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ETHNIC-RACIAL IDENTITY, SOCIAL TRANSACTIONS IN THE CLASSROOM, AND
ACADEMIC OUTCOMES

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science
at Virginia Commonwealth University

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March 2017

Acknowledgements

Special thanks to the American Psychological Foundation. The research described in this paper was supported by the Kenneth B. and Mamie P. Clark Grant to the author from the American Psychological Foundation. Lastly, the data presented here were collected by two research assistants from Virginia Commonwealth University: Sham Habteselasse and Jorday Taswell.

Personal Acknowledgements

Thank you to my committee members, Drs. Nita Bryant and Shawn Utsey. A very special thank you to my academic advisor and chair of my thesis committee, Dr. ZewelANJI Serpell, who has been instrumental to my academic career, more importantly in the development of my research interests and this project. I would also like to thank Aaron Blount for his endless support and encouragement throughout my academic career. Lastly, I would like to thank my parents Ruby and Lawrence Thomas who have provided numerous sacrifices and encouragement throughout my academic career.

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Abstract

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Using a transactional framework, this study explored social relationships in the classroom as mediators of the association between ethnic-racial identity and academic outcomes. Participants were 101 5th graders of diverse backgrounds who completed computer-based questionnaires about their friendships, ethnic-racial identity, and academic engagement. Teachers reported on closeness and conflict in the student-teacher relationship. Relationships in the expected direction were evident between the public regard and centrality dimensions of ethnic-racial identity and social relationships as well as with academic outcomes. Further, path analyses revealed that the relationship between the public regard and cognitive engagement was mediated by student-teacher closeness. Gender differences were evident for pathways to grades; such that for boys' public regard was indirectly related to their language arts grades through cognitive engagement. The current study highlighted the varied effects of ethnic-racial identity and classroom relationships' on academic outcomes particularly for boys.

Introduction

Research highlights the important role of early academic achievement to later life outcomes, including high school graduation (Janosz, Archambault, Morizot, & Pagani, 2008), positive social outcomes (Cairns, 1995), and college attainment (Chavous, 2003). In 2015, 51% of people between the ages of 20-24 who did not complete high school were unemployed compared to 11% of young adults with a bachelor's degree (Kena et al., 2016). Moreover, in 2015 young adults who did not complete high school earned 50% less (\$25,000) compared to their peers who earned a bachelor's degree (Kena et al., 2016). Despite the growth in the racial and ethnic composition of the population in the United States, a significant achievement gap persists, and researchers are still trying to ameliorate under performance among ethnic-racial minority youth (Graham & Morales-Chicas, 2015; Umana-Taylor et al., 2014). It has been more than 50 years since it was first mandated to report and examine inequalities of educational opportunities for Black and White youth, yet the achievement gap has barely narrowed. Nationally, math and reading scores among African American students remain approximately one standard deviation below the mean of their Caucasian peers (Camera, 2016). In 2015, the National Education Association reported that 34% of African American 4th grade students compared to 9% of Caucasian students perform below basic math level (NEA, 2015). Matthews, Banerjee, and Lauerma (2014) note that previous research that sought to address the achievement gap often approached this problem from a deficit-based perspective, such that these studies often utilized comparative approaches comparing African American and Caucasian students on internal values related to learning and achievement (e.g., value of education, academic importance and self-concept). Often studies reported that as African American children matriculate through formal schools, signs of oppositional identities emerge and students value

school less (Eccles, Wong, & Peck, 2006; Morgan & Mehta, 2004). Strength-based approaches related to identity highlight the important role that support for students' identity can play in facilitating academic success. Identity or the way in which one views themselves can greatly influence psychological, emotional, and academic outcomes (Cokley & Chapman, 2008).

The mechanisms through which ethnic-racial identity affects academic achievement are not well understood; and most studies do not consider the role that social experiences with the classroom context may influence this association. However, the development of ethnic-racial identity occurs over time through experiences that begin in childhood, and become more important as children's awareness of the social world around them grows. Research that focuses on the social context of identity development demonstrates that the type of racial identities and racial knowledge peers support varies widely across peer groups and can foster or denigrate academic achievement (Burrell, Winston, & Freeman, 2013; D. L. Hughes, Kang McGill, Ford, & Tubbs, 2011). This study explored links between ethnic-racial identity and academic achievement in a diverse group of middle-school students. The study adopted a transactional approach and extends prior work by examining associations between identity and achievement in the context of social interactions between students and teachers, and also interactions between students in the classroom.

Theoretical Framework

Social factors in the classroom context can function as an intermediary between individual factors and students' academic outcomes. Sameroff's Transactional Theory undergirds the current study and posits that child outcomes are a product of the combination of an individual and his or her experience. This approach highlights the importance of the social context and associated social processes in students' learning and development (Sameroff & Mackenzie,

2003). Through transactional processes, there are dynamic (bidirectional) interactions that take place in the classroom between a teacher, peer groups, and the child. Social relationships with teachers and peers are therefore an important aspect of the classroom context, and have implications for children's academic as well as social and behavioral adjustment (Hamre & Pianta, 2001; J. N. Hughes & Chen, 2011).

Teacher-Student Transactions and Students' Academic Outcomes. Farmer, McAuliffe Lines, & Hamm (2011) discuss the "invisible hand" representing the role of teachers in the classroom. Teachers often influence the social context of the classroom environment and can facilitate positive student outcomes. Interactions that teachers establish with students—both collectively and individually—set the social environment in the classroom. Poor teacher-student interactions characterized by conflict and dependency have been associated with poorer academic performance, more negative school attitudes, and less school involvement (Birch & Ladd, 1997). Some teachers were found to report more conflict and dependency in their relationship with Black kindergarten-and first- grade students, as compared to White, Latino, and Asian American classmates (Murray, Murray, & Waas, 2008). Further, Hughes et al. (2001) found that peers' perceptions of the teacher-student relationship in third and fourth grade classrooms predicted classmates' liking for students above peers' and teachers' evaluation of children's aggression. This suggests that observing teacher-student interactions in the classroom can provide students information about their peers. For example, continued observations of the quality the teacher-student relationships in diverse classrooms may shape minority students' beliefs about how others negatively or positively perceive their ethnic group in middle childhood. As early as preschool when preschoolers have problems in their interactions with their teachers, these problems are magnified when ethnic differences and teacher expectations for

different ethnic groups exist (Saft & Pianta, 2001).

Midgley, Feldlaufer & Eccles (1989) note that students' perception of support from their teachers is associated with students' sense of efficacy as learners and with their academic engagement and achievement. Sadly, some studies have found that some teachers have less favorable perceptions of Black students compared to non-Black students (Saft & Pianta, 2001), and that Black children perceive less supportive relationships with their teachers compared to non-minority students' (Birch & Ladd, 1997). Past research on classroom factors have often focused on teacher's expectations of minority students or students' observed differential treatment from their teachers (Murray et al., 2008; Saft & Pianta, 2001). Previous work demonstrates that during middle childhood children make social comparisons to their peers and that when teachers' have low expectations for their performance 3rd grade African American children were more likely to confirm teachers' underestimates of their academic ability (McKown & Weinstein, 2002). As such, understanding the role that teachers play in establishing the social context in the classroom is important to understanding identity development and academic achievement.

Research does not consider the role teachers have in children's inter- and intra-personal processes even though teachers often interact, intentionally or not, with students in ways that contribute to classroom social dynamics (Farmer et al., 2011). In addition to differences in teacher-student relationships based on race, gender differences have also been noted. Hughes et al. (2001) found that girls received higher support scores than did boys, and boys received higher scores on conflict with teachers. Previous studies have also noted teachers reporting more conflict with male students and more closeness with female students (Birch & Ladd, 1997). Teacher-student interactions may have a strong influence on peer liking, it is important to

examine how this relationship influences student self-concept, and specifically ethnic-racial identity. The current study seeks to fill a gap in the literature regarding the influence of teachers on students' friendship patterns, and the degree to which the student-teacher relationship plays a role in the association between students' ethnic identity and their academic outcomes.

Student-to-Student Transactions and Academic Outcomes. By middle childhood, more than 30% of children's social interactions are with peers (Gifford-Smith & Brownell, 2003). Broadly defined, friendships are a voluntary, dyadic relationship between individuals that are often founded on cooperation and trust (Gifford-Smith & Brownell, 2003). Friendships in middle childhood are important because they play a significant role in providing children with social support, social skills, and positive academic attitudes (Hamm & Faircloth, 2005; Poulin & Chan, 2010; Shin, Daly, & Vera, 2007; Witkow & Fuligni, 2010). Interestingly, friendships in fourth- through sixth-grade peers have been shown to influence a student's belief about his or her ability to succeed as well as the level of importance given to academic success (Altermatt & Pomerantz, 2003). Moreover, positive friendships in adolescence has been demonstrated to promote high achievement amongst peers and class attendance (Witkow & Fuligni, 2010).

Literature Review

Ethnic-Racial Identity: Definitions and Measurement Approaches

Ethnic-racial identity is a key component of self. Self-concept starts to develop in middle childhood, and children's understanding of race and social hierarchy may contribute to their sense that their ethnic-racial background is central to defining themselves (Quintana, 1998). Broadly defined, ethnic-racial identity (ERI) refers to a multidimensional, psychological construct that reflects the beliefs and attitudes that individuals have about their ethnic-racial group membership, as well as the processes by which these beliefs and attitudes develop over

time (Umana-Taylor et al., 2014). Similar to previous studies that attempt to capture the meaning of racial and ethnic identity, in this review of the literature the term “*ethnic-racial identity*” will be globally adopted, however, specific terms used by the original authors will be used when discussing particular studies.

The earliest research on children’s racial identity used projective techniques with dolls and pictures. These studies explored whether children growing up in segregated schools ascribed stereotypical attributes to themselves and their racial group, and the degree to which this inhibited their learning and psychological growth (Clark & Clark, 1939). Drs. Kenneth and Mamie Clark found that as early as three years old, children were able to identify their race when referencing pictures of white and black characters, which suggested that preschool-age children are aware of racial differences, and this could impact how they perceive and value themselves. Clark and Clark’s (1950) later work showed that many children experience emotional conflict with regards to racial identification and racial preference, but that regardless of age, children ascribed negative characteristics to the black race.

Since the Clarks’ work, multiple perspectives on how ethnic identity develops have emerged. Earlier research often drew from Cross’ stage models of racial identity (1978), which was a mainstream approach to examining racial identity. Cross theorized the following stages of racial identity development: 1) *Precounter* stage (acceptance of negative beliefs and values of the dominant White culture), 2) *Encounter* stage (troubling event that disrupts a negative view of one’s race), 3) *Immersion-emersion* stage (movement towards a positive Black identity), and 4) *Internalization* stage (a personal pride and security in one’s Blackness, acceptance and tolerance of others). It was asserted that all individuals go through a process of racial identity development, and progression in each stage has its own emotional and behavioral characteristics

(Hudley & Irving, 2012). However, current literature suggest this model is not appropriate for individuals in early and middle childhood (Umaña-Taylor et al., 2014). Although children are learning to identify and categorize and themselves and others according to ethnic and racial labels, developmentally they do not have the social exposure nor counterfactual thinking skills to consider identity issues (Quintana, 1998).

Researchers have also used the Multidimensional Model of Racial Identity (MMRI; Sellers, Smith, Rowley, & Chavous, 1998), which tries to account for the mainstream perspective and the qualitative experiences of African Americans. Unlike Cross' stage model, MMRI does not assume a particular identity orientation is optimal for youth development. The MMRI is primarily concerned with the status of an individual's racial identity as opposed to its development. Sellers et al. (1998) propose four dimensions of racial identity. Racial *salience* and *centrality* refer to the significance that individuals attach to race in defining themselves. While racial *regard* and *ideology* refer to the individuals' perceptions of what it means to be Black. Moreover, it is suggested that racial identity in African Americans has dynamic properties that are susceptible to contextual influences. Because minorities have varying experiences, some individuals place little significance on race in defining who they are, while others may see their racial membership as the defining characteristic of their self-concept. MMRI enables researchers to examine variability of ethnic-racial identity amongst peers in the same context and its varying impacts on outcomes (Miller-Cotto & Byrnes, 2016; Sellers et al., 1998)

More recently, researchers have begun to explore a more global perspective regarding individuals and their identities. The term "ethnic-racial identity" (ERI) is used to capture experiences that reflect both individuals' ethnic background and their racialized experiences as a member of a particular group (Umaña-Taylor et al., 2014). More importantly, the construct of

ERI is developmentally-grounded and understood as shaped by the social-environmental contexts within which individuals' identities are developing. The ERI construct includes an individual's cognitive capabilities, socioemotional dynamics and their role in determining which component of their ERI a person is evolving within a given developmental period.

Development Across the Different Dimensions of Ethnic-Racial Identity. Most research suggests adolescence is when ERI forms (Umaña-Taylor et al., 2014), however prior experiences in early and middle childhood expose and prime children for ERI formation. During middle childhood, dimensions or components of ethnic-racial identity are processed and conceptualized (Umaña-Taylor et al., 2014). More specifically, ethnic-racial centrality, public regard, and affect toward in-group and out-group emerge during this developmental stage. Some of the earliest research indicates that as young as three years old, children were able to identify their race when referencing pictures of white and black characters, moreover preschoolers often experienced emotional conflict with regards to racial identification and preference (Clark & Clark, 1939). These early studies of racial identity in preschoolers also indicated that many young children ascribed negative characteristics to the Black race (Clark & Clark, 1950). Additionally, (Quintana, 1998).

Rowley et al. (2008) examined if African American third- and fifth-grade students having race as a more central component of one's self-concept (centrality) and believing that others view African Americans more negatively (public regard) would be related to greater expectations for discrimination in social interactions in school (e.g., European American peers, teachers, and staff). Their study revealed that both African American third- and fifth grade children who endorsed high levels of centrality and low public regard (e.g., believing that others view African Americans more negatively) were more likely to expect racial discrimination in interactions with

European American peers and authority figures. The relationship between ethnic-racial identity and expectations for racial discrimination may have implications for African American students' functioning in a number of domains related to the school/classroom context (e.g., academic, behavioral, and social outcomes).

It is important to understand various sources of racial socialization and how they affect various developmental domains. Moreover, during this developmental stage ERI becomes *salient* and *central* to a child's self-concept. As such, during middle childhood individuals develop an awareness and internalization of positive and negative stereotypes that can impact other aspects of functioning, such as academic adjustment (Rivas-Drake, Hughes, & Way, 2008).

Ethnic-Racial Identity as a Predictor of Academic Outcomes. Although it is commonly believed that having a strong racial identity is positively related to academic achievement, the body of work on this topic is inconclusive. Some studies have found a positive relationship between academic achievement and ethnic-racial identity. Yasui, Dorham, & Dishion (2004) found a moderately positive relationship between African American adolescents' ethnic identity and GPA. A study by Smith et al. (2009) examined the relationship between second- and third-grade African American students' ethnic identity and academic performance. Ethnic identity in third graders was positively associated with reading and listening comprehension, and students' self-perception of scholastic competence. Other studies have found a negative relationship between ethnic-racial identity and academic achievement. For example, Worrell (2007) demonstrated that among gifted eighth-grade African American students', ethnic identity negatively predicted school GPA. Similarly, Oyserman et al. (2003), found eighth grade minority students' racial-ethnic schemas were negatively related to mean GPA. Still other studies have found no relationship between ethnic-racial identity and academic achievement: a study

with a college sample found no significant relationship between ethnic identity and GPA (Cokley & Chapman, 2008).

Studies that have utilized Sellers' Multidimensional Model of Racial Identity have demonstrated unique relationships between different components of ethnic-racial identity and academic outcomes. In a meta-analysis conducted by Miller-Cotto and Byrnes (2016), mean correlations between public regard were positively related to academic achievement (e.g., GPA) for Latino youth; however, there were no direct links between public regard and academic achievement for Black youth. Thomas et al. (2009) has demonstrated similar findings between public regard and academic achievement for African American adolescents. However, they found that public regard moderated the negative relationship between students' perceived teacher discrimination and GPA. Additionally, Miller-Cotto and Byrnes (2016) examined mean correlations between centrality and academic achievement and found no statistically significant relationship. Although, it is important to note Chavous et al. (2003) have found positive relationships between ethnic-racial centrality and African American students' school beliefs (e.g., school relevance and efficacy). These previous findings by Thomas et al. (2009) and Chavous et al. (2003) highlight Miller-Cotto and Byrnes (2016) assertion that future studies should examine the intermediary effects of student-teacher discrimination and other constructs such as student engagement and motivation.

Few studies have examined gender differences and how the association between ethnic-racial identity and academic achievement may differ for boys and girls. In one of the few studies that do exist, Chavous et al., (2008), using sub-constructs of the Multidimensional Inventory of Black Identity (MIBI; Sellers et al., 1998), found gender differences in the associations between racial centrality and academic achievement. More specifically, boys' racial centrality was not

associated with their 11th grade GPA; however, it was positively associated with academic importance and academic self-concept. In contrast, girls' racial centrality was not associated with any academic variables.

Teachers, Racial Ethnic Identity, Social Transactions and Academic Outcomes.

Recently, Umana-Taylor et al. (2014) highlighted the social and environmental contexts in which components of ethnic-racial identity develop. Interestingly, only family, peers, and the media were noted as social contexts in which ethnic-racial identity development occurs in middle childhood. This seems surprising, and given the significant amount of time children in this developmental period spend in school it is important to consider how the school environment, more specifically teachers—shape a social context in which ethnic-racial identity development likely occurs. Understanding classroom processes that promote students' success in academic and behavioral domains can help account for associations between ERI and academic performance.

McKown and Weinstein (2003) examined associations between fall semester teacher expectations of student performance in math and reading and student year-end achievement in 1st, 3rd, and 5th grades. After controlling for prior experiences and class membership, a significant interaction of the type of expectation (teachers' under- or over-estimate of performance) by child ethnicity was found in 3rd and 5th grade, such that African American children were 2.53 and 10.4 times more likely to confirm teachers' underestimates of reading ability, at each respective time point. In comparison, in 3rd and 5th grade Caucasian children were .47 times and .78 times as likely to confirm teachers' underestimates of reading ability, at each respective time point. Confirming teachers' estimates of child performance was based on achievement response (confirm or disconfirm). This study demonstrates some teachers may expect poor performance of

African American students in comparison to their Caucasian peers. When one considers the interplay of poor teacher-student relationships and teacher expectations of children from stigmatized groups (e.g., African Americans), it is important to consider how children internalize these daily interactions and experiences in the classroom to their understanding of self. Moreover, third grade children show awareness of differential treatment teachers may exhibit toward low- and high-achieving students (McKown & Weinstein, 2003).

Observing teacher-student interactions in the classroom can provide information about classmates, such that Hughes et al. (2001) found that peers' perceptions of the teacher-student relationship in third and fourth grade classrooms predicted classmates' liking for students above peers' and teachers' evaluation of children's aggression. Continued observations of the quality the teacher-student relationships in diverse classrooms may shape minority students' beliefs about how others negatively or positively perceive their ethnic group in middle childhood. It is important to examine how this relationship influences student self-concept, and specifically ethnic-racial identity.

Moreover, it is important to note in this literature review of teachers and racial socialization there are few studies to date that have examined the association between teacher-student relationship or expectations on minority students' ethnic-racial identity in middle childhood. Prior studies demonstrate that African American students experience and perceive differential treatment from teachers (Birch & Ladd, 1997). More importantly, poor teacher-student interactions characterized by conflict and dependency have been associated with poorer academic performance, greater negative school attitudes, and less school involvement (Birch & Ladd, 1997). Most teachers in the United States tend to be Caucasian females, and it is important to understand how mismatches between students and teachers in the classroom impact self-

concept and subsequent behavioral, social, and academic outcomes. Previous studies have found that high ethnic-racial centrality and public regard buffered the negative effects between perceived discrimination from teachers and students' grades (Chavous et al., 2008; Thomas, Caldwell, Faison, & Jackson, 2009). It is important to note that Chavous et al. (2008) found this relationship to be most beneficial for eighth grade African American males; however, this protective factor did not fair the same for African American girls. Lastly, Cokley and Chapman (2008) examined African American college students' perceptions of teachers caring and its associations to ethnic identity. Correlation analyses revealed moderately positive associations between college students' ethnic identity and perceptions of teachers caring.

During middle childhood as children make social comparisons from observations between peers from their in-group and out-group minority children may begin to conceptualize various components of their ethnic-racial identity. For example, one would likely find statistically significant associations between public regard (e.g., believing that others view African Americans more positively) and the quality of student-teacher relationships. Previous studies that have examined perceived teacher discrimination and caring, tap into constructs that likely affect the quality of student teacher relationships. These findings highlight the need to examine the association between student-teacher relationships and different components of students' ethnic-racial identity.

Peers, Ethnic Racial Identity, Social Transactions and Academic Outcomes.

The most important determinants of friendship choices are similarity (homophily) and availability (propinquity) (Echols & Graham, 2013). Children often have the tendency to form friendships based on similar characteristics (e.g., gender, age, ethnicity), but finding peers with similar characteristics is also dependent on the composition of the classroom, which then affects

the availability of finding similar individuals in one's class or school setting. As classrooms become more ethnically diverse students are more likely to befriend a classmate from a different ethnic group (Graham & Morales-Chicas, 2015).

Research that focuses on the social context of identity development demonstrates that the type of racial identities and racial knowledge peers support often varies widely across peer groups (D. L. Hughes et al., 2011). Tajfel's ((2004)) Social Identity Theory supports particular functions of peer group relations and identity development in middle childhood. Tajfel posits that social identity is founded on three tenets: 1. individuals want to make positive self-evaluations; 2. social group membership is a source of self-evaluation in which in-group and out-groups are compared, and 3. it follows that positive evaluations derive from making distinctions that favor the in-group relative to the out-group. Yip, Douglass, and Sellers (2014) note that within the context of the United States, belonging to historically marginalized or minority groups is likely more relevant, or salient on the very basis of marginalization. Moreover, they continue to add that belonging to a minority group may require a reinterpretation of that group membership to maintain a positive self-concept. This theory is the foundation to subsequent ethnic-racial identity theories and providing support/evidence when considering the context of social relationships.

Black youth who value academics can create opportunities for their friends to enhance their own achievement. Shin, Daly, & Vera, (2007) found that peer support was positively related to ethnic identity. Positive peer support and ethnic identity were found to moderately predict academic engagement. Eighth grade students who reported higher levels of positive peer support and more positive ethnic identity on the MEIM indicated being more engaged in school. Moreover, Shin et al. (2007) found an interaction between ethnic identity and negative peer

norms, suggesting that students with more positive ethnic identity ratings, negative peer norms were less strongly related to negative attitudes toward school. Hudley & Irving (2012) suggest that peer group norms may support activities that facilitate immersion in the racial-ethnic experience and positively sanction similar shared regard (positive or negative) toward their same-ethnicity peers.

Previous research typically focused on same-ethnic friendships in relation to how it influences individual attitudes, values, and identity because these friendships tend to be most common (Graham, Munniksma, & Juvonen, 2014; D. L. Hughes et al., 2011). When examining socio-behavioral similarities of children in cross- or same-racial friendships, McDonald et al. (2013) found that children in same-racial friendships were significantly more similar than cross-racial friends on peer victimization, exclusion, and popular/sociable behavior. It is important to understand further how cohesion in these peer groups may influence academic and social outcomes. Additionally, a study by Graham et al. (2014) examined sixth grade students friendships and how it relates to ethnic identity. Sixth grade students in same-ethnic friendships were found to be uniquely related to positive feelings about being a member of one's own ethnic group (Graham et al., 2014).

Still other studies indicate cross-ethnic friendships uniquely contribute to social and academic outcomes as well. Interestingly, cross-ethnic friendships are more common among Caucasian and Asian American children (Kawabata & Crick, 2011). Most studies that examine cross-ethnic friendships focus on socioemotional outcomes. Cross-racial friendships have been shown to be related to feelings of safety and fewer experiences with victimization in fourth and sixth grade students (Graham et al., 2014; Kawabata & Crick, 2011). Moreover, there is literature to support student ethnicity does not predict whether a child will be in a cross-racial

friendship (Echols & Graham, 2013; McDonald et al., 2013). Further research should examine what particular child characteristics such as a child's ethnic-racial identity predicts these friendship patterns.

Lastly, the research that has examined friendship characteristics has primarily focused on social domains (e.g., peer support, peer victimization/discrimination, etc.). Few studies examine the role of friendship quality on academic engagement or achievement. Kawabata and Crick (2015) demonstrated that fourth graders cross-ethnic friendships were associated with higher academic engagement and more motivation for learning. Similarly, Graham and Morales-Chicas (2015) examined 9th grade math classes and how ethnic context and peers attitudes about math and ethnic climate relate to math attitudes, math course-taking, and math outcomes. This study will consider the quality of friendship characteristics and how it may supports academic outcomes for children.

It is important to note that peer relations in middle childhood and adolescence influence boys and girls differently. Kawabata and Crick (2011) demonstrated that when the number of boys' cross-ethnic friendships decreases the number of same ethnic friendships increases during the school year. Girls however tend to have more intimate and stable friendships that remain stable throughout the course of the school year. Kawabata and Crick (2011) demonstrated that girls had more high-quality friendships regardless of the friendship characteristics (e.g., cross- or same-racial), which enables a more stable friendship. However, Poulin and Chan (2010) have noted that studies where gender differences in friendship stability were found previous research tends to favor boys.

In sum, prior research has primarily examined minority children's peer relationships in school, more specifically friendship characteristics and its relation to ethnic-racial identity and

social outcomes. However, it is important to consider components of ethnic-racial identity and friendship quality. Friendship quality mainly consists of positive characteristics associated with dyadic relationships between age mates, such as helping and caring, validation, conflict resolution, intimate exchange, etc. (Parker & Asher, 1993). One might find that friendship quality may be important for minority children making positive self-evaluations in relation to belonging to one's own ethnic-racial group.

The literature is inconclusive about whether ethnic-racial identity is directly related to academic achievement, hence examining intermediary variables is important. The current study examines how teacher-child interactions relate to students' ethnic-racial identity, and explores the extent to which ethnic-racial identities filter through the social context in the classroom to influence academic outcomes. By using a transactional model, which considers both the individual child characteristics and social influences in the classroom, the current study differs from prior work in important ways. Consistent with Sameroff's transactional theory, it posits that a child's outcome is a product of the combination of his/her experience with others in the classroom. This study also considers gender differences given prior work indicating that the experiences girls and boys have in fifth grade with teachers and peers are not the same, and generally girls' fair better in their relationships with teachers and peers.

The Current Study

The current study explores social factors such as friendship and student-teacher relationship quality, ethnic-racial identity, and academic achievement during middle childhood from an ethnically-diverse sample of children living and attending school in ethnically-diverse communities. The study seeks to answer four main research questions:

1. Do different components of ethnic-racial identity influence academic outcomes?

2. Do quality classroom relationships predict academic outcomes?
3. Does a students' racial-ethnic identity influence the quality of their classroom relationships (e.g., teacher and best friend), more importantly is teacher-student ethnic match important?
4. Do social relationships mediate associations between ethnic-racial identity and academic outcomes; additionally are there gender differences?

Study Hypotheses

Hypothesis 1: Ethnic racial public regard and centrality will positively predict academic outcomes (e.g., engagement and grades).

Hypothesis 2: Friendship quality and student-teacher closeness will positively predict academic outcomes (e.g., engagement and grades). We also hypothesize that student-teacher conflict will negatively predict academic outcomes.

Hypothesis 3: Ethnic racial public regard and centrality will positively predict friendship quality and student teacher closeness; however public regard and centrality will negatively predict student-teacher conflict.

Hypothesis 4: The proposed competing mediation models will be a better fit for girls, with friendship quality being a stronger pathway when the outcome is math and language arts.

Hypothesis 5: The proposed competing mediation models will be a better fit for boys, with student-teacher closeness being a stronger pathway when the outcome is math and language arts grades.

Method

Participants

The current study recruited 101 fifth grade students ($M_{age}=10.9$ years) and their teachers from a middle school in the Northeastern region of the United States. Students' resided in a

middle-class suburban town, comprised primarily of two-parent homes. Participants were from diverse backgrounds: teachers reported 49.5% of the sample was Caucasian, 29.7% Black or African American, 9.9% Latino, 7.9% Asian, 3% other. Male participants comprised 60.4% of the sample. Five Caucasian female teachers participated in the current study.

Measures

Demographic Information. Teachers provided information about students' date of birth, gender, and ethnicity, gifted and special needs status, English-language learner status, and free/reduced lunch status. Additionally, teachers provided background information about themselves: age, ethnicity, gender, and number of years teaching.

Ethnic-Racial Identity. Participants completed the Multidimensional Inventory of Black Identity-Teen assessment (MIBI-t Scottham, Sellers, & Nguyễn, 2008), which is a developmentally-appropriate measure of racial identity in pre-adolescents and adolescents. The MIBI-t is an adapted version of the MIBI that consists of the same subscales as the adult-version; however, it contains fewer items per subscale. For the purposes of this study, students responded to nine items on a five-point Likert scale ranging from "strongly disagree" to "strongly agree". Additionally, this scale had language that specifically addresses African American children's racial identity. Because this study had children of other ethnicities (e.g., Latino, Indian American, Caucasian, etc.) items that said "Black" were replaced with more appropriate words such as "my ethnic group", which has been demonstrated to maintain internal validity (Fuligni, Witkow, & Garcia, 2005; Rivas-Drake et al., 2008). Participant scores were averaged across the three items to create a composite score for each of the three subscales. The Centrality scale assesses the extent to which race is an important part of a person's identity. A higher score on the centrality scale indicates the person is feeling their race is more central to their self-concept. The

Private Regard subscale assesses the extent to which a person feels positive toward other people of their ethnic group and being a member of their ethnic group. The Public Regard subscale measures the extent to which the individual feels that other groups feel positively or negatively toward their ethnic group. Higher scores on the Regard subscales indicate more positive feelings towards individuals of one's ethnic group.

Friendship Quality. Students completed the *Friendship Quality Questionnaire* (FQQ, Parker & Asher, 1993), which is used to assess children's perception of their very best friendship. Using peer sociometric students were asked to identify their top three friends and of those three friends they listed participants had to choose who is their very best friend. Students responded to 21 items on a 5-point Likert scale ranging from "not at all true" to "really true" to measure six qualitative aspects of friendship: Intimate Exchange, Validation and Caring, Conflict Resolution, Conflict and Betrayal, Help and Guidance, and Companionship and Recreation. A Friendship Quality Total Score was computed as the average of 21 items. Higher values indicated more positive friendship behavior between best friends.

Teacher-child relationships. Current teachers of participating students responded to items from the *Student-Teacher Relationship Scale*, which measured the quality of their relationship with specific participating students (STRS; Pianta, 1994). The scales yield measures of the teacher's relationship his/her student regarding whether the quality of the teacher-child relationship is frequently at odds (conflicted) or close. Teachers responded to fourteen questions on a five-point Likert scale, such as, "this child easily becomes angry at me".

Academic outcomes. Students' second quarter language arts and math grades were collected from school officials. Participants also completed the *School Engagement Scale* (Fredericks, Blumenfeld, Friedel, & Paris, 2005), which is a measure of cognitive, emotional,

and behavioral school engagement. For this study, students responded to a total of nine items about their cognitive and behavioral engagement on a five-point Likert scale ranging from “never” to “all of the time”.

Procedures

Participants were recruited from public schools located in a suburban northeastern town and whose administration had agreed to participate. Students were recruited to participate through flyers sent home. Prior to data collection parents provided consent for their child to participate in the study.

Data was collected once during the second quarter of the school year. During this one assessment session, participating students transitioned from their gym period classroom to the school’s computer lab to complete an online survey through RedCap. RedCap is a secure program that enables participant confidentiality. Students accessed the middle school’s computer to respond to measures that first asked about their academic engagement, ethnic-racial identity, and then the quality of their friendships. Students completed the surveys in about 40 to 50 minutes. Research assistants were available to provide the participants with guidance or instructions for each questionnaire in the survey. Participants received a \$10 Walmart gift-card for their participation in the study.

The Student Teacher Relationship survey was distributed to participants’ teachers after student participants had completed their surveys. Rating forms were presented in a secure envelope. Once teachers completed the rating forms they were returned to the graduate research assistant to maintain confidentiality. Teachers received \$15 compensation for completion of every completed student rating form. Finally, at the conclusion of the students’ academic school

year school administrators provided graduate research assistants with participants' grades in core courses e.g., (math and language arts).

Results

Preliminary Analyses

Prior to running the main analyses, data were cleaned and examined for missing data, distribution issues, and outliers. Scatterplots were generated to assess skewness, kurtosis, and linearity observed in the data. When examining the distribution of data, ethnic-racial private regard was substantially positively skewed and kurtotic. To adjust for the skewed and kurtotic distribution a logarithmic transformation was performed using Tabachnick and Fidell (2007) guidelines for data transformation. After the transformation, ethnic-racial private regard was still abnormally distributed. More than 77% of the sample endorsed private regard scores of four or higher, with the max mean score on this scale being a five. Because the study sample demonstrated a ceiling effect on private regard and could not be remedied by data transformations, this variable was excluded from further analyses. Descriptive analyses were conducted to examine differences between girls and boys on components of ethnic-racial identity, student-teacher closeness and conflict, friendship quality and academic outcomes. Table 1 shows means and standard deviations of all study variables. Independent samples t tests showed that teachers reported closer relationships with girls, $t(99)=2.81, p<.01$, and more conflict with boys, $t(99)= -2.74, p<.01$. Additionally, girls reported significantly higher cognitive engagement, $t(99)=2.62, p<.01$, and behavioral engagement $t(99)=2.57, p<.01$. Lastly, girls also had statistically higher math, $t(97.92)=2.54, p<.05$, and language arts, $t(98.48)=2.35, p<.05$, grades compared to boys. There were no statistically significant differences in boys' and girls' ethnic-racial centrality and public regard scores.

Table 1.

Sample Characteristics

	Females (<i>n</i> = 40)	Males (<i>n</i> = 61)	Significant Differences
	<i>M</i> , (<i>SD</i>)	<i>M</i> , (<i>SD</i>)	
Ethnic-Racial Identity:			
Centrality	3.28 (.98)	3.39 (.93)	
Public Regard	3.36 (.84)	3.59 (.79)	
Friendship Quality	21.3 (2.28)	19.7 (3.48)	<i>t</i> (95)=2.48*
Student-Teacher Relationship:			
Closeness	26.22 (3.43)	23.85 (4.55)	<i>t</i> (99)=2.81**
Conflict	10.98 (1.53)	12.80 (4.04)	<i>t</i> (99)= -2.73**
Academic Outcomes:			
Cognitive Engagement	10.55 (4.28)	8.31 (4.15)	<i>t</i> (99)= 2.62**
Behavioral Engagement	13.9 (2.19)	12.50 (2.93)	<i>t</i> (99)=2.57*
Language Arts	90.30 (4.90)	87.52 (6.98)	<i>t</i> (99)=2.18*
Math	93.03 (4.53)	89.90 (7.76)	<i>t</i> (99)=2.29*

Note: * $p < .05$, ** $p < .01$

Correlations were run to assess associations among study variables with the total sample and within gender groups, tested at an alpha level of $p < .05$. Correlation analysis revealed positive and negative associations among academic outcome variables for the sample as a whole (see Table 2). Additionally, correlations also revealed a negative association between public regard and student-teacher closeness. More specifically, students with higher scores on public regard were associated with lower student-teacher closeness. Associations among classroom relationship variables and academic outcomes were also examined. For the total sample, behavioral engagement was positively associated with friendship quality and negatively associated with student-teacher conflict. In addition, student-teacher conflict was also negatively associated with students' math and language arts grades.

Table 2.

Summary of Intercorrelations for Scores on Ethnic-Racial Identity, Academic Achievement, and Classroom Relationship

Measure	1	2	3	4	5	6	7	8	9
1. Behavioral Engagement	-								
2. Cognitive Engagement	.367**	-							
3. Math grades	.296**	.222*	-						
4. Language Arts grades	.321**	.332**	.667**	-					
5. Centrality	-0.148	0.040	-0.150	-0.047	-				
6. Public Regard	0.069	.221*	-0.079	-0.053	.504**	-			
7. Friendship Quality	.262**	.399**	0.067	0.071	-0.002	0.060	-		
8. Student-Teacher Closeness	0.136	.197*	.214*	0.118	0.006	-.208*	0.019	-	
9. Student-Teacher Conflict	-.249*	-0.180	-.468**	-.512**	0.137	0.192	0.019	-.245*	-

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

Correlational analyses were run separately for each gender (see Table 3). Gender differences were evident the relation between different components of ethnic-racial identity and academic outcomes. Specifically, boys' ethnic-racial centrality had a moderately negative association with behavioral engagement, whereas girls' public regard had a moderately negative association with cognitive engagement.

Table 3.

Summary of Intercorrelations for Scores on Ethnic-Racial Identity, Academic Achievement, and Classroom Relationships as Function of Gender

Measure	1	2	3	4	5	6	7	8	9
1. Behavioral Engagement	-	.415**	0.218	.311*	-.264*	0.172	.286*	0.071	-0.210
2. Cognitive Engagement	0.153	-	0.208	.391**	-0.046	0.227	.319*	0.153	-0.200
3. Math grade	.387*	0.110	-	.715**	-0.221	-0.059	-0.026	0.203	-.485**
4. Language Arts grade	0.201	0.102	.413**	-	-0.103	0.027	0.093	0.139	-.509**
5. Centrality	0.083	0.198	0.037	0.096	-	.425**	-0.017	0.128	0.134
6. Public Regard	-0.012	.325*	-0.028	-0.127	.600**	-	0.044	-0.153	0.136
7. Friendship Quality	-0.021	.468**	0.151	-0.249	0.069	0.216	-	-0.087	0.113
8. Student-Teacher Closeness	0.078	0.110	0.024	-0.155	-0.172	-0.237	0.054	-	-0.244
9. Student-Teacher Conflict	-0.162	0.139	-0.122	-.413**	0.145	.324*	-0.019	0.089	-

Note. Intercorrelations for male participants are presented above the diagonal, and intercorrelations for female participants are presented below the diagonal. * $p < .05$, ** $p < .01$

Main Analyses

This study sought to address four research questions and the analytic strategy included ANOVA, regression, and path analysis. For the main analyses, student gender and teacher-student ethnicity match was dummy coded, such that females and teacher-student ethnicity mismatch (e.g., teacher and student are different ethnicities) were coded as the reference group. Each independent variable was centered around its mean to reduce multicollinearity. Centered variables were used to compute the product of two variables to test the moderator hypothesis.

Analysis of variance (ANOVA) was performed to test gender differences for all variables. Additionally, multivariate analysis of variance (MANOVA) was performed to test race

and teacher differences for all the variables. Additionally, separate hierarchical regression analyses were used to investigate whether each component of ethnic-racial identity influenced math and language arts scores, in addition to behavioral and cognitive engagement. Participants' race and gender were entered into the model first as control variables. Next, separate hierarchical regression analyses were used to examine whether the quality of student-teacher relationships and best friends predicted academic outcomes. Participants' race and gender were entered first as control variables. Lastly, hierarchical regression analyses were used to examine whether ethnic-racial identity influenced the quality of classroom relationships (e.g., friendships and teacher-student relationships). Participants' gender, race, and teacher-student match were entered first in the model as control variables.

Sample-size constraints did not permit the use of structural equation model (SEM) to examine the effects of ethnic-racial identity and the quality of classroom relationships as latent components of academic outcomes. Instead, a path model was developed using AMOS 21.0 (Arbuckle, 2006) to validate a hypothesized pattern of relations among variables leading from ethnic-racial public regard through friendship quality and student-teacher closeness to academic outcomes.

The following criteria were used to assess goodness of fit for the models based on their status as the most commonly used indices (Kenny, 2014): ratio of chi-square to the degrees of less than 2.0; traditional fit indices, including the comparative fit index (CFI), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), incremental fit index (IFI), and Tucker-Lewis index (TLI); higher than .90 would indicate adequate fit (Byrne, 1994; Hu & Bentler, 1999); and a root mean square error of approximation (RMSEA) of .08 or less (Tabachnick & Fidell, 2001).

Research Question 1. Do different components of ethnic-racial identity influence academic outcomes?

Four hierarchical regression analyses were run to examine how each component of ethnic-racial identity predicts math and language arts grades, in addition to behavioral and cognitive engagement. Each model controlled for participants' ethnicity and gender in the first step. Next, only mean-centered public regard and centrality were entered in the second step as components of ethnic-racial identity. Lastly, in the third step interaction terms were entered to examine moderated effects between gender and different components of ethnic-racial identity, in addition a product term was also entered to examine the moderated effects between centrality and public regard. When interaction terms were significant, simple slopes analysis was performed to examine whether one or both of the lines significantly differ from zero.

First, when participants' ethnicity and age were entered into the cognitive engagement model, they significantly predicted cognitive engagement, $F(2, 91)=3.605, p < .05, R^2=.053$. However, as indicated by R^2 , only 5.3% of the variance in cognitive engagement could be predicted by knowing the participants' gender and ethnicity. More importantly, gender was the only statistically significant predictor of cognitive engagement in the first step ($\beta = -.251, t(91) = -2.47, p = .015$). Girls had statistically significant higher cognitive engagement than boys. When mean-centered ethnic-racial centrality and public regard were added to the model, they statistically improved the prediction, $\Delta R^2 = .084, \Delta F(2, 89) = 4.44, p < .05$. More specifically, only public regard was a statistically significant predictor of cognitive engagement ($\beta = .331, t(89) = 2.89, p < .01$); centrality was not statistically significant ($\beta = -.084, t(89) = -.506, p = .614$). Lastly, when the ethnic-racial centrality by public regard interaction term was added to the model, they statistically improved the prediction, $\Delta R^2 = .048, \Delta F(1, 88) = 5.278, p < .05$. The centrality by public

regard interaction term was a statistically significant predictor of cognitive engagement ($\beta=.226$, $t(88)=2.29$, $p<.05$). Students with higher centrality and public regard scores predicted higher cognitive engagement scores than students with low centrality and public regard scores. A simple slope analysis revealed that the association between ethnic-racial public regard and friendship quality was evidenced for children with centrality that was above 1 *SD*, $t= 3.74$, $p<.01$, but not for children with centrality below 1 *SD*, $t=1.45$, $p=1.49$. This signifies that children who endorse high centrality significantly increases the positive relationship between ethnic-racial public regard and cognitive engagement, whereas children who endorse low centrality do not experience this similar protective factor between ethnic-racial public regard and cognitive engagement (see Figure 1). Overall, all variables together predicted cognitive engagement 16% of the variance in cognitive engagement, $F(5, 88)= 4.54$, $p<.05$, $R^2=.16$.

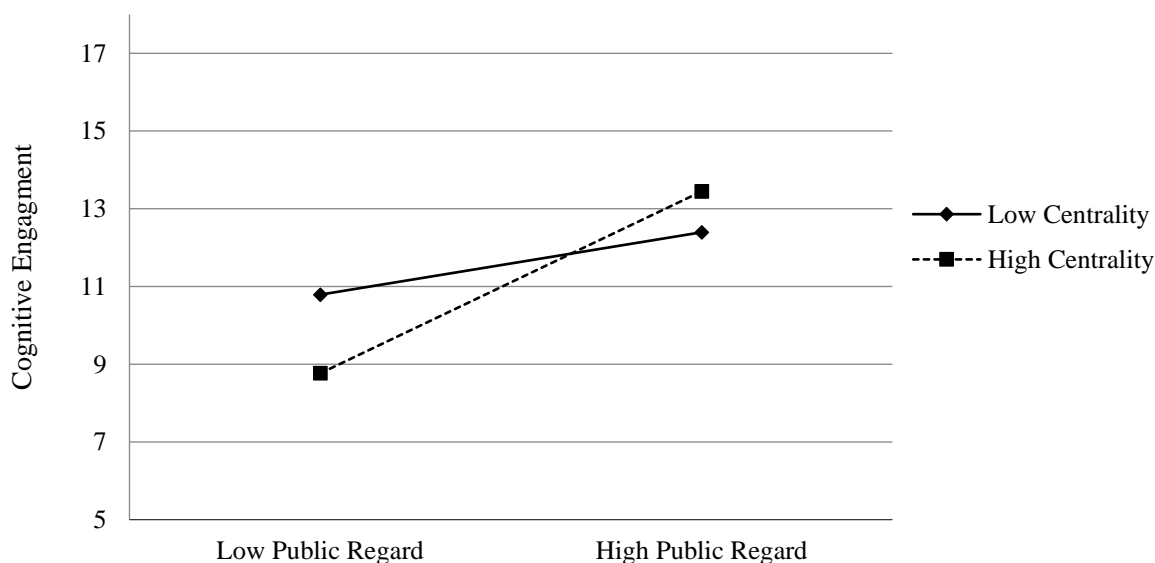


Figure 1. The relationship between ethnic-racial public regard and cognitive engagement varying by centrality. Next, when participants' ethnicity and gender were entered into the behavioral engagement model they did not significantly predict behavioral engagement ($F(2, 91)= 2.50$,

$p=.088$, $R^2=.052$). Although the initial model was not statistically significant, gender was the only statistically significant predictor of behavioral engagement in the first step ($\beta = -.286$, $t(91) = -2.90$, $p < .01$). Girls had statistically significant higher behavioral engagement than boys. When mean-centered ethnic-racial centrality and public regard were added to the model, the model approached statistical significance, but not statistically significant toward improving the prediction of behavioral engagement, $\Delta R^2 = .056$, $\Delta F(2, 89) = 2.79$, $p = .067$). Lastly, when ethnic-racial centrality by public regard interaction term, gender by ethnic-racial centrality term, and gender by ethnic-racial public regard term were added to the model, they statistically improved the prediction, $\Delta R^2 = .083$, $\Delta F(3, 86) = 2.957$, $p < .05$. Both gender by centrality ($\beta = -.437$, $t(86) = 2.06$, $p < .05$) and gender by public regard ($\beta = .362$, $t(86) = -2.47$) terms were statistically significant predictors of behavioral engagement. A simple slope analysis revealed that the relationship between public regard and behavioral engagement was evidenced for boys, $t = 2.79$, $p < .001$, but not for girls, $t = -1.17$, $p = .25$ (See Figure 2).

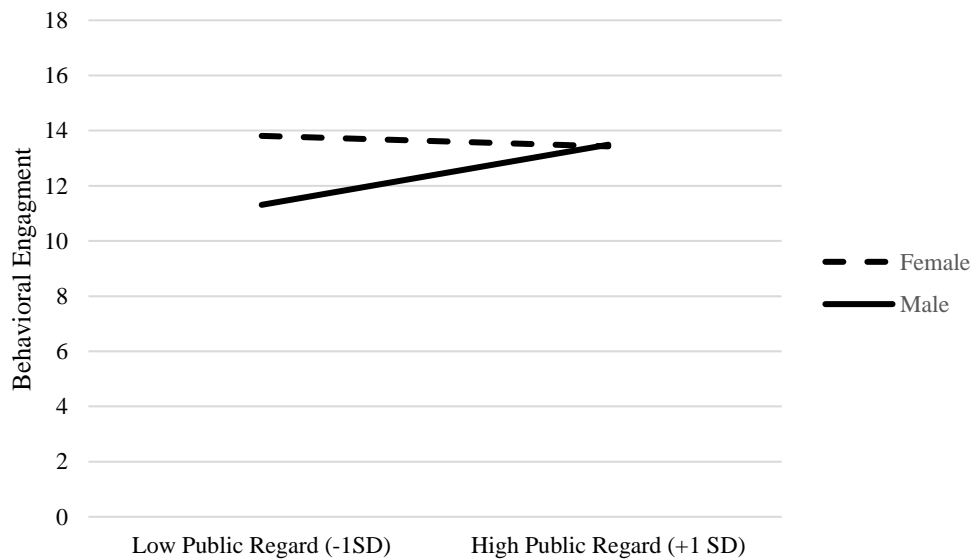


Figure 2. The relationship between ethnic-racial public regard and behavioral engagement varying by student gender.

More specifically, higher public regard scores were related to higher behavioral engagement for boys, however public regard was not significantly predictive of girls' behavioral engagement. Additionally, a simple slope analysis revealed that the relationship between centrality and behavioral engagement was also evidenced for boys, $t = -4.43, p < .01$, but not for girls, $t = .94, p = .35$. Higher centrality scores related to lower behavioral engagement for boys, however centrality was not significantly predictive of girls' behavioral engagement (see Figure 3). Overall, all variables together predicted 19.1% of variance in behavioral engagement, $F(7, 86) = 2.91, p < .05, R^2 = .191$.

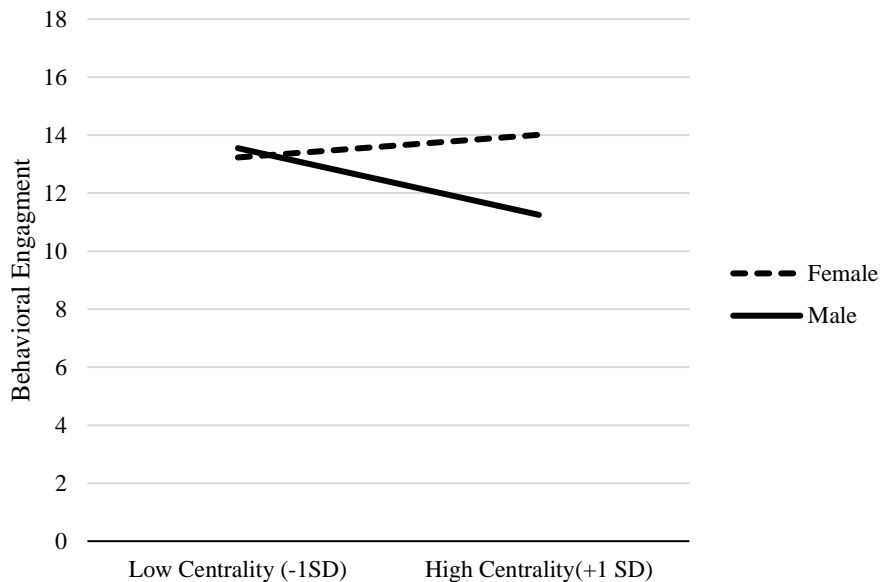


Figure 3. The relationship between ethnic-racial centrality and behavioral engagement varying by student gender.

Lastly, public regard and centrality were not predictive of student's math ($F(7,86)=1.42, p=.616, R^2=.104$) and language arts ($F(7, 86)=.964, p=.494, R^2=.073$) grades. However, student gender was a significant predictor for both math ($\beta = -.226, t(91) = -2.44, p < .05$) and language arts ($\beta = -.207, t(91) = -2.011, p < .05$) grades (See Table 4). Girls had statistically significant higher math and language arts grades than boys.

Table 4.
Hierarchical Multiple Regression Analyses Predicting Academic Outcomes From Ethnic-Racial Components

Predictor	Academic Outcomes							
	Cognitive Engagement		Behavioral Engagement		Language Arts		Math	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.073*		.052		.046		.070*	
Gender		-.251*		-.228*		-.207*		-.226*
Ethnicity		-.079		-.004		-.038		-.117
Step 2	.084*		.056		.001		.015	
Public Regard		.331**		.228		-.004		.043
Centrality		-.084		-.247*		-.026		-.139
Step 3	.054		.083*		.026		.019	
Public Regard x Centrality		.228*		.158		.025		-.033
Public Regard x Gender		.028		.362*		.240		.076
Centrality x Gender		-.132		-.437*		-.270		-.234
Total R^2	.211*		.191*		.073		.104	

Note. * $p < .05$

Research Question 2. Do quality classroom relationships predict academic outcomes?

Four hierarchical regressions were run to examine how classroom relationships, more specifically friendship quality, in addition to student-teacher closeness and conflict predict student engagement and academic grades. Similarly to the first question, participants' gender and ethnicity were controlled for in the first step, followed by friendship quality and student-teacher closeness and conflict in the second step.

First, when participants' ethnicity and gender were entered into the behavioral engagement model, they significantly predicted behavioral engagement, $F(2, 94)=3.29, p<.05, R^2=.066$. However, as indicated by R^2 , only 6.6% of the variance in behavioral engagement could only be predicted by participants' gender ($\beta=-.255, t(94)= -2.67, p<.01$). Similarly to the previous model, girls had statistically significant higher behavioral engagement than boys. When friendship quality and student-teacher closeness and conflict were added to the model, they significantly improved the prediction, $\Delta R^2=.092, \Delta F(3, 91)=3.33, p<.05, R^2=.158$. More specifically, friendship quality was a statistically significant predictor of behavioral engagement ($\beta=.24, t(91)=2.385, p=.019$); student-teacher closeness and conflict were not statically significant predictors of behavioral engagement. Students with high quality friendships predicted higher behavioral engagement. Overall, all variables together significantly predicted 15.8% of variance in behavioral engagement, $F(5, 91)= 3.42, p<.01, R^2=.158$.

Similarly, when participants' ethnicity and gender were entered into the cognitive engagement model, they significantly predicted cognitive engagement, $F(2, 94)=4.45, p=.014, R^2=.087$. However, as indicated by R^2 , only 8.7% of the variance in cognitive engagement could be predicted by participants' gender ($\beta= -.264, t(94)= -2.67, p<.01$). Girls had statistically

significant higher cognitive engagement than boys. When friendship quality and student-teacher closeness and conflict were added to the model they significantly improved the prediction, $\Delta R^2=.153$, $\Delta F(3, 91)=6.12$, $p<.01$, $R^2=.240$. More specifically, friendship quality was a statistically significant predictor of cognitive engagement ($\beta=.369$, $t(91)=2.860$, $p<.01$); student-teacher closeness and conflict were not statically significant predictors of cognitive engagement. Students with high quality friendships predicted higher cognitive engagement. Overall, all variables together significantly predicted 24% of variance in cognitive engagement, $F(5, 91)=5.74$, $p<.01$, $R^2=.240$.

Next, when participants' ethnicity and gender were entered into the math model, they significantly predicted math scores, $F(2, 94)=4.07$, $p<.05$, $R^2=.0870$. However, as indicated by R^2 , only 8% of the variance in math scores could be predicted by participants' gender ($\beta=-.232$, $t(94)=-2.34$, $p<.05$). Girls had statistically significant higher math grades than boys. When friendship quality and student-teacher closeness and conflict were added to the model they significantly improved the prediction, $\Delta R^2=.203$, $\Delta F(3, 91)=8.59$, $p<.001$, $R^2=.283$. More specifically, student-teacher conflict was a statistically significant predictor of math scores ($\beta=-.457$, $t(91)=-4.84$, $p<.001$); student-teacher closeness and friendship quality were not statically significant predictors of math scores. Students with high student-teacher conflict predicted lower math scores. Overall, all variables together significantly predicted 28.3% of variance in math scores, $F(5, 91)=7.18$, $p<.001$, $R^2=.283$.

Lastly, when participants' ethnicity and gender were entered into the language arts model, they did not significantly predict language arts scores, $F(2, 94)=2.72$, $p=.074$, $R^2=.055$. When friendship quality and student-teacher closeness and conflict were added to the model they significantly improved the prediction, $\Delta R^2=.219$, $\Delta F(3, 91)=9.13$, $p<.001$, $R^2=.233$. More

specifically, student-teacher conflict was a statistically significant predictor of language arts scores ($\beta = -.491$, $t(91) = -5.17$, $p < .001$); student-teacher closeness and friendship quality were not statistically significant predictors of language arts scores. Students with high student-teacher conflict predicted lower language arts scores. Overall, all variables together significantly predicted 23.3% of variance in language arts scores, $F(5, 91) = 6.85$, $p < .001$, $R^2 = .233$ (See Table 5).

Table 5.

Hierarchical Multiple Regression Analyses Predicting Academic Outcomes From Friendship and Student-Teacher Relationships

Predictor	Academic Outcomes							
	Cognitive Engagement		Behavioral Engagement		Language Arts		Math	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.087*		.066*		.055		.080*	
Gender		-		-		-.224*		-.232*
Ethnicity		.264**		.255*		-.056		-.149
Step 2	.153**		.092*		.219**		.203**	
Student-Teacher Closeness		.131		.107		-.017		.057
Student-Teacher Conflict		-.152		-.190		-.491**		-.457**
Friendship Quality		.369**		.240*		.056		.039
Total R^2	.198**		.158*		.273**		.283**	

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

Research Question 3. Does a students' ethnic-racial identity influence the quality of their classroom relationships (e.g., teacher and best friend), and is teacher-student ethnic match important?

Three separate hierarchical regressions were run to examine how components of ethnic-racial identity, more specifically ethnic-racial centrality and public regard, predict friendship quality and student-teacher closeness and conflict. Each model controlled for participants' ethnicity and gender in the first step. Models that predicted student-teacher closeness and conflict also controlled for student-teacher match in the first step. Next, only mean-centered ethnic-racial public regard and centrality were entered in the second step. Lastly, a public regard by centrality interaction term were added to the last step for each model. Models that predicted student-teacher closeness and conflict also included a public regard by teacher-student match interaction term in the final step as well.

First, when participants' ethnicity and gender were entered into the friendship quality model, they significantly predicted friendship quality, $F(2, 87)=3.31, p<.05, R^2=.071$. However, as indicated by R^2 , only 7.1% of the variance in friendship quality could be predicted by participants' gender ($\beta = -.217, t(87) = -2.21, p<.05$). Girls had statistically significant higher friendship quality than boys. When ethnic-racial centrality and public regard were added to the model, they did not significantly improve the prediction, $\Delta R^2=.015, \Delta F(2, 85)=.699, p=.50, R^2=.086$. However, when the ethnic-racial public regard by centrality product term was added to the model, they significantly predicted friendship quality $\Delta F(1, 84)=3.97, p=.05, R^2=.127$. More specifically, the ethnic-racial public regard by centrality term was a statistically significant predictor of friendship quality ($\beta=.208, t(84)=1.99, p=.05$). Students who endorsed high ethnic-racial centrality and high public regard was predictive of higher friendship quality. A simple slope analysis revealed that the association between ethnic-racial public regard and friendship quality was evidenced for children with centrality that was above 1 *SD*, $t= 2.19, p<.05$, but not for children with centrality below 1 *SD*, $t=.012, p=.991$. This signifies that children who endorse

high centrality significantly increases the positive relationship between ethnic-racial public regard and friendship quality, whereas children who endorse low public regard do not experience this similar protective factor between ethnic-racial public regard and friendship quality (See Figure 4). Overall, all variables together significantly predicted 12.7% of variance in friendship quality, $F(5, 91)= 3.97, p=.05, R^2=.127$.

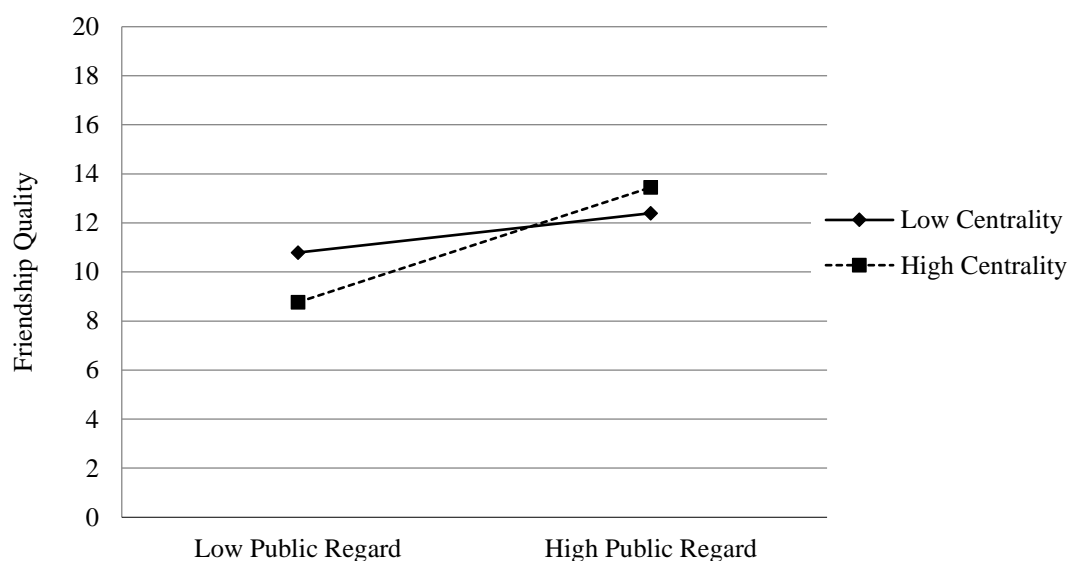


Figure 4. The relationship between ethnic-racial public regard and friendship quality varying by centrality.

Lastly, neither ethnic-racial centrality nor public regard were significant predictors of student-teacher closeness and conflict. Only in the full models with participants' gender, ethnicity, and teacher-student match were significant for student-teacher closeness ($F(3,90)=4.18, p<.01, R^2=.122$) and conflict ($F(3,90)= 3.55, p<.05, R^2=.106$). Follow-up univariate analyses reveal gender to be the only statistically significant predictor of student-teacher closeness ($\beta= -.263, t(90)= -2.64, p<.01$) and conflict ($\beta= .297, t(90)=2.95, p<.01$); students' ethnicity and teacher-student ethnic match were not significant predictors

(See Table 6). Girls had statistically significant higher closeness with their teachers, and boys had more conflict with their teachers.

Table 6.

Hierarchical Multiple Regression Analyses Predicting Friendship and Student-Teacher Relationship From Ethnic-Racial Identity

Predictor	Classroom Relationships					
	Student-Teacher Closeness		Student-Teacher Conflict		Friendship Quality	
	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1	.122**		.106*		.071*	
Gender		-.263**		.297**		-.217*
Ethnicity		.081		-.203		-.132
Teacher-Student Ethnic Match		.286		-.250		
Step 2	.043		.028		.015	
Public Regard		-.236*		.138		.136
Centrality		.170		.054		-.025
Step 3	.010		.018		.041*	
Public Regard x Centrality		.081		.013		.208*
Public Regard x Student - Teacher Ethnic Match		.103		-.186		
Total R^2	.176		.151		.127	

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

Research Question 4. Do social relationships mediate associations between different components of ethnic-racial identity and academic outcomes; additionally are there gender differences?

Two path models were developed to validate a hypothesized pattern of relations among variables leading from ethnic-racial public regard through friendship quality, student-teacher closeness, and cognitive engagement to academic grades (e.g., math and language arts grades).

Additionally, models were run separately by gender to examine whether the model is moderated by students' gender.

First, the math grades path model for the overall sample with factor loadings (standard regression weights) appears in Figure 5. The overall fit for the model was generally good, $\chi^2/df=1.15$, CFI=.978, GFI=.981, NFI=.874, IFI=.982, TLI=.944, AGFI=.928, and RMSEA=.040. The model explained 5.5% of the variance in math grades. Public regard was negatively associated with student-teacher closeness, student-teacher closeness was positively associated with cognitive engagement, and cognitive engagement was positively associated with math grades. Although, public regard was not significantly associated with friendship quality, friendship quality was positively associated with cognitive engagement. Lastly, public regard was also positively associated with cognitive engagement. Public regard yielded a significant indirect effect onto math grades through student-teacher closeness ($\beta=.047$, $p<.05$).

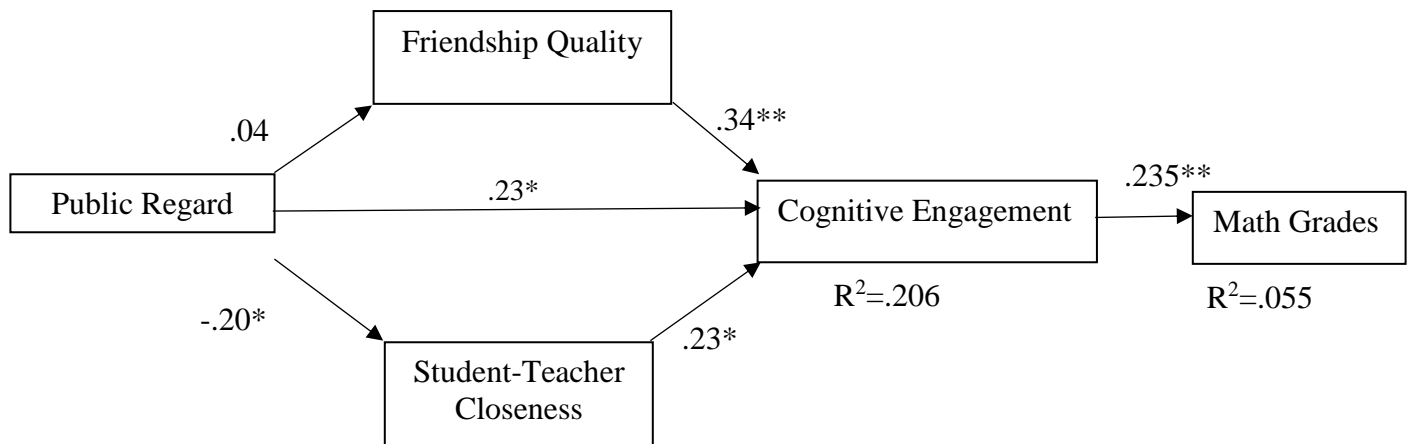


Figure 5. Path model examining links among variables. Values reflect standardized path coefficients. * $p<.05$, ** $p<.01$.

Second, the language arts path model for the overall sample with factor loadings (standard regression weights) appears in Figure 6. The overall model fit for the model was generally good, $\chi^2/df= 1.14$, CFI= .983, GFI= .981, NFI= .893, IFI= .986, TLI= .957, AGFI= .928, and RMSEA= .039. The model explained 11.7% of variance explained in language arts grades. Similarly, public regard was negatively associated with student-teacher closeness, student-teacher closeness was positively associated with cognitive engagement, and cognitive engagement was positively associated with language arts grades. Although, public regard was not associated with friendship quality, friendship quality was positively associated with cognitive engagement. Public regard yielded a significant indirect effect onto language arts grades through student-teacher closeness ($\beta= .068, p<.05$).

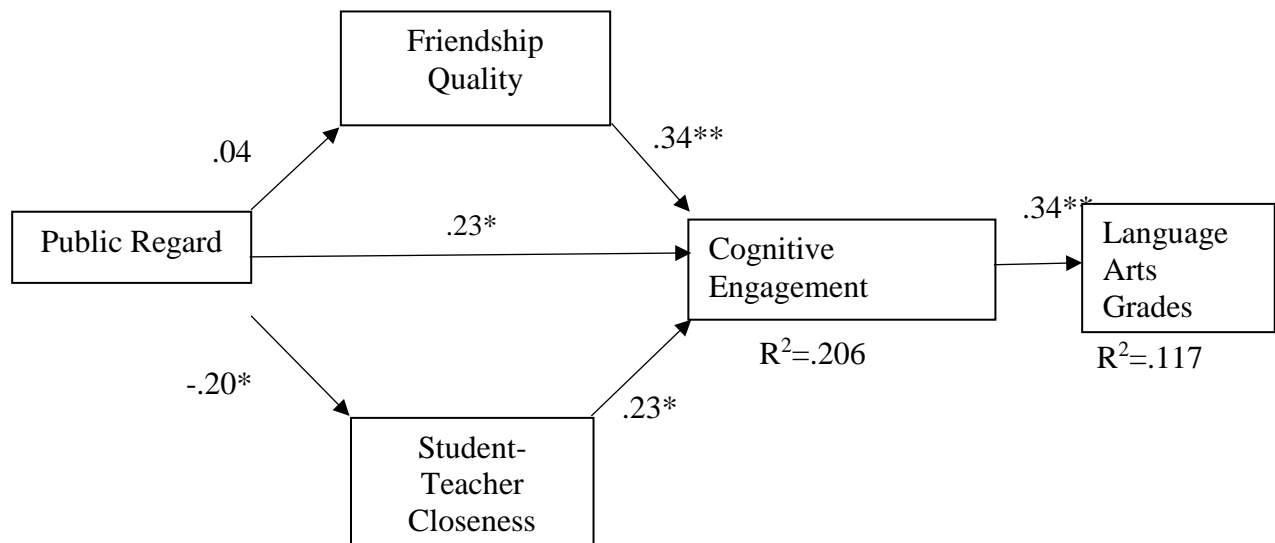


Figure 6. Path model examining links among variables. Values reflect standardized path coefficients. * $p<.05$, ** $p<.01$.

Gender Differences in the Proposed Models

The math grades path model for boys and girls with factor loadings (standard regression weights) appears in Figure 7. The model explained 6.4% of variance in boys' math grades and ; however, the model explained less than 1% of variance in girls' math grades. Public regard

yielded a significant indirect effect on boys' math grades through cognitive engagement ($\beta=.056$, $p<.05$). Indirect pathways through friendship quality or student-teacher closeness to boys' and girls' math grades were not statistically significant.

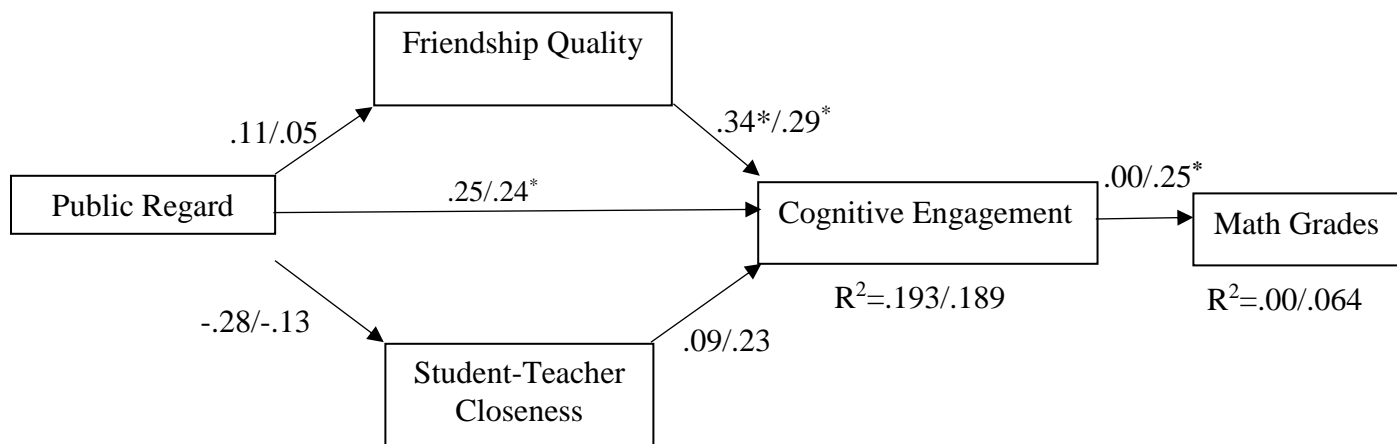


Figure 7. Path model examining links among variables by gender. Values reflect standardized path coefficients. Values before the / are for girls; values after the / are for boys. $*p<.05$.

The language arts grades path model for boys and girls with factor loadings (standard regression weights) appears in Figure 8. The model explained 17.4% of variance in boys' language arts grades; however, the model only explained less than 1% of variance in girls' language arts grades. Public regard yielded a significant indirect effect onto boys' language arts grades through cognitive engagement ($\beta=.093$, $p<.05$). Indirect pathways onto boys' and girls' language arts grades were not significant through friendship quality nor student-teacher closeness.

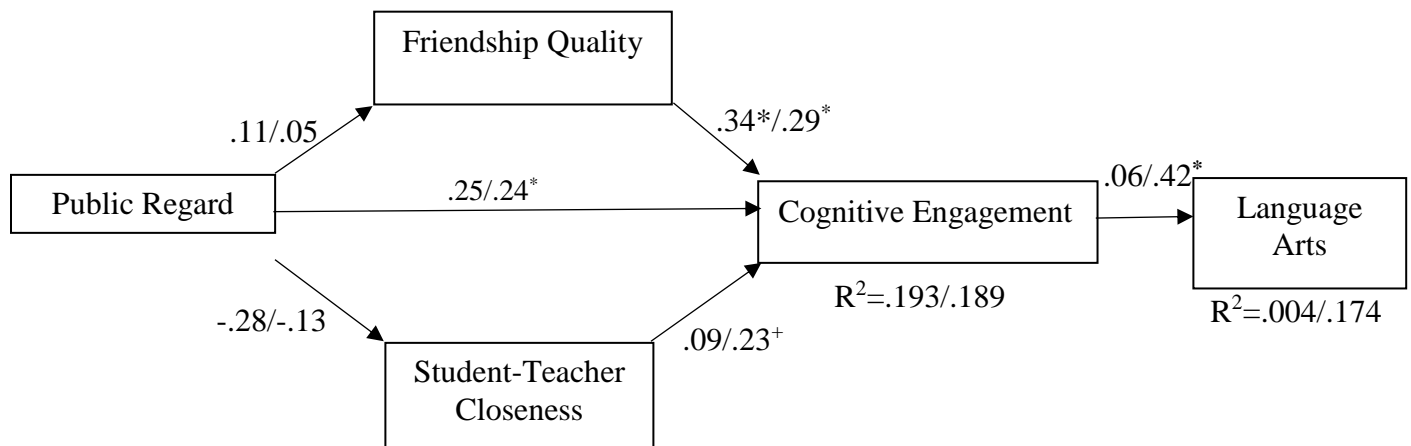


Figure 8. Path model examining links among variables by gender. Values reflect standardized path coefficients. Values before the / are for girls; values after the / are for boys. * $p < .05$

Discussion

The current study sought to examine the links between different components of ethnic-racial identity, social factors such as friendship and student-teacher relationship, and academic achievement in an ethnically-diverse sample of middle school students. This study adds to the current body of literature examining the relationship between ethnic-racial identity and academic outcomes. First, the study takes into consideration that the relationship between components of ethnic-racial identity may not be directly to academic grades. Miller-Cotto and Byrnes (2016) have suggested that public regard may have an indirect relationship with academic achievement via other constructs such as academic engagement or motivation. Second, the current study examines the role of student-teacher relationships and its associations with students' ethnic-racial identity. This is one of the first studies to examine the associations between student-teacher closeness and conflict and its relation to the centrality and public regard dimensions of students' ethnic-racial identity. Previous studies have explored perceived discrimination from their

teachers and peers; however, it is likely that students' who perceive discrimination in the classroom setting have strained relationships in the classroom.

Ethnic-Racial Identity and Academic Outcomes

Consistent with prior research public regard and centrality were not predictive of academic grades (Cokley & Chapman, 2008). However, ethnic-racial identity—more specifically the product of centrality and public regard—was a positive predictor of students' cognitive engagement. Students that endorsed higher ethnic-racial centrality and public regard reported higher cognitive engagement. This finding converges with previous studies that have supported positive associations among ethnic identity and academic engagement (Yasui et al., 2004). Importantly, the product of ethnic-racial centrality and public regard differed in its prediction of behavioral engagement for boys and girls. More specifically, ethnic-racial public regard positively predicted boys' behavioral engagement, and ethnic-racial centrality negatively predicted boys' behavioral engagement. More specifically, boys who endorsed that being a member of their ethnic-racial group is central to their identity reported lower levels of behavioral engagement compared to boys who endorsed that being a member of their ethnic-racial group was not as important to them. Neither ethnic-racial public regard nor centrality significantly predicted girls' behavioral engagement. These disparate findings related to gender are important when we consider the experiences boys face in the classroom, especially minority males. Teachers reported more conflict with male students, more importantly boys who endorsed that being a member of their ethnic-racial group is most important to them negatively predicted behavioral engagement. It is important to consider how boys in middle childhood are reconciling with their identity and characteristics as they make meaning about their experiences in the classroom. These findings diverge from previous findings that demonstrate ethnic-racial

centrality for African American adolescent males serve as a protective factor for academic outcomes (Chavous, 2008). It is worth noting the diversity of the current sample. In addition to ethnic minorities, the current study sample was 49.5% Caucasian. The field has historically focused on ethnic-minorities the analyses presented here were conducted including the Caucasian subsample. As no differences were observed between ethnic-racial minorities and Caucasian subsamples, the current study presents the sample as a whole. Yip (2014) similarly sampled minority and non-minority students from a predominantly White school. They noted that the findings observed in their study may not generalize to other non- Hispanic White populations. Interpretation of the current findings warrants a similar statement of caution.

Classroom Relationships and Academic Outcomes

The second hypothesis postulated that friendship quality and student-teacher closeness would positively predict academic outcomes. We also expected student-teacher conflict would negatively predict academic outcomes. Friendship quality positively predicted cognitive and behavioral engagement. More specifically students' who reported high quality friendships with their best friend reported higher cognitive and behavioral engagement. These findings converge with previous literature that shows positive associations between high peer support and academic engagement (Shin, Daly, & Vera, 2007). Friendship quality was not predictive of students' math and language arts grades; however, student-teacher conflict negatively predicted students' language arts and math grades. The current study finding regarding student-teacher conflict has been demonstrated in previous studies (Spilt & Hughes, 2015). Lastly, neither student-teacher closeness nor conflict predicted students' behavioral or academic engagement. These findings conflict with previous literature that have found perceived discrimination from teachers is negatively associated with students' academic engagement (Chavous, 2008). However,

discrimination as perceived by the student and conflict as perceived by the teacher may yield very different transactions; such that teachers' perceived conflict plays a less negative role than does students' perceptions of being discriminated against.

Ethnic-Racial Identity and Classroom Relationships

It was hypothesized that ethnic-racial public regard and centrality will positively predict friendship quality and student-teacher closeness; and conversely that public regard and centrality would negatively predict student-teacher conflict. Results did not provide support for these hypotheses when predicting student-teacher closeness and conflict. Ethnic-racial public regard and centrality did not predict student-teacher closeness and conflict. Previous literature has noted that students' perceptions of teacher discrimination and caring were related to ethnic identity and ethnic-racial centrality (Chavous et al., 2008; Cokley & Chapman, 2008). It is important to note that unlike previous studies, the current study measured teachers' perceptions of their closeness and conflict with participating students. It is likely that if we measured student perceptions of closeness and conflict with their teachers the current study would of likely yielded different results. Lastly, the product of ethnic-racial centrality and public regard positively predicted friendship quality. Students' who endorsed feelings that being a member of their ethnic-racial group is important them and perceive that other's think positively of their ethnic-racial group had high quality friendships compared to their peers who endorsed high centrality and low public regard. Graham et al. (2014) found similar results using the MEIM; ethnic identity was positively associated with sixth grade students' friendship quality. It is important to note that in this previous study ethnic identity was measured using a scale that takes a stage-based approach to measuring ethnic-racial identity. However, the current study utilized an adapted version of the Multidimensional Inventory of Black Identity, which enables researchers to examine the

variability of ethnic-racial identity amongst peers in the same context and how it functions differently for students.

Additionally, the path analysis tested the last two hypotheses about whether competing mediation models, friendship quality or student-teacher closeness, would be a stronger pathway when the outcomes is language arts and math grades. Additionally, models were tested separately to examine gender differences. While the models for the total sample were identified as a “good fit” student-teacher closeness mediated the effects between ethnic-racial public regard and student’s grades. More importantly, separate models for girls and boys revealed the path model was most important for boys than for girls, such that cognitive engagement mediated the association between boys’ public regard and grades. The hypothesized model that student-teacher closeness would be stronger pathway for boys was not supported. The overall model findings conflicts with studies that have found public regard of African American children to buffer the negative effects between teacher discrimination and student grades (Thomas, 2009). The current study found a statistically significant negative pathway between public regard and student-teacher closeness, such that students who endorsed feelings that other’s think positively of their ethnic-racial group was related to lower student-teacher closeness. It is likely that if we assessed the students’ perceptions of closeness with their teacher different findings may have emerged. Lastly, findings related to the associations between boys’ public regard and grades were mediated by cognitive engagement. This study finding converges with previous postulations by Miller-Cotto and Byrnes (2016) who suggested that rather than a direct link between ethnic-racial identity and academic achievement, this relationship may be mediated by constructs such as engagement. Nonetheless, these path models provide evidence to suggest

further investigation of factors related to student-teacher relationships and students' ethnic-racial identity is warranted.

Limitations

While the current study adds to the body of literature examining different components of ethnic-racial identity and academic outcomes associated with classroom relationships, there are several study limitations to consider. One issue is related to the measures that were used in the current study, specifically the use of teachers' perceptions of student-teacher relationship quality. Studies that considered the role of student-teacher relationships on student outcomes often ask students' to report perceived discrimination with their teacher (Chavous et al., 2008). Perhaps if the current study assessed students' perceptions of their relationship with their primary teacher there would have likely been statistically significant correlations amongst different components of ethnic-racial identity and student-teacher relationship.

Lastly, the path models, which examined gender differences, were constrained by low sample size for both boys and girls. More information would have likely been gleaned from these models if the sample sizes were larger, such that the links between public regard and classroom relationship variables would have been an important pathway to students' grades. Findings also cannot be broadly generalized as the sample was recruited from a small suburban population, which was predominantly Caucasian. Although previous studies that have included Caucasian participants from predominantly White schools in their analyses, these participants usually comprised less than a quarter of the sample (Yip, 2014), in the current study the sample was 49.5% Caucasian. Additionally, sample-related limitations included an overrepresentation of male students. It is also important to note the current study had an overrepresentation of Caucasian female teachers. Sample limitations do however highlight a direction for future work.

Implications and Future Directions

The current study emphasizes the need to assess ethnic-racial identity and academic outcomes within the context of classroom relationships. The classroom social context provides an important source of support and barriers that children's ethnic-racial identity filters through toward academic outcomes. More importantly, the present study demonstrates how studying ethnic-racial identity supports a strength-based approach toward understanding the achievement gap. Eccles (1999) acknowledges social challenges and cultural stigma can influence students' self-perceptions, which is particularly important to children in middle childhood because they use social comparisons to make informed decisions about their abilities. These social influences were observed through numerous gender differences such that boys experienced more conflict with their teachers and significantly lower friendship quality compared to girls, however the product of public regard were particularly important in predicting academic engagement for boys. Future studies could benefit from incorporating students' perception of discrimination from peers and teachers, in addition to their perception of relationship quality with their teachers. In addition, future studies should counter balance assessing students' ethnic-racial identity before measuring their friendship quality. More importantly, future studies could benefit from within group analyses among boys to understand why the classroom social context seems to influence them more than it does girls, and how these experiences relate to their ethnic-racial identity. More specifically, the present study observed ethnic-racial centrality was negatively related to behavioral engagement for boys. This relationship could benefit from the further analyses to understand what influences this relationship and how perceived teacher-student relationship quality or discrimination may be an intermediary factor.

Conclusion

This study attempts to bridge an important gap between the study of ethnic-racial identity and social relationships in the classroom that influence students' academic outcomes. In doing so, study highlights the varied effects of ethnic-racial identity and academic outcomes had positive and negative outcomes, particularly for boys. The present study highlights the versatility of the Multidimensional Model of Racial Identity, such that in diverse contexts ethnic-racial identity was indirectly related to students' achievement through intra- and interpersonal constructs. More specifically, supportive relationships with one's teacher and behavioral engagement are important intermediary pathways.

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Vita

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