the same expectations. Each of the variables used to assess teacher expectations were positively correlated with the achievement measures, indicating that higher expectations were associated with greater achievement in this study. Students' perceptions of teachers' trust, positive feelings, and provision of opportunities/autonomy encourage them to explore and take risks while learning. Likewise, it is important that they see that teachers press them for understanding and provide them with appropriate levels of challenge. The information exchanged within the classroom on a daily, short-term basis helps students to understand teachers' long-term expectations of what they can do. These perceptions possibly influence achievement by extending a student's vision of their own capabilities or acting as a "glass ceiling" by placing an upper limit on the students' own ideas of what is achievable.

Question four examined the mediating role of classroom engagement in the relation between teacher-student relationships and academic achievement. Results did not show engagement to be a mediator of the relation between teacher-student relationships and student achievement. Consistent with the works of Decker et al. (2007) and Gregory and Weinstein (2008), significant associations were seen between students' behavior and their perceived relationship with teachers. In this study, having more compliant behavior was related to perceiving less involvement, structure, and autonomy support from teachers. It is possible that a relative lack of interaction between compliant students and their teachers (as compared to

students with problem behaviors) contributes to lesser opportunities to develop personal relationships between teachers and students. Compliance was also associated with increased engagement in this study. Intuitively, it makes sense that less acting out in the classroom increases opportunities to attend to lesson content and class directives. It is consistent with the idea of engagement as an indicator of good fit between the task demands of the classroom and the student's skill levels (Dotterer & Lowe, 2011; Wang, Willett, & Eccles, 2011).

Engagement was not significantly associated with students' grades in this study. Also inconsistent with the hypothesis, students' perceptions of teacher-student relationships were not associated with engagement in this sample. This suggests that a deep, positive relationship with the teacher may not be necessary for students to feel engaged in the classroom and experience achievement. In this case, students who are well matched for task demands may not have a need for a relationship with the teacher. Similarly, the lack of significant association between compliant behavior and grades suggests that other intervening factors must be considered.

Question five examined the associations between teacher-student relationships, teacher expectations, and student achievement. Particular attention was given to the role of gender as a possible moderator of these relationships, especially for African American students. The proposed relationships between these three variables were shown to be significant for the full sample as well as African American students: perceiving higher teacher expectations predicted higher achievement outcomes as well as perceptions of more involvement, structure, and autonomy support from teachers. Reports of the teacher-student relationship were also associated with students' achievement.

The finding that higher teacher expectations are significantly associated with perceptions of the teacher-student relationship is consistent with current research (Jussim & Harber, 2005;

Ross & Jackson, 1991; Wood et al., 2007). The relation of both of these factors students' achievement is also supported (Benner & Mistry, 2007; Birch & Ladd, 1997; Gill & Reynolds, 1999; Hamre & Pianta, 2001; Hinnant et al., 2009; McKown & Weinstein, 2008; Pianta et al., 2002).

An interesting finding of the analysis was that for both the full sample and African Americans, perceptions of increased involvement, structure, and autonomy support from teachers were associated with lower GPA. Perhaps those students who are feeling the most concern and support from teachers are those who are seen as being the most in need. The academic skill deficits and other issues that encourage proximity to the teacher also make these students less able to perform academically. Finding it difficult to engage in classroom activities, even students with non-academic needs may suffer from underachievement, prompting the attention of the teacher. This unexpected finding is perplexing, given a wealth of data that supports the association between teacher-student relationships and academic functioning, and warrants future investigation.

A moderating effect of gender was supported in this study for African American students. The interactions of teacher expectations and teacher-student relationship were much more relevant to the achievement of African American males in this study. ¨Perceived teacher expectations explained significantly more variance in males' reports of teachers' academic demandingness and their overall feelings about the relationship. For females, opinions of the teacher-student relationship had greater associations with reports of the teacher's use of democratic communication and demands for maturity. Even so, the model was much less significant to the achievement outcomes of African American females in this sample.

Summary

This study provides an interesting perspective on the role of teacher-student relationships and teacher expectations on student achievement. Both teacher-student relationships and teacher expectations were shown to impact achievement. However, perceived teacher expectation was also significantly associated with perceptions of the teacher-student relationship. Perceiving more involvement, structure, and autonomy support from the teacher might allow a student to increase their feelings of academic competence, a construct that has been linked to both increased engagement and achievement (Hughes et al., 2005; O'Connor & McCartney, 2007; Paulson et al., 1998; Wentzel, 2002). In turn, increases in academic competence may also affect the teacher's expectations.

Overall, results support the conceptualization of teacher-student relationships using a parenting framework. As seen in the parenting literature, it appears that teachers also benefit from a balance of responsiveness and demandingness in forming relationships with students. Results of this study suggest that high expectations (in the form of consistent contingencies for student behavior/self-control and demands for academic performance) coupled with moderate levels of involvement/nurturance result in the most positive academic outcomes.

Limitations of the Study and Directions for Future Research

This study was conducted to examine the impact of teacher-student relationships and teacher expectations on achievement for a minority sample. Given the persistent underachievement of minority students and African Americans in particular, this study contributes to the body of research on how classroom interactions influence these students' achievement. As researchers and educators consider this information, limitations of this research should be kept in mind. The unbalanced design of this research implies that these results are most appropriately applied to ethnic minority samples. Similarly, this study was concerned with

students in the late childhood/emerging adolescent age group. Differences in developmental and social contexts make it inappropriate to generalize the results to other age groups.

Given the amount of subjectivity that is involved in teachers' assessment of student work, the use of GPA of the sole measure of student achievement for questions four and five is an additional limitation of the study. Another source of possible bias is the lack of teacher feedback. As the saying goes, "there are two sides to every story." Without feedback from teachers, it is not possible to substantiate that students' perceptions correspond with teachers' idea of what happens in the classroom.

Finally, it is important to remember that this study is only concerned with the implications of specific types of classroom social interactions between teachers and students. Multiple factors impact students' achievement, including socio-economic status, poverty, gender, etc. Poverty in particular has been proven to have a strong and highly significant association with students' achievement outcomes (Joseph, 2006). It is also germane to the findings of this study in that participants were drawn from an area that has a relatively low income. Parent's level of education and degree of school involvement are achievement correlates that are also related to socio-economic status (Bornstein & Lamb, 2005, pp. 529-530). Parents who have limited economic resources may have more difficulty establishing and sustaining academically enriched home environments (Burgess, Hecht, & Lonigan, 2002). They may also have less time to help with work completion, practice of academic skills, and home-school communication (Roberts, Jurgens, & Burchinal, 2005). Making them more prone to poverty, parents with less education may have also had more negative school experiences, ultimately affecting the ideas they transmit to their children about school (Christenson & Hirsch, 1998). Thus, the intersections of poverty,

socio-economic status, and ethnicity should not be overlooked when considering the results of this study.

The information in this work represents many possibilities for future research. Students in the current sample had high levels of underachievement overall. However, it would be helpful to know if the pattern of results would also be found in samples of ethnic minorities with high levels of achievement. For example, would gender play a significant moderating role in a high achieving sample? What is the role of achievement in facilitating the development of students' school related (teacher-oriented) interpersonal skills? Finally, given that underachievement is associated with perceptions of better teacher-student relationships, is a deep personal connection with the teacher something to aim for with all students?

Implications for practitioners and educators

The push for quality teacher-student relationships is a popular issue in education today. Practitioners such as school psychologists must understand the impact of this interaction on student achievement as they assist schools in pursuing improved educational outcomes. Relationships with trustworthy and responsive adults are necessary for all students to be successful. Yet, educators must not neglect the impact of high expectations on the "bottom line" of student success. In today's society, teachers are increasingly responsible for the adjustment and emotional well being of students in their care. However, in their attempts to become more personally involved with their students, their focus can easily shift away from student performance. Many competent, school-based professionals bring knowledge of the interactions between socio-emotional factors and achievement. Efforts must be made to incorporate this knowledge base into school improvement initiatives.

As schools continue to work towards closing the achievement gap, teachers must be provided with an awareness of the potential biases that can contribute to changes in their expectations for students. Holding accurate expectations provides a more precise framework for teacher-student interactions, including feedback about performance. However, it is also crucial that teachers are trained in how to translate these expectations into specific goals that are both challenging and attainable. The issues of gender and ethnicity involved in teachers' and students' perceptions of one another are potential barriers to student success. Addressing these issues will require both frankness and sensitivity from school personnel. This research points to the role of school psychologists in particular as professionals who can help. Their knowledge of interpersonal dynamics and student achievement makes them well positioned to help schools to balance care and concern for students with academic rigor in the classroom.

APPENDIX A

Human Investigation Committee Approval

WAYNE STATE UNIVERSITY

HUMAN INVESTIGATION COMMITTEE
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-7122
http://hic.wayne.edu

Full AAHRPP Accreditation

NOTICE OF EXPEDITED APPROVAL

To: Aja Temple
College of Education

From: Dr. Scott Millis for N. Nahan / (SJ)
Chairperson, Behavioral Institutional Review Board (B3)

Date: May 05, 2011

RE: HIC #: 039711B3E
Protocol Title: Gender Difference of Academic Achievement Among African American Students: An Examination of Teacher-Student Relationships and Teacher Expectations
Funding Source:
Protocol #: 1103009576

Expiration Date: May 04, 2012

Risk Level / Category: 45 CFR 46.404 - Research not involving greater than minimal risk

The above-referenced protocol and items listed below (if applicable) were **APPROVED** following *Expedited Review* Category (#7)* by the Chairperson/designee *for* the Wayne State University Institutional Review Board (B3) for the period of 05/05/2011 through 05/04/2012. This approval does not replace any departmental or other approvals that may be required.

- Revised Protocol Summary Form, received on 5/4/11
- Recruitment Script/Oral Assent Script
- Teacher Information Sheet, dated 5/3/11
- Parental Permission/Information Sheet, dated 5/3/11

- Federal regulations require that all research be reviewed at least annually. You *may* receive a *"Continuation Renewal Reminder"* approximately two months prior to the expiration date; however, it is the Principal Investigator's responsibility to obtain review and continued approval ***before*** the expiration date. Data collected during a period of lapsed approval is unapproved research and can ***never*** be reported or published as research data.
- All changes or amendments to the above-referenced protocol require review and approval by the HIC **BEFORE** implementation.
- Adverse Reactions/Unexpected Events (AR/UE) must be submitted on the appropriate form within the timeframe specified in the HIC Policy (http://www.hic.wayne.edu/hicpol.html).

NOTE:

1. Upon notification of an impending regulatory site visit, hold notification, and/or external audit the HIC office must be contacted immediately.
2. Forms should be downloaded from the HIC website at ***each*** use.

*Based on the Expedited Review List, revised November 1998

WAYNE STATE UNIVERSITY

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87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-1722
http://irb.wayne.edu

Full AAHRPP Accreditation

NOTICE OF EXPEDITED AMENDMENT APPROVAL

To: Aja Temple
College of Education

From: Dr. Scott Millis
Chairperson, Behavioral Institutional Review Board (B3)

Date: May 25, 2011

RE:

IRB #:	039711B3E
Protocol Title:	Gender Disparities in Academic Achievement: An Examination of Teacher-Student Relationships and Engagement Among African American Students
Funding Source:	
Protocol #:	1103009576
Expiration Date:	May 04, 2012
Risk Level / Category:	45 CFR 46.404 - Research not involving greater than minimal risk

The above-referenced protocol amendment, as itemized below, was reviewed by the Chairperson/designee of the Wayne State University Institutional Review Board (B3) and is APPROVED effective immediately.

- Protocol- Change in protocol title "Gender Disparities in Academic Achievement: An Examination of Teacher-Student Relationships and Engagement Among African American Students".
- Protocol- Data collection methods and/or instruments changes which includes replacement of current measure with a shorter measure, addition of two short scales, and editorial changes to demographic form.
- Information Sheet- Ypsilanti School District Parental Permission/Research Informed Consent/Information Sheet and Ypsilanti School District Teach Information Sheet modified to reflect new title.

APPENDIX B

Letters of Support

ESTABROOK ELEMENTARY SCHOOL
1555 W. Cross
Ypsilanti, Michigan 48197
Voice: 734.714.1900 • Fax: 734.714.1903

YPSILANTI PUBLIC SCHOOLS
EXCELLENCE • TRADITION • PRIDE

Joe Guillen, Principal
jguille6@ypsd.org

Erika Cuevas-Lopez, Secretary
ebolden2@ypsd.org

March 19, 2011

Aja Temple, M.A.
WSU College of Education
5425 Gullen Mall
Detroit, MI 48202

Dear Ms. Temple,

I am writing this letter of support for the project you described as a dissertation study on the impact of teacher-student relationships on the disparities in achievement seen between African American male and female students. With recent media coverage regarding the particularly low achievement of African American males, we are aware that understanding the dynamics of these students' relationships with teachers is critical to enhancing our ability to deliver quality, culturally sensitive instruction.

We understand that the project involves student surveys and the use of district achievement data. We also realize that you will obtain approval from the Human Subjects Committee at your university prior to any data collection, and that you will follow all of our district's requirements for conducting research in the schools.

We look forward to making a contribution to the scientific inquiry and working with your research team. Please let us know if we can be of any further assistance.

Sincerely,

Joe Guillen
Principal
Estabrook Elementary School
School District of Ypsilanti

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ADAMS S.T.E.M. ACADEMY
(Science, Technology, Engineering & Math)
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OE 2
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Outreach and Engagement

Dr. Connie Thompson, Principal
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Christina Strickland, Secretary
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March 19, 2011

Aja Temple, M.A.
WSU College of Education
5425 Gullen Mall
Detroit, MI 48202

Dear Ms. Temple,

I am writing this letter of support for the project you described as a dissertation study on the impact of teacher-student relationships on the disparities in achievement seen between African American male and female students. With recent media coverage regarding the particularly low achievement of African American males, we are aware that understanding the dynamics of these students' relationships with teachers is critical to enhancing our ability to deliver quality, culturally sensitive instruction.

We understand that the project involves student surveys and the use of district achievement data. We also realize that you will obtain approval from the Human Subjects Committee at your university prior to any data collection, and that you will follow all of our district's requirements for conducting research in the schools.

We look forward to making a contribution to the scientific inquiry and working with your research team. Please let us know if we can be of any further assistance.

Sincerely,

Dr. Thompson

Connie A. Thompson
Principal
Adams S.T.E.M. Academy,
School District of Ypsilanti

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YPSILANTI PUBLIC SCHOOLS
EXCELLENCE • TRADITION • PRIDE

Kevin Carney, Principal
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February 10, 2011

Aja Temple, M.A.
WSU College of Education
5425 Gullen Mall
Detroit, MI 48202

Dear Ms. Temple,

I am writing this letter of support for the project you described as a dissertation study on the impact of teacher-student relationships on the disparities in achievement seen between African American male and female students. With recent media coverage regarding the particularly low achievement of African American males, we are aware that understanding the dynamics of these students' relationships with teachers is critical to enhancing our ability to deliver quality, culturally sensitive instruction.

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We look forward to making a contribution to the scientific inquiry and working with your research team. Please let us know if we can be of any further assistance.

Sincerely,

Kevin Carney
Principal
Erikson Elementary School
School District of Ypsilanti

APPENDIX C

Parent Permission Form

Gender Difference of Academic Achievement Among African American Students: An Examination of Teacher-Student Relationships and Teacher Expectations

Parental Permission/Research Informed Consent/Information Sheet

Title of Study: Gender Difference of Academic Achievement Among African American Students: An Examination of Teacher-Student Relationships and Teacher Expectations

Purpose:
You are being asked to allow your child to be in a research study at their school that is being conducted by Aja Temple, a doctoral student in the College of Education from Wayne State University, to explore how relationships between students and teachers can affects students' achievement. Your child has been selected because s/he is a student in a grade 4-6 class that has a significant relationship with a general education teacher.

Study Procedures:
If you decide to allow your child to take part in the study, your child will be asked to fill out a 30-minute survey about her/his current relationship with their teacher. The survey also asks about their interest in daily class activities, their thoughts about their behavior in class, and their predictions for their own future education. Students will have the option to refuse to participate at any time.

Once this survey is completed, no further information is needed from your child. His/her semester attendance, grades, and NWEA assessment scores will be provided by the district. Copies of the student survey are available for review at the main office. They may also be requested by contacting Ms. Temple at the information below.

Benefits: There may be no direct benefits for your child; however, information from this study may benefit other people now or in the future.

Risks: There are no known risks at this time to your child for participation in this study.

Please note that the following information must be released/reported to the appropriate authorities if at any time during the study there is concern that:

- Child abuse has possibly occurred,
- There is concern that your child has intent to harm him/herself or others

There may also be risks involved from taking part in this study that are not known to researchers at this time.

Costs: There are no costs to you or your child to participate in this study.

Compensation: You or your child will not be paid for taking part in this study.

Confidentiality: All information collected about your child during the course of this study will be kept confidential to the extent permitted by law.

- Your child will be identified in the research records by a code name or number. Information that identifies your child personally will not be released without your written permission. However, the study sponsor (if applicable), the Human Investigation Committee (HIC) at Wayne State University or federal agencies with appropriate regulatory oversight (Office for Human Research Protections [OHRP], Office of Civil Rights [OCR], etc.), may review your child's records.

Title of Study: Gender Difference of Academic Achievement Among African American Students: An Examination of Teacher-Student Relationships and Teacher Expectations

Voluntary Participation /Withdrawal:
Your child's participation in this study is voluntary. You are free to withdraw your child at any time. Your decision about enrolling your child in the study will not change any present or future relationships with Wayne State University or its affiliates, your child's school, your child's teacher, your child's grades or other services you or your child are entitled to receive.

Questions:
If you have any questions about this study now or in the future, you may contact Aja Temple or one of *her* research team members at the following phone number: 248.202.8094. If you have questions or concerns about your rights as a research participant, the Chair of the Human Investigation Committee can be contacted at (313) 577-1628. If you are unable to contact the research staff, or if you want to talk to someone other than the research staff, you may also call (313) 577-1628 to ask questions or voice concerns or complaints.

Participation:
If you do not contact the principal investigator (PI) within a 2-week period, to state that you do not give permission for your child to be enrolled in the research trial, your child will be enrolled into the research. You may contact the PI by email (ajatemple@wayne.edu), phone number (248.202.8094), or by returning the tear off sheet below to the PI, principal, or your child's teacher.

Title of Study: Gender Difference of Academic Achievement Among African American Students: An Examination of Teacher-Student Relationships and Teacher Expectations

Optional Tear Off
If you do not wish to have your child participant in the study, you may fill out the form and return it to your child's teacher.

I do not allow my child _____ to participate in this research study.
Name

_____
Printed Name of Parent

_____ _____
Signature of Parent Date

APPENDIX D

Recruitment Script

Good Morning/Afternoon Students,

My name is _____, and I am a *graduate student/research assistant* at Wayne State University.

Today I am here to talk to you about a research project that I am working on*/assisting with* that is concerned with your relationship with your teacher and how it might impact your feelings about school. This information will help school staff to better understand how to help students like you.

The survey will ask your thoughts about your teacher and also about yourself as a student. You will also be asked your ideas about going to school in the future. Answering all of the questions should take about 30-45 minutes.

No one at school, including your teacher, will be able to see your answers to the questions. The sheet where your name is written will be separated from your responses so they cannot be tied to you.

Forms about the project have already been mailed to your parents. The following students' parents do **not** want them to participate: *(read list of students)*:

For the rest of you, I will be coming around to give the survey to those of you who will be participating. If you do not wish to fill out a survey, please turn your survey face-down and I will collect it. You don't have to complete the survey if you don't want to, or you can stop the survey at any time. You will not be treated differently by anyone if you choose not to participate. You can choose to stop your participation at any time.

Please do **not** put your name or anything else that may cause others to know who you are anywhere but the line on page 1. Raise your hand if you need my help at any time, or if you are finished.

If you are not participating, you may begin working on the free-activity sheet. If you like, you may read silently instead.

(Pass out surveys)

It is very important that you do not discuss the survey or your answers with other students or staff. If you have any questions, please tell an adult at school.

Thank you very much for your time.

APPENDIX E

Student Demographic Form and Student Survey

Teacher-Student Relationships, Teacher Expectations and Student Achievement

Aja Temple, MA

Graduate Student/Principal Investigator

My Age: 8 9 10 11 12 **My Grade:** 4th 5th 6th

(*Circle One*)

I am a Girl I am a Boy

My Race (Ethnicity) is:

Black or African American

Hispanic

White/Caucasian

Asian or Pacific Islander

American Indian or Alaskan Native

Something Else: _____

My First Name is: _____

My Last Name is: _____

These questions ask about your teacher.
Circle the number that is true most of the time.
Raise your hand if you want help with any words.

1. When I've figured out how to do a problem, my teacher gives me more challenging problems to think about.	*1 Not At All True*	*2*	*3 Somewhat True*	*4*	*5 Very True*
2. My teacher presses me to do thoughtful work.	*1 Not At All True*	*2*	*3 Somewhat True*	*4*	*5 Very True*
3. My teacher asks me to explain how I get my answers.	*1 Not At All True*	*2*	*3 Somewhat True*	*4*	*5 Very True*
4. When I'm working out a problem, my teacher tells me to keep thinking until I really understand.	*1 Not At All True*	*2*	*3 Somewhat True*	*4*	*5 Very True*
5. My teacher doesn't let me do just easy work, but makes me think.	*1 Not At All True*	*2*	*3 Somewhat True*	*4*	*5 Very True*
6. My teacher makes sure that the work I do really makes me think.	*1 Not At All True*	*2*	*3 Somewhat True*	*4*	*5 Very True*
7. My teacher accepts nothing less than my full effort.	*1 Not At All True*	*2*	*3 Somewhat True*	*4*	*5 Very True*

1. The teacher calls on me to answer questions.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
2. The teacher makes me feel I've done very well when I read or give the right answer.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
3. The teacher asks me to lead activities.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
4. The teacher makes me feel good about how hard I try.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
5. The teacher thinks or expects that I will finish the work.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
6. The teacher calls on me to explain things to the class.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
7. The teacher trusts me.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
8. The teacher lets me make up my own projects.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
9. The teacher is interested in me.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
10. I am given special privileges (or favors). I get to do special things in class.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*
11. The teacher lets me do as I like as long as I finish my work.	*1 Never*	*2 Sometimes*	*3 Often*	*4 Always*

1. My teacher listens to my ideas.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
2. My teacher just doesn't understand me.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*

3. Every time I do something wrong my teacher acts differently.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
4. My teacher spends time with me.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
5. My teacher makes sure I understand before she/he goes on.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
6. My teacher talks about how I can use the things we learn at school.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
7. If I can't solve a problem, my teacher shows me different ways to try to.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
8. My teacher talks with me.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
9. I can't depend on my teacher for important things.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
10. My teacher doesn't tell me what she/he expects of me in school.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
11. My teacher checks to see if I'm ready before she/he starts a new topic.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
12. My teacher likes me.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
13. My teacher is always getting on my case about schoolwork.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
14. I can't count on my teacher when I need him/her.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
15. My teacher doesn't make it clear what he/she expects of me in class.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
16. My teacher knows me well.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
17. My teacher gives me a lot of choices about how I do my schoolwork.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
18. It seems like my teacher is always telling me what to do.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
19. My teacher keeps changing how he/she acts towards me.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
20. My teacher doesn't listen to my opinion.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
21. My teacher doesn't give me a choice about my schoolwork.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
22. My teacher really cares about me.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*
23. My teacher doesn't explain why what I do in school is important to me.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*

24. My teacher shows me how to solve problems myself.	*1 Not at all True*	*2 Not Very True*	*3 Sort of True*	*4 Very True*

These questions ask your ideas about your future.
Some questions ask about your own thoughts

Other questions ask what your teacher might think.

1. How sure are *you* that you will finish high school?	*1 Not At All Sure*	*2 Somewhat Unsure*	*3 Undecided*	*4 Somewhat Sure*	*5 Very Sure*
2. How sure is *your teacher* that you will finish high school?	*1 Not At All Sure*	*2 Somewhat Unsure*	*3 Undecided*	*4 Somewhat Sure*	*5 Very Sure*
3. How sure are *you* that you will go to college?	*1 Not At All Sure*	*2 Somewhat Unsure*	*3 Undecided*	*4 Somewhat Sure*	*5 Very Sure*
4. How sure is *your teacher* that you will go to college?	*1 Not At All Sure*	*2 Somewhat Unsure*	*3 Undecided*	*4 Somewhat Sure*	*5 Very Sure*
5. How sure are *you* that you will finish college?	*1 Not At All Sure*	*2 Somewhat Unsure*	*3 Undecided*	*4 Somewhat Sure*	*5 Very Sure*
6. How sure is *your teacher* that you will finish college?	*1 Not At All Sure*	*2 Somewhat Unsure*	*3 Undecided*	*4 Somewhat Sure*	*5 Very Sure*

Circle the number that tells how much each sentence describes you.

1. I behave in school	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
2. I get scared in school	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
3. I have many friends	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
4. I bother other kids who are working	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
5. I'm afraid of making mistakes	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
6. My classmates tease me	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
7. I do what I'm supposed to in school	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
8. I worry about things at school	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
9. Other kids are mean to me	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
10. I get in trouble in class	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
11. My feelings get hurt easily	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
12. My classmates like me	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
13. I follow the class rules	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*

14. I'm nervous at school	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
15. Other kids choose me last for games	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
16. I call other students names	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
17. I feel like crying at school	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*
18. I make friends easily	*1 Usually No*	*2 Sometimes*	*3 Usually Yes*

These questions ask how you feel about school.

Circle the number that is true most of the time.

1. I try hard to do well in school.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
2. I enjoy learning new things in class.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
3. When we work on something in class, I feel discouraged.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
4. In class, I do just enough to get by.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
5. When I'm in class, I listen very carefully.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
6. In class, I work as hard as I can.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
7. When I'm in class, I feel bad.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
8. Class is fun.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
9. When I'm in class, I feel worried.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
10. When we work on something in class, I get involved.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
11. When I'm in class, I think of other things.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
12. When we work on something in class, I feel interested.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
13. Class is not all that fun for me.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
14. When I'm in class, I just act like I'm working.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
15. When I'm in class, I feel good.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*
16. When I'm in class, my mind wanders.	*1 Not at All True*	*2 Somewhat True*	*3 Mostly True*	*4 Very True*

17. When I'm in class, I participate in class discussions.	*1* *Not at All True*	*2* *Somewhat True*	*3* *Mostly True*	*4* *Very True*
18. When we work on something in class, I feel bored.	*1* *Not at All True*	*2* *Somewhat True*	*3* *Mostly True*	*4* *Very True*
19. I don't try very hard at school.	*1* *Not at All True*	*2* *Somewhat True*	*3* *Mostly True*	*4* *Very True*
20. I pay attention in class.	*1* *Not at All True*	*2* *Somewhat True*	*3* *Mostly True*	*4* *Very True*

You Are Done!

You may work the activity puzzles or read quietly until all students are done.

Thank You For Your Help!

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ABSTRACT

A MODEL OF STUDENT ENGAGEMENT AND ACADEMIC ACHIEVEMENT: THE ROLE OF TEACHER-STUDENT RELATIONSHIPS AND TEACHER EXPECTATIONS

by

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MAY 2012

Advisor: Dr. Jina Yoon

Major: Educational Psychology

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The purpose of this study was to examine patterns of academic achievement among minority students and investigate teacher-student relationship, teachers' classroom and future educational expectations for students, and students' levels of classroom engagement in order to better understand their patterns of academic achievement. Participants (n=522) were students in grades four through six from a suburban district in Michigan. Student achievement varied according to both gender and ethnicity in this study. Teacher expectations did not differ as a function of gender or ethnicity. Perceptions of the teacher-student relationship differed significantly for Hispanic students, with males reporting more clarity of expectations, consistency of response, adjustment of teaching strategies, and instrumental help from their teachers. Engagement did not mediate the relation between teacher-student relationships and student achievement in this study, but was associated with student compliance. Student rule compliance was related to perceptions of the relationship. A separate model testing the associations between teacher-student relationships, teacher expectations, and student achievement was significant for both the full sample and African American subgroup. Perceiving higher teacher expectations predicted perceptions of more involvement, structure, and autonomy support from teachers. Perceived relationship was negatively associated with overall GPA. Higher achievement outcomes were associated with both teacher expectations and teacher-student relationships. A moderating effect of gender was supported in this study, showing the model as most relevant to the achievement of African American males.

AUTOBIOGRAPHICAL STATEMENT

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