EDUCATIONAL ATTAINMENT EXPECTATIONS, PERCEPTIONS OF ADULT SOCIAL SUPPORT AT SCHOOL, AND PERCEPTIONS OF BARRIERS: SCHOOL-BASED PATHWAYS TO EDUCATIONAL SUCCESS AMONG BLACK YOUTH

Katherine A. Perkins

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Approved by:

Beth Kurtz-Costes

Deborah Jones

Jean-Louis Gariepy

Peter Ornstein

Eva Telzer

ABSTRACT

Katherine A. Perkins: Educational Attainment Expectations, Perceptions of Adult Social Support at School, and Perceptions of Barriers: School-Based Pathways to Educational Success among Black Youth
(Under the direction of Beth Kurtz-Costes)

This doctoral dissertation is an empirical investigation of the development of educational attainment expectations among African American adolescents. High expectations are predictive of student academic engagement and achievement outcomes, but the development and maintenance of such expectations are understudied among African-American youth. Data were drawn from the longitudinal Maryland Adolescent Development in Multiple Contexts Study (MADICS) (Eccles, 1997), and included *N*=920 students who participated in Grade 7, Grade 8, Grade 11, 1- year post-secondary, and 3- years post-secondary. Differential patterns of stability and change in educational attainment expectations from middle school to high school were found. Hypotheses that gender and socioeconomic status differentially predict likelihood of class membership, and class membership differentially predicted likelihood of college enrollment were partially supported.

The second aim of the study was to longitudinally model the gap between students' aspirations and expectations from middle school to the end of high school, which were expected to differ by gender and SES group. All groups showed a decline in the gap over

time, but low-income girls began Grade 7 with the largest differential compared to all other gender and SES groups. Whereas trajectories were related to college enrollment 1- year post-secondary, their predictive power disappeared by 3- years post-secondary.

Student perceptions of admired and supportive adults in the schooling context were investigated as factors shaping the development of student educational attainment expectations. Findings suggested that presence of an admired adult in Grade 7 is positively related to student educational attainment expectations above the effects of GPA, gender, and socioeconomic status. Students' perceptions of adult social capital fell uniformly from Grade 7 to Grade 11. Data suggest that students maintain high expectations in spite of negative perceptions of adults at school.

Students' perceptions of barriers due to racial discrimination increased from middle school to high school, whereas their perceptions of gender discrimination barriers decreased. Students' perceptions of barriers were positively related to educational attainment only in the presence of supportive adults, supporting critical awareness postulates and underscoring the need for new measurement tools. Contributions, future directions, and limitations are discussed in relation to motivational theory.

In pursuit of educational equity.

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CHAPTER 1: INTRODUCTION

Educational attainment has been consistently linked to life expectancy, social ties, health-related behaviors, and financial well-being (e.g., Julian & Kominiski, 2001; Mirowsky & Ross, 2003; Montez & Hayward, 2014). College-educated individuals in the United States fare better than individuals with less formal education on indices of mental health, physical health, sense of personal control, and chronic illness (Mirowsky & Ross, 2003). In a national sample of Black and non-Hispanic White individuals followed longitudinally, beginning when participants were over 50 years of age, formal education was more strongly related to health later in life than was childhood socioeconomic circumstances (Montez & Hayward, 2014). Adults in the study who were from economically disadvantaged backgrounds but who achieved high levels of education had life expectancies comparable to those who came from advantaged backgrounds but who had low educational attainment (Montez & Hayward, 2014).

Although the benefits of educational attainment are substantial, students of low socioeconomic status and those whose parents have low educational attainment are less likely to complete secondary education or to experience post-secondary education compared to their more privileged peers (e.g., Champaloux & Young, 2015; Winding, Nohr, Labriola, Biering & Anderson, 2013). Rather than those who are already healthy getting healthier with college degree completion, the observed health benefit of college degree completion is greatest for those starting with the poorest health and socioeconomic status (Schafer, Wilkinson, & Ferraro, 2013). Thus, the greatest returns are seen for individuals least likely to experience college completion.

Educational attainment is related to positive outcomes across racial groups, but race differences in attainment outcomes persist in the United States (US). According to the US Census Bureau, only 22.5% of Black individuals aged 25 or older have achieved a Bachelor's degree or more, compared to 36.2% of non-Hispanic White individuals (Ryan & Bauman, 2016). Among Black students, women have significantly outpaced men in degree attainment in eleven of the past fifteen years (Ryan & Bauman, 2016). Given these race and gender disparities and the relationship of educational attainment to overall well-being, it is important to investigate pathways to educational attainment specifically among Black youth. The primary aim of the present study was to generate a more thorough understanding of the motivational construct of "student educational attainment expectations" among Black youth across adolescence. The association between educational attainment expectations and actual educational attainment outcomes was analyzed, with consideration of adolescents' gender and socioeconomic status (SES) in tandem with racial minority status. Adolescents' specific social experiences with adults within the schooling context and perceptions of barriers to their educational attainment based on race and gender were analyzed in relation to student motivation and actual educational attainment outcomes.

The purpose of the current study was to model and evaluate longitudinal pathways of students' educational attainment expectations, the aspirations-expectations gap, and actual attainment outcomes. The associations among expectations and students' perceptions of adult social capital in the school, as well as students' perceptions of racial and gender barriers to educational attainment were examined. Growth curve modeling was used to model the data, which allowed for inferences regarding the magnitude and directionality of associations among these constructs and their predictive power to actual educational attainment. The hypothesized

theoretical pathways are grounded in expectancy-value theory of achievement motivation, self-schema theory, and the integrative model for the study of developmental competencies in minority children (Eccles et al., 1983; Garcia-Coll, 1996; Markus, 1977; Markus & Nurius, 1986; Wigfield & Eccles, 2003). The latter is used as a framework for understanding students' social position (based on race, gender, and socioeconomic status) to be at the core of the development of motivation and educational attainment outcomes among Black students.

I will begin with a description of expectancy-value theory of achievement motivation and a brief summary of empirical work connecting student educational expectations to educational outcomes. I will then discuss existing research and theory regarding the development and maintenance of student expectations across adolescence into young adulthood, followed by discrepancies between student aspirations and expectations. Next, I will highlight findings on group-level similarities and differences in expectation trajectories by student gender and socioeconomic status, including gaps in this literature. Finally, I will discuss adolescence as a particularly important period over which to understand these phenomena and will review literature related to two specific psychological resources: student perceptions of adult social capital in school and student perceptions of barriers to educational attainment due to student race and gender.

Expectancy Value Theory, Educational Attainment Expectations, and Actual Educational Attainment

Expectancy-value theory is based on the premise that a student's persistence, engagement, effort, and performance on a given task are the result of the student's expectation that he or she can succeed at that task, as well as his or her subjective valuing of the task (Eccles et al., 1983; Wigfield & Eccles, 2003). Expectancies are theorized to be borne of students' perceptions of the difficulty of a task in accordance with their perception of their own matched

ability to meet that task difficulty. A student who perceives he or she has (or will have) the ability needed to successfully complete the task would have a higher expectancy for success than a student who did not perceive his or her own ability sufficient to meet task demands. The value aspect of the theory is a measure of the individual's subjective task value. For the present study, I focused entirely on student expectancies, specifically student educational attainment expectations.

Educational attainment requires long-term academic engagement, persistence, effort, and performance. Educational attainment expectations provide a measure of how students view themselves and their future opportunities. The cognitive construction of future possible selves can act as a mechanism for students' self-regulation and goal-directed behavior or it may simply contribute to feelings of optimism related to the fact that the current self is changeable (Markus & Nurius, 1986; Oyserman, 2001). For educational attainment, this future-oriented cognitive construction of the self is measured by asking students how far they think they will actually go in school.

Empirical studies support the hypothesis that educational attainment expectations are linked to actual educational attainment outcomes, with expectations assessed in Grade 4 predicting actual educational attainment outcomes controlling for explanatory variables including sociodemographic factors, afterschool program participation, early adjustment indicators, school commitment factors, and a variety of and high school experiences (Ou & Reynolds, 2008). Among a nationally representative sample of students in the United States, student educational attainment expectations in Grade 10 were predictive of postsecondary enrollment over and above associations accounted for by student SES, race, gender, and prior achievement (Gregory & Huang, 2013). Among low income Black students, adolescents with

high educational expectations were more likely to graduate from high school compared to their low expectation peers (Ensminger & Slusarcick, 1992). Examining the phenomenon among middle class Black youth, educational attainment expectations in Grade 11 uniquely contributed to on-time post-secondary enrollment for boys, but not for girls (Wood et al., 2011). The greater benefit boys enjoyed was attributed to the fact that middle class Black boys are at greater risk compared to middle class Black girls (due to negative academic and social stereotypes), thus had more to gain from high expectations. Excepting the mentioned studies, investigations considering specific intersectional subgroups of gender and SES within racial groups are few in number, and longitudinal stability and change across adolescence with consideration of both gender and SES remain understudied among Black youth.

The Development and Maintenance of Educational Attainment Expectations

On average, student educational attainment expectations appear to remain stable during the high school years, a finding that has been replicated across large, nationally representative cohorts followed longitudinally from Grade 10 to Grade 12 in the 1990s and in the early 2000's (Park, Wells, & Bills, 2015). However, expectations are quite malleable during adolescence, and these data actually reflect that for the 1990s cohort, approximately 31% increased expectations, 27% decreased their expectations, and 42% remained stable. Whereas increases were slightly more common than decreases in the 1990s cohort, 2000s cohorts showed a decrease in expectations as the dominant shift among adolescents, by about 5% (Alexander, Bozick, & Entwisle 2008; Park et al., 2015). Reports of general trends in the change or stability of expectations may exhibit a cohort effect, but the antecedents and correlates are expected to be similar.

Stability of high expectations from late elementary school across adolescence was a stronger predictor of educational attainment than expectations measured only at the end of high school among a mixed-race sample of youth (Bozick, Alexander, Entwisle, Dauber & Kerr, 2010). Youth as young as the fourth grade expected to attend college and maintained those expectations across adolescence; low and middle- SES youth showed less stable expectations over time compared to their high SES peers, and stability of expectations predicted college enrollment (Bozick et al., 2010).

Expectations appear to continue to be important in late adolescence and young adulthood. For example, persistence of expectations from high school through young adulthood predicted completion of a four-year degree (Bozick et al., 2010; Johnson & Reynolds, 2013). Stability and consistency of expectations represents a developmental life course perspective. If environmental signals for reaching certain developmental milestones (e.g., educational attainment) are less consistent, the expectations themselves may not stabilize, in turn destabilizing appropriate preparatory behaviors (e.g., college prep courses). The present study is a longitudinal investigation of adaptive educational expectations from middle school through high school, and subsequent outcomes lend support for this perspective. In addition to capturing stability and instability of expectations themselves, the gap between students' educational attainment aspirations and expectations represents measurement of instability within individuals at a given time.

Discrepancies in Educational Attainment Aspirations and Expectations

Educational attainment expectations represent students' perceptions of their possible academic selves, but these representations may be further refined by asking students to differentiate between what they think is possible (ideally) and what they think is probable

(realistically). To differentiate between these perceptions, youth are asked to report their educational aspirations, indicating how far they *would like to go* in school, followed by their expectations, how far they expect that they *will actually* go in school. A gap between aspirations and expectations may arise based on factors such as perceived barriers due to social identity (e.g., gender, subjective social status), or lack of instrumental support, such as socioeconomic resources (Elliot, 2009; Perry & Vance, 2010).

Among urban eighth grade students attending either an economically advantaged predominately White school or an economically disadvantaged predominately Latino school, those who reported incongruent educational attainment aspirations and expectations were more likely to concurrently dislike classes, not think their teachers cared about them, and to have poorer relationships with their teachers compared to students with congruent aspirations and expectations (Kirk et al., 2012). Students with incongruent aspirations and expectations due to perceived barriers may experience less motivation and poorer self-efficacy long-term, particularly if those perceptions are enduring and consistent.

The concept of "possible selves" originated with self-schema theory (Markus, 1977). This theory emphasizes the many cognitive constructions of self an individual may have, which ultimately relate self-concept to behavior (Markus, 1977; Markus & Nurius, 1986). Oyserman, Bybee, and Terry (2006) suggest that students commit to a behavioral self-regulatory effort conducive to achieving a future possible self when 1) behavioral strategies are present for working on the possible self, 2) the social context supports working on the possible self, 3) the possible self is congruent with the student's social identities, and 4) it is considered normative that the student will encounter difficulties working toward the possible self. The authors tested these hypotheses n a metacognitive intervention program addressing each of the four elements

with low-income minority teens (Oyserman et al., 2006).

In the Oyserman et al. (2006) intervention, students participated in an activity that centered on role models with social identities matched to the student; they then completed a timeline activity designed to normalize setbacks and failure as part of the road to the future possible self, and practiced articulating strategies for attaining aspirational possible selves. Students who participated in the intervention showed more academic initiative, higher grades and standardized test scores, fewer absences, and less depression; these changes were mediated by students' ratings of their expectations in the form of possible selves, and they were sustained over a two-year follow-up (Oyserman et al., 2006).

Notably, research examining the aspirations-expectations gap has been primarily focused on middle school adolescents or younger, or observations have been at a single time in high school, rather than over time (Boxer et al., 2010; Kirk et al., 2012; Perry et al., 2009; Perry et al., 2010). More research is needed to understand stability and change in the aspirations-expectations gap across the high school transition, into mid- and late-adolescence and its relationship to educational attainment outcomes. The present study was designed to address this gap by examining longitudinal patterns of the gap between aspirations and expectations from Grade 7 to Grade 11. These trajectories were modeled as a function of both gender and socioeconomic status among Black youth, and associations with subsequent college enrollment and student confidence that they would complete post-secondary education were examined.

Developing Educational Expectations and Aspiration-Expectation Gaps among Black Youth: The Roles of Socioeconomic Status and Gender

Research informing the understanding of youths' aspirations and expectations often examines group differences as a function of race, gender, and socioeconomic status (e.g., Boxer et al., 2010; Messersmith & Schulenberg, 2008; Perry et al., 2009; Perry et al., 2010). The findings are

mixed in conclusions regarding the role of each of the mentioned social group categories. For example, among middle school and high school urban youth, Black students on average expected to get a four-year degree and White students on average only expected to complete some college; however investigators speculated a race by SES interaction, with a large number of low-income White students driving the race effect (Perry et al., 2009).

Some prior studies also suggest that the gap between educational attainment aspirations and expectations, measured at a single time point among diverse samples of middle and high school students, is not a function of gender or race/ethnicity. Rather, accrued evidence indicates that low socioeconomic status and low parent education level are the strongest factors associated with incongruence (Boxer et al., 2010; Perry, Przybysz, & Al-Sheikh, 2009). Other empirical evidence indicates that among students from non-Asian ethnic minority groups, disparities between aspirations and expectations in Grade 12 are more pronounced compared to White and Asian students (Messersmith & Schulenberg, 2008). Moving toward a more intersectional understanding of these demographic characteristics would more closely represent ecological validity.

Within race analyses and interpretations are useful for describing the ways in which gender and socioeconomic status uniquely function to predict educational aspirations, expectations, and attainment outcomes within racial groups. Black youth face unique concerns related to discrimination experiences, negative academic stereotyping, and structural barriers within school systems related to a history of race-based disenfranchisement (e.g., Bonilla-Silva, 2007; Cunningham & Spencer, 2000; Swanson, Cunningham, & Spencer, 2003). For example, in districts serving urban low-income African American youth, there is low enrollment in AP classes (Solorzano & Ornelas, 2008). Even when attending schools with high AP enrollment,

African American students are not represented or are underrepresented in such classes, across all socioeconomic groups (Solorzano & Ornelas, 2008). The first aim of this investigation was to describe trajectories of educational attainment expectations and the second was to model the aspiration-expectation gap among Black youth as a function of socioeconomic status and gender.

Socioeconomic Status. In a large investigation of middle school students in a racially and economically diverse, urban/suburban mixed public school, students who had higher aspirations compared to expectations had lower levels of school bonding, elevated levels of emotional and behavioral challenges, and were more likely to come from economically disadvantaged backgrounds (Boxer et al., 2010). In a sample with 55% Black students and 45% White students, high SES students of both races tended to maintain expectations to attain a college degree or higher across adolescence, while their low SES peers did not (Bozick et al., 2010). Further, in a sample of low SES urban Black boys, the gap between expectations and aspirations across Grades 2, 4, 6, and 8 appeared to be stable over time, with a trend toward a widening gap as students entered adolescence (Cook et al., 1996). Similarly, among senior high school students who reported plans to get a bachelor's degree or a graduate degree, high SES students were more likely to maintain their high expectations than low SES youth when expectations were measured in the decade following high school graduation (Reynolds & Johnson, 2013). Investigations of stability and change in educational attainment expectations and the aspirations-expectations gap from middle school to high school are important because students are making decisions about college-prep course-taking and college entrance-exam testing, as well as completing actual college applications, during these years.

On average, low SES youth experience fewer indications that they are likely to enroll in and complete college compared to their mid- and high- SES peers (Bozick et al., 2010). Measuring

academic and parental college-affirming signals longitudinally in Grades 4, 6, 8, 9, 10, and 11 (including academic performance, placement in an academically advanced track, cumulative grade retention, and parent expectations), low SES youth experienced on average only one positive signal and three negative college-affirming signals per annual assessment occasion (Bozick et al., 2010). Mid-SES youth experienced the most mixed signals, with an average of two positive and two negative, whereas high SES youth experienced the most positive signals from adults (Bozick et al., 2010).

In the current study of African American youth, SES differences were expected such that high-SES students were expected to begin Grade 7 with higher educational expectations, maintain greater stability of expectations across adolescence, and show more congruence between expectations and aspirations than their low-and mid-SES peers. Low-SES students were predicted to have lower Grade 7 expectations compared to mid- and high-SES students and falling expectations into Grade 11, resulting in a widening gap between student aspirations and expectations. I also anticipated that students who held high and congruent aspirations and expectations in Grade 7 and who maintained them across high school would report more confidence that they would complete their college education when assessed three-years post-secondary compared to those who had lower expectations or incongruous aspirations and expectations across adolescence. As explained in the next section, it was also predicted that SES group-level differences might differ by gender, such that low and mid-SES boys would have lower expectations compared to girls, and larger expectations-aspirations gaps.

Gender. Gender differences in academic achievement among Black youth tend to favor girls over boys, as found within all other racial groups in the United States (NCES, 2012). Notably, though, Black males, particularly low income, urban Black males, may be the most

negatively stereotyped academically of all race, gender and SES groups in the United States (Cunningham, 2001; Rowley et al., 2014). Much research suggests that traditional gender stereotypes in academic domains operate among parents and youth as well. Consistent with traditional stereotypes, African American mothers rate boys as better in math than in English, with the opposite pattern for girls, and these maternal perceptions predict causal attributions about academic outcomes, which, in turn, predict students' self-concepts (Rouland, Rowley, & Kurtz-Costes, 2013; see Skinner, Perkins, Wood, & Kurtz-Costes, 2015 for review). Regarding overall academic aspirations and expectations, though, parents perceive greater vulnerability for their sons compared to their daughters, due to the negative narratives surrounding Black boys in the United States (Rowley et al., 2014).

Black girls report higher educational attainment expectations than Black boys in samples of graduating high school students, and among tenth and twelfth grade students (Chang, Chen, Greenberger, Dooley, & Heckhausen, 2006; Mello & Swanson, 2007). In a nationally representative study, Mello, Anton-Stang, Monaghan, Roberts, and Worrell (2012) analyzed longitudinal trajectories of Black students' educational expectations by gender, finding more variability among girls than boys, with girls showing increasing expectations over time and boys showing flatter trajectories. From age 14 to 18, girls fell into four expectation trajectories: a group expecting to complete trade school that was stable over time, a group expecting to complete college that was stable over time, a group whose expectations fell below college completion at age 16 and rebounded at age 18, and a group whose expectations for college degree completion increased to graduate degree completion from age 14 to 18. Boys fell into three stable trajectories: those expecting to go to trade school, those expecting to go to college, and those expecting to finish college and graduate school. For both boys and girls, expectation

trajectory group predicted the percentage of students attending college at age 20 and 26, with medium to large effect sizes (Mello et al., 2012). Although prior achievement was controlled in the Mello et al. study (2012), no family income or parental education measures were assessed. In the current study, gender and SES were modeled as predictors of trajectory group membership. After capturing the ways in which expectations and aspirations change as a function of gender and socioeconomic status among Black youth, adult social support was modeled to explain potential pathways through which the patterns emerge. Social support from adult mentors is discussed next.

Adult Social Support at School and Educational Attainment Expectations

A proposed mechanism by which aspirations and expectations are formed and altered over time, resulting in differential educational attainment outcomes, are interpersonal influences (Haller & Portes, 1973). In the current study, I tested students' perceptions of adult social support at school as a mechanism influencing student trajectories. By measuring the stability and change of expectations across adolescence, as well as stability and change of interpersonal relationships, potential causal paths to actual educational attainment may be better specified and educational environments better optimized for student success. In the current study, the role of student perceptions of adult social support in school in conjunction with student perceptions of educational attainment barriers due to racial and gender group membership (or discrimination based on membership) were evaluated as potential risk and resilience factors for educational aspirations and expectations across adolescence. In the following sections, I briefly review the extant literature and theory that support my hypotheses regarding student trajectories of expectations and aspirations in relation to perceptions of social support in school and perceptions of barriers due to race and gender.

Ecological systems theory suggests that relationships with socializing agents such as parents, teachers and peers will exert a strong proximal influence on students (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998). In the transitions to middle school and high school, key individuals outside the family begin to exert a greater influence on development compared to early- and middle- childhood, although parents and parenting processes still play a large role (Gregory & Huang, 2013; Perez-Felkner, 2013). Indeed, parent, peer, and teacher educational attainment expectations are predictive of students' educational attainment expectations and students' post-secondary enrollment (Gregory & Huang, 2013; Wood, Kaplan, & McLoyd, 2007).

Evaluating the influence of various socializing agents is complex. For example, high maternal expectations appeared to buffer the negative effects of low teacher expectations on youth's self-perceptions of academic competence in a diverse sample of low-income urban youth (Benner & Mistry, 2007). Conversely, among low-income Black middle school students, high teacher expectations buffered students' expectations from the deleterious effects of negative parental expectations (Wood et al., 2007). Analysis of a nationally representative longitudinal dataset from the National Center of Educational Statistics (NCES) showed that while teacher, student, and parent educational attainment expectations each uniquely contribute to the prediction of students' post-secondary enrollment, *teacher* expectations had the greatest predictive power, over both student and parent expectations, controlling for student math and reading scores (Gregory & Huang, 2013). Although girls and higher SES students were more likely overall to be enrolled in higher levels of education after high school than boys and lower SES students, positive expectations had both a promotive role, potentially setting students on a college-bound trajectory, and a protective role, with teacher expectations in particular buffering

risk factors associated with low SES and racial minority status (Gregory & Huang, 2013).

Proposed processes explaining the effects of teacher expectations on students' own expectations and on actual educational attainment include expectancy effects, also known as the self-fulfilling prophecy. Teacher expectancy effects occur when teachers' beliefs about their students' ability to succeed (teacher expectations) are related to students' subsequent actual performance (Jussim & Harber, 2005; Rosenthal, 2010). Effect sizes are generally small but consistent across the empirical literature. Research in the classroom suggests that Black boys tend to be perceived as less attentive compared to Black girls (Matthews, Kizzie, Rowley, & Cortina, 2010). On average teachers tend to hold more positive views of African American female students compared to African American male students (Kesner, 2002). The gender gap in teachers' expectations for boys' and girls' eventual educational attainment widens across the middle school transition, even when accounting for students' current academic achievement (Perkins, Kurtz-Costes & Vuletich, 2017). Teachers may provide additional resources or higher quality resources to students for whom they have high expectations. These resources may include material resources or social and cultural capital in the form of attention, affect, and detailed instructional feedback. Little empirical work captures students' own perceptions of adult social capital in school, and the current study was designed to address this gap.

A small qualitative study of low-income African American urban high school students provides evidence for students' own grappling with conflicting expectations from parents and teachers (Howard, 2003). When describing academic identity, students directly referenced their parents' high expectations in relation to their own belief in themselves (Howard, 2003). The same students also described the negative effect of low expectations, and this was expressed as academic identity confusion; youth explicitly stated how teachers affected the way they saw

themselves (Howard, 2003). The most salient teacher expectations described by students were those of a negative valence.

Beyond influencing students' competency beliefs, additional mechanisms through which teachers, parents, and peers may foster student educational attainment outcomes is through meeting student needs for autonomy and relatedness. Self-Determination Theory (Deci & Ryan, 1985) posits that human beings are motivated most strongly by inherent enjoyment of an activity as well as the meaning that activity brings to the individual. This is also known as intrinsic motivation, and it is sustained when an individual's needs for autonomy, relatedness, and competence are all being met. Students who share positive relationships with their teachers and peers are more likely to be meeting all three needs in the school environment. Dysfunctional or contentious relationships with teachers may have a profoundly negative impact on students' engagement in adaptive behaviors that would meet all three developmental needs.

Evidence suggests that student-teacher relationships in early childhood exert a lasting influence on students, into early adolescence, and that Black boys are less likely than students of all other races and ethnicities to share positive relationships with their teachers (Hamre & Pianta, 2001; Hughs & Kwok, 2007; Spilt, Hughs, Wu, & Kwok, 2012). Kindergarten student-teacher relationship quality predicted long-term behavioral outcomes (through Grade 8), including disciplinary actions for boys (Hamre & Pianta, 2001). Additionally, compared to European American and Hispanic children, African American students were more likely to experience student-teacher relational negativity in kindergarten and to have teacher-reported behavioral problems through Grade 8 (Hamre & Pianta, 2001). Examining the student-teacher relationship as a compensatory resource among 140 aggressive second and third graders, Meehan et al.

(2003) found that African American and Hispanic students showed lower levels of aggression from second to third grade if they had a supportive third grade teacher.

The student-teacher relationship across adolescence and the transition into high school is under-examined in relationship quality research; however, among middle schoolers of multiple races and ethnicities, teacher emotional support, as measured through students' perceptions of how much the teacher cared about them, predicted student interest (Wentzel et al., 2010). Students' perceptions of teachers' expectations for their success, provisions of help, and non-threatening interactions are strong predictors of academic performance, and teachers are thought to play a central role in motivating and engaging student learning (see Wentzel, 2009, 2012). In the current study students' perceptions of the social and emotional support they received from teachers and other adults at their schools were the focus, rather than students' perceptions of their teachers' explicit academic support.

Whereas research clearly shows that social capital is positively associated with educational aspirations and attainment, psychologists, sociologists, and economists raise important questions about the nature of the relationship between the variables and the direction of causality (Dufur, Parcel, & Troutman, 2013; Pil & Leana, 2009; Stanton-Salazar, 2011). The formation of social and emotional ties with individuals who are positioned to offer social and institutional support offers both psychological and material resources (Stanton-Salazar, 2011). In the current study, students' perceptions of the extent to which an admired adult in the school cares for them are used to predict Grade 7 educational expectations as well as educational expectation trajectories through high school. The extent to which students' longitudinal perceptions of social and emotional support from adults in the school, particularly teachers, predict student educational attainment expectation trajectories from early to mid-adolescence

were analyzed in a large sample of Black youth. Supportive adults in the school setting might be especially important for youth who encounter barriers to their educational aspirations. Student perceptions of educational attainment barriers due to race and gender are the topic of the next section.

Perceived Barriers to Educational Attainment due to Race and Gender

For African Americans in the 21st century, racial and social class barriers to educational attainment continue to present psychological, as well as practical, challenges. For example, in addition to prejudice and discrimination, low-income youth may face challenges accessing information about how to fund a college education. In a sample of low income seventh grade Latino and African American students, those presented with financial aid information about college reported higher expectations about future grades and planned to put more effort into their homework than students who were told about the cost of education, but not financial aid (Destin & Oyserman, 2009). These findings demonstrate a proximal psychological effect of student academic expectations being undermined by the absence of a believable pathway to attain a goal possible self. The implications are greatest for students facing chronic stressors, including economic barriers and barriers related to social status, as when an individual is a member of a group negatively stereotyped in academics, not traditionally represented in a particular field (e.g., women in engineering), or actively excluded within the educational system (e.g., due to personal or systemic racism or sexism).

Barriers due to race. Black students face barriers within the school system related to both systemic racism and individual prejudices (Blustein, 2006; Feagin & Elias, 2013). The experience of facing barriers because of race is an integral component to be addressed in order to understand the development of educational attainment beliefs among Black youth (Garcia-Coll et

al., 1996). Furthermore, within a developmental contextualist approach, researchers conceptualize developmental mechanisms as an interplay between the individual and the social context, with students actively giving meaning to their social experiences (Lerner, 2002). Social cognitive theory also broadly addresses students' thoughts about their social contexts in relation to motivation, such that students are more likely to pursue tasks when they have a high sense of agency and control over their own ability to engage in the task (Bandura, 1994, 2001). Therefore, students' understanding of their social status and of structural barriers to their educational attainment contributes to the development of their educational aspirations and expectations.

Several studies have measured student racial discrimination experiences and linked those experiences to poorer academic outcomes (e.g., Chavous et al., 2008; Eccles, Wong, & Peck, 2006; Wong et al., 2003), but fewer studies examine students' perceptions of *anticipated* barriers to their educational attainment on the basis of their race and gender. Whereas youth may value education as a means for upward mobility, their recognition of future barriers and their coping strategies in response to barriers may shape their educational attainment expectations as well as their academic behaviors. Literature on the ways in which students' beliefs about barriers is related to their academic lives is mixed.

A study with fourth grade Black students indicated that students who perceived more barriers to their education because of their race performed less well in math and reading than their peers who perceived few to no barriers (Smith, Atkins, & Connell, 2003). In contrast, findings from the dataset that will be used for the current study (Maryland Adolescent Development in Context Study: MADICS) indicate that in Grade 11, Black students' perceptions of barriers to upward mobility due to social identity were not associated with their subsequent educational attainment (Harris, 2008). Measurement in the Harris (2008) study included only

Grade 11 perceptions with the single item "People like me aren't treated fairly at work no matter how much education they have," which is not a race-specific barrier assessment, nor specific to educational or occupational attainment. Specifically addressing educational attainment and anticipated barriers due to racial discrimination, Wood et al. (2011) found that middle-class eleventh grade Black boys in the MADICS project who perceived more barriers due to race were less likely to be enrolled in college 1-year postsecondary than those who had perceived fewer barriers.

Perceptions of barriers can serve as a protective factor for students if that knowledge helps them prepare themselves for the challenges they will likely face, but awareness of barriers may also serve as a risk factor if they are seen as insurmountable. Scholars have argued that individuals who anticipate barriers may lower their expectations for future educational attainment (Mello, 2009). Claims that awareness of racial barriers undermines academic achievement (e.g., Smith, et al., 2003) have been countered by recent research indicating that youths' critical awareness, when accompanied by perceived efficacy about their capacity to overcome racial injustice, serves to empower youth to sustain academic excellence (Diemer & Blustein, 2006).

In the current study, I analyzed group differences in educational attainment outcomes (high school graduation and college enrollment 1- and –years postsecondary) among students who perceived barriers due to race compared to students who did not in Grades 7, 8, and 11, controlling for prior achievement and socioeconomic status.

Extending the work of Wood et al. (2011), changes in the extent to which students believed their race would keep them from getting the level of education they wanted were examined from Grade 8 to Grade 11, and these beliefs were modeled in relation to educational

expectations and actual educational attainment 1- and 3- years postsecondary. The anticipated discrimination barrier measure captured students' sense of agency, not just awareness ("How much do you think discrimination because of your race might *keep you from getting the amount of education you want*?"). Based on social cognitive theory, I expected that students who reported higher levels of anticipated barriers due to racial discrimination would be less likely to be enrolled in college 1- and 3- years post-secondary compared to those who reported lower levels of anticipated barriers to their educational and occupational goals. Social cognitive theory is a model based on social learning experiences. As students get older, their cognitive capacities grow, as they are encountering racism in the social environment of schools. It was therefore expected that student perceptions of racial discrimination barriers would increase from Grade 8 to Grade 11, with boys reporting greater barriers than girls.

Differences in perceptions of racial barriers were also investigated as a function of class and gender. Class dynamics within the African American community in the United States have their roots in slavery, when those who had lighter skin or were children of mixed-race parentage were afforded more rights and resources than darker-skinned children (Graham, 1999). Decades of Jim Crow laws and denial of civil rights followed, and integration and access to higher education began only in the 1960s. It is unsurprising that in terms of accumulated wealth, Blacks who qualified as middle class according to typical income and educational measures in the 1990s (when data collection began for the current study) were not as well off as their White counterparts (Conley, 1999). The 2013 Survey of Consumer finances also indicates that Black families in the 60-79th percentile in income have only 53% of the wealth of White families in that bracket, and within the 40-59th percentile bracket, Black families have only 32% of the wealth that White families have. Although accumulated wealth was not measured, the within race

design of the present investigation is intended to better capture the income-associated dynamics of motivational variables related to educational attainment among Black families, who have less access to accumulated wealth. A low-income White family, for example, would be more likely to be able to rely on relatives with wealth or assets to send their children to college.

A few studies have measured students' perceptions of barriers among low- and middle-SES African American youth. In a sample of 2nd, 4th, and 7th grade low SES African-American youth, boys reported higher perceptions of barriers than girls, and seventh grade boys, but not girls, reported higher ratings of barriers than second graders (Taylor & Graham, 2007). Taylor and Graham (2007) did not name race as the barrier; rather, their items were related to educational and occupational barriers (e.g., "there were no good schools near me" and "they did not want to hire someone like me"). Within the MADICS data, eleventh graders' perceptions of racial barriers to educational attainment were negatively related to the postsecondary progress of middle class African American boys, and this phenomenon was mediated by boys' educational utility values; for girls, perceptions of barriers were negatively related to educational expectations, but this did not result in a delay in on-time post-secondary enrollment, likely because girls' expectations were initially higher than boys' (Wood et al., 2011). Also using MADICS data, Harris (2008) found that for Black students, neither their beliefs about the value of school nor their perceptions of barriers had an effect on their odds of enrolling in college. However, affect toward school (liking school) predicted a 67% increase in odds of enrolling. As mentioned above, Harris (2008) did not use a race-specific measure of barriers. In the current study, it was anticipated that perceptions of race-related barriers would be related to college matriculation because the measure for the present study asked students to reflect on the extent to which they believed their race would keep them from achieving their educational and

occupational aspirations. Thus, the measure directly assessed students' perceptions that racial barriers might influence their educational attainment.

Barriers due to gender. Among Mexican-American and non-Hispanic White high school juniors and seniors, women perceived more barriers to education related to gender discrimination than did men (McWhirter, 1997). Among a mixed-race sample of high school freshmen, women reported higher perceptions of barriers than men, but women and men reported comparable educational expectations through age 26 (Mello & Swanson, 2007). McWhirter's (1997) sample did not include Black students, and gender processes were described across all races, rather than within race. Students' perceptions of barriers across the high school transition and among upper- and middle class African American youth are less examined than among lower-SES youth, particularly regarding gender barriers, and few longitudinal studies have addressed these questions. Although much research and theory would predict that African American boys are at greater risk for academic and occupational failures than African American girls, barriers faced by boys are tightly intertwined with race. With regard to barriers linked only to gender, I hypothesized that girls' perceptions of barriers to educational and occupational attainment would be greater than those of boys.

Perceptions of adult social capital as a moderator. Finally, students' perceptions of adult social capital in the school may moderate the relationship between students' perceptions of barriers to their educational attainment and their educational attainment, such that high levels of social capital buffer the negative effect of perceived barriers on actual educational attainment. As mentioned above, studies in which awareness of barriers serves a promotive function among youth usually include the means to overcome those barriers. Supportive adults, or adult social capital within the school setting, may be one such mean.

Data for the current study were collected beginning in 1991. Black youth living in a mid-Atlantic state and their parents were recruited in Grade 7 from 23 public junior high schools. Follow up assessments took place the summer after Grade 7, during Grade 8, in Grade 11, two-years postsecondary, and three-years post-secondary. Participating families represented a wide range of socioeconomic statuses. Students completed questionnaires, face-to-face interviews, and telephone interviews.

Study Aims and Hypotheses

Aim 1: Trajectories of educational attainment expectations, prediction of educational attainment, and gender and SES differences in patterns among Black youth

Longitudinal research designs capture the average level of change in a population over time. Group differences (e.g., gender differences) in trajectories are often analyzed; however, patterns of stability and change may better be represented by unobserved groups, or latent classes. Demographic variables may then be used to predict the likelihood of class membership, and class membership may be used to predict the likelihood of adaptive (or maladaptive) outcomes. Differences in students' school experiences, particularly as they make curricular decisions at the point of the high school transition, will influence whether or not they will attend college. I expected heterogeneous patterns of change in students' educational expectations. A person-centered approach to data analysis was used to identify latent groups of students who reported different pathways of educational expectations from Grade 7 to Grade 11, capturing stability and change in educational attainment expectations within a large sample of Black youth. Through the use of a data-driven analytic technique, latent class growth analysis, latent classes of trajectories were identified.

Hypothesis 1.1: I hypothesized four trajectory patterns in youth reports of educational attainment expectations: high stable, increasing, decreasing, and low stable. I anticipated significant variability in both Grade 7 educational attainment expectations (intercepts) and trajectories of educational attainment expectations from Grade 7 to Grade 8, to Grade 11 (slopes).

Hypothesis 1.2: I anticipated that each pattern of stability and change would be associated with differential likelihood of high school graduation and college enrollment both 1- and 3- years post-secondary school. I anticipated that students in the high stable expectations and increasing expectations groups would have a greater likelihood of college enrollment and greater confidence regarding college completion 1- and 3- years postsecondary compared to youth with low stable and decreasing patterns of expectations.

Hypothesis 1.3: I expected social group membership (Gender and a Gender by SES interaction) would predict membership in differential patterns of stability and change, such that high SES girls would be more likely to be members of a high-stable pattern of educational attainment expectations and low SES boys would be in low-stable or decreasing expectations groups.

Aim 2: Congruence of educational attainment aspirations and expectations

Hypothesis 2.1: At baseline (Grade 7), students from low SES backgrounds were expected to show a larger gap between educational expectations and educational aspirations than students from middle- and high- SES families, and that gap was expected to increase across time.

Hypothesis 2.2: Gender differences in aspiration-expectation gaps were not expected, but a significant gender by SES interaction was predicted such that boys from lower SES families

would show greater incongruence of expectations and aspirations than girls from low SES families in Grade 7.

No predictions were made about changes in incongruence of expectations and aspirations over time, but I explored those changes in the data.

Aim 3: Enduring effects of perceptions of an admired adult in middle school on student educational expectations

Hypothesis 3.1: It was anticipated that Grade 7 student perceptions of an admired adult at school would predict higher intercepts and steeper positive slopes of their educational attainment expectations. Relationship quality perceptions were also expected to be positively related to educational attainment expectations in Grade 7 (intercepts), such that higher levels of perceived care from the admired adult were positively related to Grade 7 expectations compared to students who began Grade 7 with poor relationship quality perceptions.

Hypothesis 3.2: A gender by admired adult interaction was anticipated, such that the effect of presence of an admired adult on educational expectation intercepts would be stronger for boys than girls.

Aim 4: Adult social support in school and educational expectations as parallel processes across adolescence

Parallel processes latent curve modeling was used to explore the extent to which perceptions of adult social capital at school predicted changes in students' educational expectations across Grades 7-11 compared to the reverse. In contrast to the admired adult measure, perceived adult social capital was measured dynamically (at all three time points), and was conceptualized as the extent to which students' felt they could rely on teachers, principals, and other adults at school to help them when they had personal or social problems.

Hypothesis 4.1: I expected a significant positive effect of perceived adult social capital intercept (Grade 7) on change in student educational expectations (slope), but a nonsignificant path from student educational expectations in Grade 7 (intercept) to change in perceptions of adults at school (slope).

Hypothesis 4.2: Gender, SES, and a Gender by SES interaction were used as categorical predictors of Grade 7 educational expectations and Grade 7 perceptions of adults in school. I anticipated gender differences such that girls would have higher Grade 7 perceptions of supportive adults at school and higher Grade 7 educational attainment expectations compared to boys. Mid- and high- SES students would have comparable Grade 7 perceptions of adults at school and Grade 7 educational expectations, which would be higher than for low- SES students. Finally, I expected a gender by SES interaction such that low-SES boys would have significantly lower perceptions of adult social capital at school and educational expectations compared to all other gender and SES groups.

Aim 5: Perceptions of barriers due to race and gender, adult social capital at school, and educational expectations

Changes in students' perceptions of barriers due to race and gender from Grade 8 to Grade 11 were examined in separate models using logistic regression, modeled as a function of student gender by SES group.

Hypothesis 5.1: I expected perceptions of racial and gender barriers to increase from Grade 8 to Grade 11 for all students.

Hypothesis 5.2: Black boys from a low SES background were predicted to experience both the highest perceptions of barriers due to racial discrimination in Grade 8, as well as a steeper increase in these perceptions to Grade 11 compared to all other gender by SES groups. In

examination of gender differences in reports of anticipated barriers due to racial discrimination over time, I expected that boys would report barriers due to racial discrimination to a greater extent than girls in both Grade 8 and Grade 11.

Hypothesis 5.3: I expected that girls would report higher levels of anticipated barriers due to gender discrimination than boys in Grade 8 and Grade 11.

Hypothesis 5.4: Anticipated barriers were predicted to be negatively related to educational attainment. I expected that student educational expectations would partially explain the relationship between perceptions of anticipated barriers and educational attainment. Perceptions of anticipated barriers on the basis of both racial and gender discrimination in Grade 8 were hypothesized to predict educational expectations, with higher perceived barriers related to lower educational expectations. I expected this relationship to be moderated by gender X SES group such that the effect is stronger for low SES boys compared to all other groups. Perceived adult social capital was also expected to moderate the relationship between anticipated barriers and educational expectations, such that the relationship between barrier perceptions and educational attainment expectations would be weaker among students who had positive perceptions of school-based adult social support than among students with less positive perceptions of adult social support.

CHAPTER 2: METHOD

Data for the present study were drawn from the Maryland Adolescent Development in Context Study (MADICS) longitudinal project (Eccles, 1997). Participants in the study were recruited from a single county on the Eastern seaboard of the United States. In 1991 youth and their parents were recruited in Grade 7 from 23 public junior high schools. At the time of recruitment, 51% of the population in this county were Black and 43% were White. In 1990, the annual household income for Blacks in the county was 86% that of Whites, compared to the national average of 60%, resulting in less economic disparity between the races than is typically seen in the United States (Wong, Eccles, & Sameroff, 2003).

Seventeen-hundred youth and their families were invited to participate in the study, and approximately 87% chose to do so (N = 1,482). Of those recruited for the first wave of data collection, 61% identified as Black. Youth and their parents were first interviewed in Fall of 1991, as students were beginning seventh grade. Six waves of data were collected, Grade 7 (Wave 1), the summer after Grade 7 (Wave 2), Grade 8 (Wave 3), Grade 11 (Wave 4), one year post-secondary (Wave 5), and 3 years postsecondary (Wave 6). Interviews were conducted in person, via telephone, and via paper survey. At Waves 1, 3, and 4, youth and primary caregivers completed a 50-minute face-to-face interview and a 30-minute self-administered questionnaire. At Waves 5 and 6 self-administered surveys were mailed to youths' homes. See Table 1 for a summary of MADICS data collection at each wave relevant to the current study.

From the entire MADICS sample of 1,482 families, participants for the current study were 920 youth, all of whom identified African American as their primary race (483 (52.4%) boys; 433 (47%) girls). In Grade 7, students had a mean age of 12.19 years (*SD* = 0.58). Participants were classified as African American if they identified as such at all of the waves of data collection. Identifying as biracial was not a single response option, but parents could report the primary and secondary race of their child. If the student identified as Black or African-American and the parent report of their child's primary race was Black or African American, than students with a parent-reported secondary race were also included (n=32). Of the 920 youth who participated in Grade 7, 70.5% (*N* = 649) participated in Grade 8, 61.8% (*N* = 569) participated in Grade 11, 54.6% (*N* = 502) participated 1- year post-secondary, and 52.5% (*N* = 483) participated 3- years post-secondary.

Data on student socioeconomic status was obtained from primary and secondary caregivers at Wave 1, at which time 100% (*N* = 921) of final sample members had a primary caregiver (PCG) participate (86.2% mothers, 6.7% fathers, and 7.1% other). PCGs reported a median annual household income of $35,000-$39,999. Eight percent of PCGs reported that they had not completed high school, 36.2% had earned a high school diploma or GED, 33% had earned an associate's degree, and 22.5% had earned a bachelor's degree or higher. Fifty-seven percent of PCGs reported that they were married and living with their partner. Secondary caregivers (SCGs) were designated by the PCG as an adult who lived in the same household with the PCG and adolescent, and who had the second-most responsibility for the primary adolescent participant. About 70% (*n* = 641) of PCGs indicated that the target adolescent had a secondary caregiver (SCG). A total of 456 SCGs participated in the study (60% fathers, 13.9% stepfathers, 6.1% mothers, and 20% other).

Measures

Aspirations for future educational attainment. To assess student aspirations for educational attainment, participants were asked a single item, "If you could do exactly what you wanted, how far would you like to go in school?" Response options varied slightly across time points and were recoded to allow analysis of change across time: 1 = *less than high school*, 2 = *graduate from high school*, 3 = *post high school vocational or technical training*, 4 = *some college/associate's degree*, 5 = *graduate from a 2-year college, 6= graduate from a 4-year college*, 7 = *complete a master's degree, teaching credential, or other professional degree*, 8 = *complete a law degree, M.D., or Ph.D.* Educational attainment aspirations were assessed immediately before educational attainment expectations.

Expectations for future educational attainment. To assess student expectations for educational attainment, participants were asked a single item, "We can't always do what we most want to do. How far do you think you actually will go in school?" Response options varied slightly across time points and were recoded to allow analysis of change across time: 1 = *less than high school*, 2 = *graduate from high school*, 3 = *post high school vocational or technical training*, 4 = *some college/associate's degree*, 5 = *graduate from a 2-year college, 6= graduate from a 4-year college*, 7 = *complete a master's degree, teaching credential, or other professional degree*, 8 = *complete a law degree, M.D., or Ph.D.* Adolescent educational expectations have been widely assessed using this or a similar single-item measure (e.g., Beal & Crockett, 2010; Gregory & Huang, 2013; Ou & Reynolds, 2008).

Youth social resources: Admired adult at school. When students were enrolled in Grade 7, a single item was used to assess whether or not a student admired an adult at school: "Is there a teacher or other adult you see at school who you really admire?" Of the 921 participants,

427 students responded "yes" and 487 students responded "no." If a student responded "yes," four follow-up questions on a 5-point Likert-type scale were used to assess the student's perception of their relationship with the admired adult. Three questions assessed the amount of support the student felt from the admired adult (e.g., "how much do you think this person cares for you?"), with response options 1 = *not at all*, 2 = *not very much*, 3 = *some*, 4 = *pretty much*, to 5 = *A lot.* A fourth item, "Does this person care about you even when you make mistakes," had response options 1 = *almost never*, 2 = *occasionally*, 3 = *about half the time*, 4 = *fairly often*, to 5 = *almost always.* Responses for the four items were standardized due to the differing scales, and the average of these scores were used to create a single score. Students who did not identify an admired adult received a score of 0. Cronbach's alpha for this measure is .68. See Appendix B for all items.

Youth social resources: Perceptions of adult social capital at school. Student perceptions of adult social capital were assessed at Grade 7, Grade 8, and Grade 11. Three items were scored on a 5-point scale (e.g., "When you have a social/personal problem at school, how often can you depend on your teachers to help you out?") Response options were: 1 = *almost never*, 2 = *not too often*, 3 = *about half the time*, 4 = *fairly often*, to 5 = *almost always.* The three items were averaged to create a single score at each time point. Cronbach's alpha for this measure was .76, .70, and .81 for Grade 7, Grade 8, and Grade 11 respectively. See Appendix B for all items.

Perceptions of anticipated barriers due to racial discrimination. Two items were used to assess students' perceptions of barriers to educational attainment and career success due to racial discrimination. The first item was "How much do you think discrimination because of your race might keep you from getting the amount of education you want?" (1 = *not at all*, 2 = *a*

little, 3 = *some*, 4 = *quite a bit,* 5 = *a lot).* The second item, measured on the same scale, was "How much do you think discrimination because of your race might keep you from getting the job you want?" An average of the two items was used. The Pearson correlations were $r(643) = .48$ in Grade 8 and $r(531) = .43$ in Grade 11, both p's $< .001$.

Generalized barriers due to race. Students' general perceptions of barriers due to race were assessed with a dichotomous measure in Grade 7, "Do you think it will be harder for you to get ahead in life because you are Black/African American?" (1 = *yes*; 2 = *no)*. In Grades 8 and 11 the item was "Because of your race, no matter how hard you work, you will always have to work harder than others to prove yourself (1= *strongly disagree* to 4 = *strongly agree).* The Grade 7 item was reverse dummy coded such that 0 = *no* and 1 = *yes*. The item for Grade 8 and Grade 11 was dichotomized, with 0 = *disagree* and *strongly disagree* and 1= *agree* and *strongly agree*. This was a dichotomous indicator, separating students into those who perceive barriers due to race and those who do not perceive barriers due to race.

Perceptions of anticipated barriers due to gender discrimination. Two items were used to assess student perceptions of barriers to educational attainment and career success due to gender discrimination. Response options for two items (e.g., "How much do you think discrimination because of your sex might keep you from getting the amount of education you want?") were 1 = *not at all*, 2 = *a little,* 3 = *some*, 4 = *quite a bit,* 5 = *a lot.* An average of the two items was used. The Pearson correlations were $r(643) = .44$ in Grade 8 and $r(531) = .42$ in Grade 11, both p's $< .001$.

Generalized barriers due to gender. Students' general perceptions of barriers due to gender were assessed with a dichotomous measure in Grade 7, "Do you think it will be harder for you to get ahead in life because you are a (boy/girl)?" 1 = *yes*; 2 = *no*. In Grades 8 and 11 the

item was "Because of your sex, no matter how hard you work, you will always have to work harder than others to prove yourself (1= *strongly disagree* to 4 = *strongly agree).* The Grade 7 item was reverse dummy coded such that 0 = *no* and 1 = *yes*. The item for Grade 8 and Grade 11 was dichotomized, with 0 = *disagree* and *strongly disagree* and 1 = *agree* and *strongly agree*, creating a dichotomous indicator that separated students into those who perceived barriers due to gender and those who did not.

High school graduation status. High school graduation status was assessed at Wave 5 with a single item asking youth to report whether or not they had graduated from high school (1 = yes; 2 = no). Responses were recoded so that youth who had completed high school received a score of 1, and youth who had not completed high school received a score of zero.

College enrollment status. College enrollment status was assessed one year after high school and three years after high school with a single question: "Are you in college?" Response options were coded 0 for a "No" response and 1 for either a "Yes- Part-time" or "Yes- Full time" response.

Confidence in completing college. For students enrolled in a 2- or 4-year institution, confidence in completing a degree was assessed with: "How likely do you think it is that you will earn the highest degree you would like to get?" Likert-type response options ranged from: 1 = *not at all likely* to 5 = *very likely.*

Academic achievement. Student achievement was covaried in the analyses because of the known association between academic achievement and African American students' educational attainment expectations (Eccles et al., 2006). Student grades were obtained from Grade 7 report cards, with grades coded on a five-point scale for each math, science, reading, and

health class (1=F, 2=D, 3=C, 4=B, and 5=A). Grade 7 GPA was computed using an average of these codes.

Family socioeconomic status. SES indicators for the present study included a composite of primary and secondary caregivers' education level and the family's household income adjusted for number of members in the household. These data were obtained in the fiscal year before Grade 7 data collection began. The composite score was the mean of the standardized scores for the highest level of education of either parent (1-7) and the family income based on annual income categories (1–16, with 16 being more than $75,000). These categories were combined into ranges on a 4-point scale as indicated in Appendix A.

Analysis Plan

Hypotheses were tested using MPlus Version 6 software (Muthén & Muthén, 2007). MPlus can be used to estimate latent growth curve models and growth mixture models. The program also can be used to simultaneously estimate all parameters of interest. A latent curve modeling approach incorporates both the latent variable structure of structural equation modeling and hierarchical linear modeling, allowing for random effects estimates across individual trajectories (Muthén, 1997; Raudenbush & Bryk, 2002). To handle missing data, full-information maximum likelihood estimation (FIML) was utilized in MPlus. Use of FIML is advantageous because even individuals with missing data points may be included in the analyses, with cases containing more data points being weighted more heavily than cases with fewer data points. Both time-varying and time-invariant covariates may be included to estimate developmental trajectories.

Preliminary Analyses

To begin, data were examined for outliers, and none were found. Means, standard deviations and bivariate correlations for key study variables were computed and presented in the

results section, in the order in which hypotheses were tested. All outcome variables were tested for normality, skewness and kurtosis. Results of these analyses were used to determine if variable transformation was needed and confirmed that the proposed analytic strategy was appropriate for the data. The general procedure for latent growth curve model building to test hypotheses was as follows:

1. Estimate a growth model for each process separately (e.g., educational expectations).
2. Determine the shape of the growth curve.
3. Unconditional model: Fit the model without covariates.
4. Modify the model and assess the best fit (include reports of the following fit statistics: comparative fit index (CFI), Tucker-Lewis index (TLI), root mean squared error approximation (RMSEA).
5. For multiple group models or to pool data across groups: test a series of equality constraints within and across groups as deemed necessary to test measurement invariance.
6. For parallel process model: Conduct a joint analysis of both processes (e.g., regress intercepts of each process onto slopes of the parallel process).
7. Add covariates.
8. Estimate path coefficients and significance. Report overall model fit.

CHAPTER 3: RESULTS

Bivariate correlations between key study variables and their overall means can be found in Table 2. As expected, educational expectations were positively correlated over time, and therefore correlated residuals were included for latent curve model specification. Income was significantly and positively correlated with higher educational expectations (r= .198 in Grade 7, r= .240 in Grade 8, and r= .178 in Grade 11; all p's < .001) and with college enrollment 1- and 3-years post-secondary (r= -.318 1-year post-secondary, r= -.290 three years post-secondary, p's < .001; note correlations are negative due to the coding for enrollment specifying a value of 1 for enrolled and 2 for not enrolled). Finally, Grade 7 GPA was also positively correlated with higher educational expectations (r= .242 for Grade 7 expectations, r= .335 for Grade 8 expectations, and r= .309 for Grade 11 expectations, p's < .001).

Mean educational expectations for boys and girls by household income groups are presented in Table 3. Skewness and kurtosis values were obtained to check that normality assumptions were met for the outcome variables. Asymmetry of plus or minus 2 is considered acceptable for a normal univariate distribution (George & Mallory, 2010). For educational expectations in Grade 7, there was a slight negative skew (-.823) and negligible kurtosis (.088). Grade 8 skewness (-.54) and kurtosis (-.057), and Grade 11 skewness (-.933) and kurtosis (.645) also indicate the assumption of normality was met.

Main Analyses

Aim 1: Trajectories of educational attainment expectations, prediction of educational attainment, and gender and SES differences in patterns among Black youth. I hypothesized four distinct trajectory patterns in the data (Hypotheses 1.1): high stable, increasing, decreasing, and low stable. I anticipated significant variability in both Grade 7 educational attainment expectations (intercepts) and trajectories of educational attainment expectations from Grade 7 to Grade 8 to Grade 11 (slopes), and that these differences could best be captured with a person-centered model. To test these hypotheses, student educational attainment expectations trajectories were estimated in a growth mixture model (GMM).

Because the optimal form of the latent growth curve model for educational expectations was linear, two linear unconditional growth mixture models (GMMs) were tested to select the optimal model for the data. The first was a linear model with hetereoscedastic residuals, specifying a linear trajectory for all students and allowing for differences in class-specific variance and covariance estimates for growth factors (slopes) and for Grade-specific residuals of student educational expectations. The second model was more parsimonious, specifying a linear trajectory for each latent class, but constraining variance and co-variance parameters to be equal across classes while allowing for differences in factor (intercept and slope) means.

The more parsimonious model (a homoscedastic linear model) showed no decrement in model fit and was therefore retained and used to estimate each of 1- 5 class models. The process was terminated due to the inability to estimate further classes with confidence. A summary of fit indices for each model can be found in Table 4. Traditional information criterion (IC) indices are presented. When determining the appropriate number of classes for the data, more weight was given to the Bayesian Information Criterion (BIC), as the Akaike Information Criterion (AIC) statistic tends to be high in Type I error rates for these model types (Nylund, Asparouhov, &

Muthen, 2007). In addition, a measure of entropy and two likelihood ratio tests that provide a direct comparison of nested models, the Lo-Mendell-Rubin likelihood ratio test (LMR-LRT) and bootstrap likelihood ratio test (BLRT) were evaluated. Entropy gives a measure of classification precision (assigning individuals to a trajectory class), and values close to 1 indicate the best precision. A value below .8 was considered unacceptable. The BLRT was given the most weight when selecting the optimal number of latent classes because it has been shown to be the most consistent indicator of number of latent classes for many types of models, including growth mixture models (Nylund, et al., 2007). Due to concerns of obtaining local optimal log-likelihood values when using the default starting values (thus improper model fit and estimates), sensitivity analyses were conducted by increasing the number of random starts incrementally as suggested by Asparounov & Muthen (2012). LMR-LRT and BLRT were obtained in a stepwise procedure, using LRTSTARTS and OPTSEED commands in Mplus Version 5 (Asparounov & Muthen 2012).

As indicated in Table 4, the four-class growth mixture model was selected as a good fit and the best fitting model of the five. Intercept and trajectory estimates for educational attainment expectations for each latent class appear in Table 5. The four-class solution yielded significant variability in the intercept estimates for all four classes; however slopes were only significant in three of the four classes. Class 1 included almost half of the sample (48.4%), with a Grade 7 intercept indicating expectations of completing a 4-year college degree ($M = 5.99$) with small decreases in expectations across time. Class 2 had the second largest number of students (27.6%) and reported educational attainment expectations in Grade 7 corresponding to graduate work ($M = 7.66$), with expectations falling more sharply across the next two waves. Classes 3 and 4 were smaller (11.7% and 12. 3%, respectively) with low average expectations in Grade 7

(high school completion for Class 3 and "some college" for Class 4) and increasing expectations for Class 3 but no changes in expectations for Class 4. Using the term "high" to describe an intercept at or above a college education and "low" to describe an intercept less than a college education, classes may be described as high with a slow decline (Class 1), very high with a steep decline (Class 2), very low with a moderate increase (Class 3), and low and stable (Class 4). Thus, the hypothesized number of classes was supported, but the hypothesized stability or change within classes was only partially supported, as the high, stable class did not emerge.

I expected social group membership (Gender and a Gender by SES interaction) to be a predictor of likelihood of membership in differential patterns of stability and change, such that high SES girls would be more likely to be members of a high-stable pattern of educational attainment expectations and low SES boys in a low-stable or decreasing expectations pattern (Hypothesis 1.3). To test these hypotheses, a final GMM was estimated using student GPA, gender, and income level as predictors of educational attainment expectations intercepts and slopes, as well as class membership. The gender by income interaction had to be omitted due to the nominal categorical nature of the variable.

In addition to the hypotheses about gender and SES differences in intercepts, slopes, and class membership, I anticipated that each pattern of stability and change would be associated with a differential likelihood of high school graduation and college enrollment both 1- and 3-years post-secondary school. I anticipated that students who had high stable expectations and increasing expectation would have a greater likelihood of college enrollment 1- and 3- years postsecondary, and would have greater confidence that they would complete college 1- year postsecondary, compared to low stable and decreasing patterns of expectations (Hypothesis 1.2). In the estimation of the final GMM, college enrollment 1- and 3- years postsecondary were

added as categorical distal outcomes, and confidence in completing college was added as a continuous distal outcome. Thus, class membership was used to predict college enrollment 1- and 3- years postsecondary, and student confidence in graduating from college, assessed 1-year postsecondary. High school graduation rate for the sample was 95%, which mirrors the county's high school graduation rate. Due to the ceiling effect observed, this variable was omitted from analyses.

At Wave 5, one year postsecondary, 56% of the original sample indicated whether or not they were currently enrolled in college. Sixty-one percent of respondents indicated they were enrolled in college, and 39% indicated they were not enrolled in college. At Wave 6, 40% of the original sample responded with their college enrollment status, with 53% indicating they were enrolled in college, and 47% indicating they were not enrolled in college.

Predictors of class membership. Boys were more likely than girls to be in Classes 2 and 3 (high, steep decrease; very low, slight increase) and girls were more likely than boys to be in Classes 1 or 4 (high, slow decrease; low stable, respectively). Low-income students were more likely to be in the low stable trajectory than any other group; there was a 54% chance an individual in that group was from poverty. Low-income students were also the students more likely than any other income group to be in the high, slow decline group. Probability scales for class membership based on student income and gender appear in Table 6. Although probabilities of class membership by gender and income were calculated, probabilities of class membership for high SES girls versus low SES boys could not be made within the Growth Mixture Model and compared.

Class membership as a predictor of educational attainment outcomes. To test Hypothesis 1.2 regarding differential probability of college enrollment and confidence in

completing college based on latent class membership, outcome probabilities were computed based on the observed data. For clarity, predictors of educational attainment outcomes are reported in probability scale (percent chance of the outcome) for each class. The probability of full-time college enrollment one year post-secondary was 96% for Latent Class 1 (high, slow decline), 85% for Latent Class 2 (very high, steep decline), a 3% chance for Latent Class 3 (very low, increasing), and a 51% chance for Latent Class 4 (low stable). For three years post-secondary, full-time college enrollment probabilities were 97% for Class 1, 94% for Class 2, 5% for Class 3, and 67% for Class 4. During data collection 1-year post-secondary, students could also indicate if they were enrolled part-time, and all of these students were in Latent Class 4 (low, stable), such that there was a 4% chance of being enrolled part-time if one was a member of Class 4.

If students were enrolled in college, mean ratings for confidence in graduating from college, assessed one year post-secondary were significantly different for each of the 4 classes: Class 4 (low, stable) M=5.4 SD=.31, Class 2 (very high, steep decline) M=3.75 SD=.48, Class 3 (very low, increasing) M=4.53 SD=.55, and Class 1 could not be estimated because it was used as the reference group for generating parameter estimates. Students who showed a steep decline in expectations across adolescence showed the least confidence that they would graduate from college after enrollment, whereas students who did enroll in college but had remained on a low, stable trajectory across adolescence showed the greatest confidence that they would complete college.

Aim 2: Congruence of educational attainment aspirations and expectations.

Hypotheses associated with Aim 2 addressed possible SES and gender differences in the congruence between students' educational attainment aspirations and their expectations. Before

testing those hypotheses, information is provided about a series of analyses examining change across time in the expectations-aspirations gap for the whole sample. The gap was calculated by subtracting educational attainment expectations scores from educational aspiration scores. To determine the optimal shape of the latent curve, a series of unconditional models were fit for the aspirations-expectations gap across Grade 7, 8, and 11: an intercept-only model, a model that allowed for a linear slope factor to be estimated with heteroscedastic residuals, and a model that allowed for a linear slope factor with homoscedastic residuals. Because there were only three time points, a quadratic factor was not estimated. The linear model with heteroscedastic residuals was the best-fitting and most parsimonious model, $\chi 2(1) = .012$, $p = 0.91$, CFI=1.00, TLI=1.00, probability RMSEA <= .05= .973. Mean values of the aspiration-expectation gap decreased linearly over time, M=.904 (SD = 1.48) in Grade 7, M =.851 (SD= 1.31) in Grade 8, and M = .711 (SD = 1.15) in Grade 11. Results from the unconditional latent curve model show an average gap between aspirations and expectations that is different from 0 (μ_{int}= .908, p<.001), and an average decrease in the gap (μ_{slp}=-0.046, p=0.002). There was significant variability in starting values of the aspiration-expectations gap in Grade 7 (Φ_{int}=0.268, p=0.011), but no meaningful individual variability in the rate of change over time (Φ=0.037_{slp}, p=0.194). The intercept and slope terms were uncorrelated ($\Phi_{int, slope}$= -0.183, p=-.477).

The overall trend suggests that the gap decreases for all students over time. To examine if students were tending to raise their expectations, lower their aspirations, or a combination of these, both educational attainment expectations and aspirations were modeled separately to examine the mean slope trajectories. For both expectations and aspirations, an intercept-only model, a model that allowed for a linear slope factor to be estimated with heteroscedastic

residuals, and a model that allowed for a linear slope factor with homoscedastic residuals were fit. Because there were only three time points, a quadratic factor was not estimated.

Expectations and aspirations unconditional models. For educational expectations, the linear model with homoscedastic residuals was the best-fitting and most parsimonious model $\chi2(3) = 25.56$, $p < .05$, CFI=0.906, TLI=0.906, probability RMSEA =.091 (90% C.I.= 0.06 to 0.125). The mean value of expectations in Grade 7 was fell between get a 2-year degree and get a 4-year degree (μ_{int}=5.87, p<0.001), with a slight decline on average (μ_{slp}= -0.14 , p<0.001). Results from the unconditional latent curve model also indicated that there was significant variability in starting values of educational attainment expectations in Grade 7 (Φ_{int}=1.577, p<0.001), and significant individual variability in the rate of change over time (Φ_{slp}=.102, p<.001). The intercept and slope terms were slightly and significantly correlated ($\Phi_{int, slope}$= -0.167, p=0.001). The variability may be seen in the plot of a random sample of 150 individual trajectories in Figure 4.

For educational aspirations, the linear model with homoscedastic residuals was the best-fitting and most parsimonious model $\chi2(3) = 44.23$, $p < .05$, CFI=0.845, TLI=0.845, probability RMSEA =.122 (90% C.I.= 0.092 to 0.155); standardized root mean square residual (SRMR)=.153. Although the model fit was not as good for educational attainment expectations, overall fit was acceptable. Results from the unconditional latent curve model indicated that there was significant variability in starting values of educational attainment aspirations in Grade 7 (Φ_{int}=1.276, p<0.001), and significant individual variability in the rate of change over time (Φ_{slp}=.081, p<.001). The intercept and slope terms were slightly and significantly correlated ($\Phi_{int, slope}$ = -0.158, p = 0.001). The average value of Grade 7 educational attainment expectations was μ_{int} = 6.778, SD = .048, $p < .001$. The average change in educational attainment expectations was

μ_{slp}= -0.18, p<.001 units per assessment occasion. Although a direct comparison cannot be made statistically, taken together, these models suggest that mean expectations and aspirations were each decreasing over time, but aspirations were decreasing at a faster rate than expectations.

Aspiration-Expectation Gap Conditional Model. At baseline (Grade 7), students from low SES backgrounds were expected to show a larger gap between educational expectations and educational aspirations compared to students from both middle- and high- SES families (Hypothesis 2.1). Gender differences in aspiration-expectation gaps were not expected, but a significant gender by SES interaction was hypothesized such that boys from lower SES families would show greater incongruence of expectations and aspirations compared to girls from low SES families in Grade 7 (Hypothesis 2.2).

To test these hypotheses, a conditional model was fit with gender, income, and GPA as predictors of the Grade 7 aspiration-expectation gap and rate of change in that gap. The model could not be identified by including a gender by income interaction term, so a multiple group approach was used to investigate the interactive hypothesis (these results are explained in the next section). College enrollment 1- and 3- years postsecondary were included as categorical distal outcomes. For a diagram of the path model, see Figure 5.

Means and correlations of key variables appear in Table 7. The conditional model fit was quite good $\chi 2$ (10)= 8.41, p=0.59, CFI=1.00, TLI=1.00, probability RMSEA <= .05= .999. Income and GPA were predictors of the aspiration-expectation gap in Grade 7 (β's = -0.284 and -0.618, respectively, p's < .001), with higher income and higher GPA associated with a smaller gap. Gender was not a significant predictor (β=-0.07, p=0.259). None of the variables was a significant predictor of slope. The model explained 15% of the variance in intercept values (Grade 7 aspiration-expectations gaps), and just 1.5% of the variance in slopes. Logistic

regression odds ratios indicated that the odds of being enrolled in college 1-year post-secondary were 2.97 times higher for students with steeper declines in the aspirations-expectations gap over time, but the latent slope factor did not show a significant difference in enrollment odds 3- years post-secondary, nor did the latent intercept or slope factor predict confidence in completing a college degree, assessed 1-year post-secondary.

Multiple Group Model. An alternative approach was taken to test Hypothesis 2.2 (i.e., in Grade 7, boys from lower SES families would show greater incongruence of expectations and aspirations compared to girls from low SES families). Pooling the groups and estimating the model using an interactive term was infeasible due to difficulty including an eight-level nominal categorical variable, so a multiple group approach was taken to address the original research question. The analytic strategy undertaken for comparing these two groups was to estimate a series of models, introducing model constraints systematically. First, the optimal functional form of the curve was found for each group separately. For both low SES girls (n= 83) and low SES boys (n=93), the unconditional linear model was a borderline-acceptable fit ($\chi 2$ (3) = 1.06, p=0.302, CFI=0.989, TLI=0.967, probability RMSEA <= .05= .351 for girls, and $\chi 2$ (3)= 0.78, p=0.378, CFI=1.00, TLI=1.00, probability RMSEA <= .05= .431 for boys).

Across and within group equality constraint tests. The two groups were both included in a multiple group model with no equality constraints, meaning that the same linear functional form was defined for low-SES boys and low-SES girls, but all other parameters were free to differ across groups. Each group's chi square value was replicated, and overall fit was acceptable ($\chi 2$ (2)= 1.84, p=0.39, CFI=1.000, TLI=1.042). Factor means (mean of the latent intercept and mean of the latent slope of the aspiration-expectation gap) were then constrained to equality across the low-SES gender groups, and the model was assessed for fit using the chi-squared

difference test. The model was not a significant decrement compared to the unconstrained model ($\chi 2_{\Delta}$ (4)= 2.58, p=0.63, CFI=0.963, TLI=0.944). Finally, intercept variances, slope variances, and covariance between intercept and slope across groups (low-SES boys and low-SES girls) were set to be equal. This model fit was approximately the same, without a significant decrement in fit $\chi 2_{\Delta}$ (5)= 3.03, p=0.695, CFI=0.946, TLI=0.935. These results indicate the assumption of measurement invariance holds across groups.

Multiple group model parameter estimates. According to Hypothesis 2.2, boys from lower SES families would show greater incongruence of expectations and aspirations compared to girls from low SES families in Grade 7. Parameter estimates indicated the reverse was true. The mean Grade 7 aspiration-expectation gap was $\beta = 1.386$, $p < .001$ for low-SES girls (n=83) and b= 1.067, $p < .001$ for low-SES boys (n=93). The mean slope for low-SES girls was $\beta = -0.153$, $p = .002$, whereas the mean slope for boys was non-significant, indicating no decline in the gap for low-SES boys on average. There was no meaningful variability in intercepts or slopes among low-SES boys or low-SES girls.

Extending this model to include high-income boys and girls, overall model fit was quite good, $\chi 2$ (13)= 13.08, p=0.44, CFI=0.994, TLI=0.994. Results for low-SES boys and girls remained the same. In contrast to low-SES students, both high-SES girls (n=99) and high-SES boys (n=103) showed lower mean aspiration-expectation gap intercepts (b=.624 for girls and b= .672 for boys, p's <.001). High-SES student groups both had a nonsignificant mean slope, indicating no change over time in the aspiration-expectation gap, and no meaningful variability in Grade 7 gap (intercepts) or change in the gap over time (slopes) among group members.

Aim 3: Enduring effects of perceptions of an admired adult in middle school on student educational expectations.

I hypothesized that the presence of an admired adult at school in Grade 7 would predict intercepts and slopes of educational attainment expectations (Hypothesis 3.1). I also predicted a gender by admired adult interaction, such that the effect of the presence of an admired adult on educational expectation intercepts would be stronger for boys than for girls. Building upon the unconditional model for educational attainment expectations to test these hypotheses, a conditional latent curve model was fit with presence of an admired adult in Grade 7, gender, income, GPA, and an admired adult by gender interaction as predictors of educational attainment expectations intercepts and slopes. Overall model fit was acceptable, $\chi 2$ (3)= 30.45, p=0.0002, CFI=0.944, TLI=0.873, RMSEA=.055. For a diagram of the path model, see Figure 6.

Means and correlations of key variables appear in Table 8. Model parameter estimates indicated that gender (β=-0.313, *p*=0.045), income (β=0.215, *p*<.001), GPA (β=0.290, *p*<.001), and presence of an admired adult (β=-0.116, *p*=0.007; note the coding was 1= yes and 2= no for presence of an admired adult), were all significant predictors of Grade 7 educational expectations in the expected directions. There was a marginally significant gender X admired adult interaction effect in Grade 7 (β=0.311, *p*=0.054). Upon probing simple intercepts and simple slopes for boys and girls, the slopes were found to be non-significant within the values for which the interaction would be meaningful (for girls, simple intercept = 0.7(0.1517), *t*=4.6157, *p*<.001 and simple slope= -0.116(0.2074), *t*=-0.5594, *p*=0.557; for boys, simple intercept = 0.387(0.1817), t=2.1304, *p*=0.0334 and simple slope= 0.195(0.7127), *t*=0.2736, *p*=0.7845).

None of the predictor variables were significantly related to change in educational expectations over time. Forty-six to 55% of the observed variance in time-specific measures of educational attainment expectations were jointly explained by an underlying "educational expectations" latent factor. A summary of model parameter estimates appears in Table 9. The

overall model explained 19.5% of the variability in Grade 7 educational expectations and 3% of the variability in slopes.

Finally, I also predicted in Hypothesis 3.1 that the extent of relationship quality perceptions would be significantly and positively related to educational attainment expectations in Grade 7 (intercepts), such that higher levels of perceived care from the admired adult would be positively related to Grade 7 expectations. Of the 918 students, only 427 reported that there was an adult in the school whom they admired. Using only this sample of 427 students, the extent of felt support from the admired adult was included as a predictor in the latent curve model. Overall fit was adequate, $\chi 2$ (7)= 21.03, p=0.003, CFI=0.913, TLI=0.814, RMSEA=.069. Model parameter estimates are presented in Table 10. Results indicated that the extent of felt support was not a significant predictor of educational attainment expectations in Grade 7 or of change over time (β=0.218, p=0.124); however, student GPA was a significant predictor of slope, such that as student GPA increases, so does rate of change for educational attainment expectations. The model explained 14.7% of the variability in latent Grade 7 educational attainment expectations and 12.3% of the variability in latent rate of change in educational attainment expectations.

Aim 4: Adult social support in school and educational expectations as parallel processes across adolescence. According to Hypothesis 4.1, the perceived adult social capital intercept (Grade 7) would positively predict change in student educational expectations (slope); in contrast, the path from student educational expectations in Grade 7 (intercept) to change in perceptions of adults at school (slope) was expected to be nonsignificant. Whereas Aim 3 used students' Grade 7 reports of whether or not they knew an adult at school whom they admired, and the quality of their relationship with that adult, Aim 4 addressed students' reports at the three

measurement waves of whether or not there were supportive adults in their school settings who would assist them with problems and be sources of emotional and social support. To test Hypothesis 4.1, I fit a parallel process latent curve model. An investigation of how each construct changes over time should precede the examination of the relation between the two constructs (Raudenbush, 2001). This examination has been done for educational attainment expectations already. To determine the optimal shape of the second process latent curve, a series of unconditional models were fit for student perceptions of adults in the school: an intercept-only model, a model that allowed for a linear slope factor to be estimated with heteroscedastic residuals, and a model that allowed for a linear slope factor with homoscedastic residuals. Because there were only three time points, a quadratic factor was not estimated. The linear model with homoscedastic residuals was the best-fitting and most parsimonious model $\chi 2$ (3)=1.522, p=0.677, CFI=1.00, TLI=1.00, probability RMSEA <= .05= .976.

Mean values of perceived social and emotional support from adults at school decreased linearly over time, M=3.01 and SD= 1.01 in Grade 7, M=2.93 and SD= 1.03 in Grade 8, and M=2.56 and SD= 1.07 in Grade 11. For perceptions of social and emotional support from adults in the school in Grade 7, there was a slight negative skew (-.100) and kurtosis (-.525). Grade 8 skewness (-.069) and kurtosis (-.498), and Grade 11 skewness (0.35) and kurtosis (-0.60) also indicated the assumption of normality was met.

Results from the unconditional latent curve model indicated that there was significant variability in starting values of perceived social and emotional support from adults in the school in Grade 7 and those values changed over time (μ_{slope}=-0.113, p<.001). However, there was no significant individual variability in the rate of change over time (Φ_{slope}=0.001, p=0.87). The

intercept and slope terms were uncorrelated ($\Phi_{int, slope}$= 0.011, p=0.471). These results can be more clearly seen in the plot of 250 random student trajectories of perceived capital in Figure 7.

Educational expectations and perceptions of adult social capital parallel processes latent curve model.

Building upon the unconditional models for both educational attainment expectations and student perceptions of adult social capital in school, a conditional parallel processes latent curve model was fit with gender, income, GPA as predictors of intercepts and slopes for both processes. This model provided a tests of Hypothesis 4.2, according to which girls would have higher Grade 7 perceptions of adults at school and higher Grade 7 educational attainment expectations than boys, and mid- and high- SES students would have higher Grade 7 perceptions of adults at school and Grade 7 educational expectations than low-SES students. To test these hypotheses, the slope of student perceptions of adult social capital was regressed on the intercept of educational expectations, and the slope of educational expectations was regressed on the intercept of student perceptions of adult social capital. Overall model fit was acceptable, $\chi 2$ (15)= 37.54, p=0.001, CFI=0.956, TLI=0.904, probability RMSEA=.04. For a diagram of the path model, see Figure 8. Means and bivariate correlations of key variables may be seen in Table 11.

Model parameter estimates indicated that income was a significant predictor of the intercept of perceived adult social capital (β=-0.134, *p*=0.034), while gender and GPA were not (β=0.001, *p*=.989 and β=0.028, *p*=.672, respectively). For educational attainment expectations, income and GPA were significant predictors (β=0.216, *p*<.001 and β=0.307, *p*<.001, respectively), but gender was not. None of the factors significantly predicted slopes for expectations or for perceptions of adult social capital (see all standardized estimates in Table 12).

Latent slope for educational attainment expectations was moderately correlated with the latent intercept of attainment expectations ($\Phi_{int,\ slope}$= -0.511, p<.001), but the latent slope of perceptions of adult social capital was not correlated with the latent intercept of perceptions of adult social capital ($\Phi_{int,\ slope}$= 1.75, p=.769). Intercepts for the two parallel processes were uncorrelated ($\Phi_{int,\ int}$= .126, p=.135), as were their respective slopes ($\Phi_{slope,\ slope}$= .567, p=.836).

I expected a significant positive effect of perceived adult social capital intercept (Grade 7) on change in student educational expectations (slope), but a nonsignificant path from student educational expectations in Grade 7 (intercept) to change in perceptions of adults at school (slope) (Hypothesis 4.1). Neither the regression of slope of perceptions of adult social capital on the intercept of expectations, nor the regression of the slope of expectations on the intercept of perceptions of adult social capital were significant, indicating that perceptions of adult social capital over time did not influence student educational attainment expectations (which had variable trends), nor were students' expectations influencing their perceptions of adult social capital (which had a negative trend overall). Overall, the model explained 2% of the variance in Grade 7 perceptions of adult social capital and 44% of the variance in the latent slope. Nineteen percent of the variance in educational attainment expectations was explained by the model, and just 5% of the variance in slope.

Lastly, in Hypothesis 4.2 I anticipated a gender by SES interaction such that low-SES boys would have significantly lower perceptions of adult social capital at school and educational expectations compared to all other gender and SES groups. This hypothesis could not be tested with an interaction term as originally planned, so a multiple group model was estimated. The overall model fit was good $\chi 2$ (47)= 64.36, p=0.047, CFI=0.917, TLI=0.851, probability RMSEA=.06. Overall model results were replicated across gender and SES-groups with one

notable difference. For low-income boys (n=93), GPA was a significant predictor of perceived adult social capital slopes such that as GPA went up, the rate of decline in perceptions of adult social capital decreased (β=-0.118, p=0.034).

Aim 5: Perceptions of barriers due to race and gender, adult social capital at school, and educational expectations. Means, standard deviations, and correlations of key Aim 5 variables are reported in Table 13 for race and Table 14 for gender.

Racial Discrimination as a barrier to educational attainment. According to Hypothesis 5.1, students' perceptions of racial and gender barriers would increase from Grade 8 to Grade 11 on average. A repeated measures ANOVA was run in SPSS Version 23 to with students' perceptions of racial discrimination as a barrier to educational attainment as the dependent variable, Grade as the repeated variable, and Gender and Family Income group (i.e., the four income levels) as between-subjects variables. Listwise deletion was used for missing data due to the existence of just two grade level assessments. The main effect of Grade level was significant, $F(2, 432)= 24.83$, $p<.001$. Students' perceptions of racial discrimination as a barrier to educational attainment tended to increase from Grade 8 to Grade 11.

According to Hypothesis 5.2, Black boys from a low SES background would report both the highest perceptions of barriers due to racial discrimination in Grade 8, as well as a steeper increase in these perceptions to Grade 11 compared to all other gender by SES groups. This results would be supported by a significant Gender x SES x Grade interaction. The Gender x SES x Grade level interaction was significant, $F(2, 432)= 2.78$, p=.008). However, mean differences did not support the hypothesis. Instead, mean perceptions of racial discrimination as a barrier to educational attainment decreased over time for girls living at or below the poverty line, while all other group means increased. Means, cell sizes, and confidence intervals may be

seen in Tables 15 and 16. Although a single ANOVA was calculated, separate tables were created for clarity. Marginal means are plotted in Figure 9.

According to Hypothesis 5.4, anticipated barriers were expected to be negatively related to actual educational attainment. Bivariate correlations showed that perceptions of racial discrimination as a barrier to educational attainment in Grade 8 were unrelated to college enrollment 1-year post-secondary and 3-years post-secondary, and to student confidence in completing college (r = .038, r = .076, and r = .041; all *p's > .10*). However, Grade 11 perceptions of racial discrimination as a barrier to educational attainment were positively related to college enrollment 1- and 3- years post-secondary, such that students who reported higher levels of perceived discrimination barriers in Grade 11 were *more* likely than peers to be enrolled 1- and 3- years post-secondary and had greater confidence in completing college (r = .143, p=.004 , and r = .103, p=.047, r =.228, p=.01).

Hypothesis 5.4 also addressed relations between barrier perceptions and educational attainment expectations. Perceptions of educational barriers due to racial discrimination in Grade 8 were unrelated to Grade 8 and Grade 11 educational attainment expectations (r= .085, p=.067 and r=.071, p=.093). Using Grade 11 reports of perceptions of educational barriers due to racial discrimination, the correlation with Grade 8 expectations was positive though quite small, and the correlation with Grade 11 expectations was nonsignificant (r=.082, p=.038 and r=-.003, p=.94). As reported previously, educational attainment expectations in Grade 8 were positively related to college enrollment 1- and 3- years post-secondary and educational attainment expectations in Grade 11 were positively related to all attainment outcomes.

The proposed mediation model was not examined because criteria for mediation established by Baron and Kenny (1986) were not met. Namely, according to these criteria, the

first step of establishing mediation is to show that the focal predictor (i.e., perceptions of racial discrimination as a barrier) is associated with the outcome (i.e., college enrollment status). This condition was met for Grade 11 perceptions of racial discrimination, but in the second criterion, the focal predictor (perceptions of discrimination is associated with the mediator, educational expectations), and this was not the case for Grade 11. Given that key correlations between Grade 8 racial discrimination barriers and educational attainment outcomes were not significant and the relationship between Grade 11 racial discrimination and educational attainment was in the opposite direction as hypothesized, the original moderated mediation model was tested simply as two path models, moderated by income by gender group, to test remaining hypotheses.

As a reminder, according to Hypothesis 5.4, Grade 8 perceptions of barriers were expected to predict Grade 11 educational attainment expectations and post-secondary actual attainment, with the relation stronger for low-SES boys compared to all other groups. For the model including paths from Grade 8 perceptions of racial discrimination as a barrier to Grade 11 educational expectations, to college-enrollment 1-yr post-secondary, there were no indirect effects of perceptions of racial discrimination barriers in Grade 8 and college enrollment 1-year post-secondary for any gender and income group when controlling for student achievement, but the direct effect for boys in the $40,000- $64,000 income group (group 3 boys) was significant. For group 3 boys, increases in perceptions of racial discrimination as a barrier to attainment were associated with a greater likelihood of college enrollment 1-year post-secondary (β=0.315, p=0.005), when controlling for parent education and GPA. Path coefficients by group are presented in Table 17.

No direct or indirect effects were found for college enrollment 3- years post-secondary. A marginally significant direct effect of Grade 8 perceptions of racial discrimination as a barrier to

educational attainment on student confidence that they will complete college (reported after college enrollment) was found, such that higher perceptions of racial discrimination barriers were related to lowered college completion confidence among girls in the $65,000+ group. All path estimates are reported in Table 18.

Gender Discrimination as a barrier to educational attainment. According to Hypothesis 5.1, students' perceptions of barriers due to gender discrimination would increase from Grade 8 to Grade 11. A repeated measures ANOVA was calculated with students' perceptions of gender discrimination as a barrier to educational attainment as the dependent variable, Gender and Income group as between-subjects variables, and Grade level as the repeated variable. The main effect of Grade was significant, $F(2, 468) = 163.94$, $p<.001$. However, results were contrary to what was expected: Students' perceptions of gender discrimination as a barrier to educational attainment tended to decrease from Grade 8 to Grade 11. The main effect of Grade was qualified by a significant Gender x Income group x Grade level interaction, $F(2, 468) = 2.50$, $p=.016$, such that the mean differences in perceptions of gender discrimination as a barrier to educational attainment between Grade 8 and Grade 11 were significantly higher for girls in income groups 3 and 4 compared to boys in income groups 2 and 3, indicating steeper declines for middle-high income girls compared to middle income boys. Means, cell sizes, and confidence intervals may be seen in Table 20 and Table 21. Although a single ANOVA was calculated, separate tables were created for clarity. Marginal means are plotted in Figure 10.

As had been hypothesized for racial barriers, according to Hypothesis 5.4, Grade 8 perceptions of barriers were expected to predict Grade 11 educational attainment expectations and post-secondary actual attainment, with the relation stronger for low-SES boys compared to all other groups. Bivariate correlations showed that perceptions of gender discrimination as a

barrier to educational attainment in Grade 8 were unrelated to college enrollment 1-year post-secondary, 3-years post-secondary, and to student confidence in completing college (r= .027 , r= .028, and r= .10, all p's > .10); however, Grade 11 perceptions of gender discrimination as a barrier to educational attainment were positively related to confidence in completing college, such that students who reported higher levels of perceived discrimination barriers in Grade 11 had greater confidence in completing college than peers (r= .32, p<.001).

Perceptions of educational barriers due to gender discrimination in Grade 8 were not related to Grade 8 and Grade 11 educational expectations (r= .01 and r=.03, p's > .10), nor were perceptions of educational barriers due to gender discrimination in Grade 11 related to Grade 8 or Grade 11 expectations (r=.03 and r=.025, p's > .10). Because key correlations between Grade 8 gender discrimination barriers and educational attainment outcomes were not significant, two path models were estimated, using Grade 8 barrier perceptions in one model and Grade 11 barrier perceptions in the second. Both models included moderation of barrier to educational attainment relations by income and gender group. For the model including paths from Grade 8 perceptions of gender discrimination as a barrier to Grade 11 educational expectations, to college-enrollment 1-yr post-secondary, 3-years post-secondary and to confidence in completing college were all nonsignificant. No direct or indirect effects were found.

For Grade 11 perceptions of gender discrimination as a barrier to educational attainment, no direct effects were found for college enrollment 1-year post-secondary, but an indirect effect was found for the highest income group of girls and 3rd income group boys only, such that higher perceptions of gender discrimination in Grade 11 predicted higher educational attainment expectations, which predicted college enrollment. Path estimates can be seen in Table 21. None

of the direct or indirect paths were significant predictors of college enrollment 3- years post-secondary or for confidence in completing college, reported after enrollment.

Adult social capital at school as a moderator of the relationship between perceived barrier due to racial discrimination and educational attainment expectations. In the last part of Hypothesis 5.4, I expected that the negative impact of perceived barriers would be moderated by presence of adult social support such that barrier perceptions would be detrimental only in the absence of adult social support. The only significant pathways between perceptions of barriers due to discrimination and educational attainment expectations were from Grade 8 perceptions of racial discrimination to Grade 8 and Grade 11 educational attainment expectations, with marginal significance. In spite of the weakness of support for the hypothesized link between barriers and expectations, adult social capital was tested as a potential moderator for this path, as originally planned. Perceptions of adult support were recoded into dichotomous categories. Students who reported support about half the time or less were considered "low perceived support" and given a score of 0, and those who endorsed *fairly often* or *always* were considered "high perceived support" and given a score of 1.

Controlling for prior achievement and parent education, perceptions of racial discrimination as a barrier to educational attainment in Grade 8 positively predicted educational expectations in Grade 8 and Grade 11 among students who perceived high support from adults in Grade 8 (β=0.322, p=0.039). The path was nonsignificant for students who reported low Grade 8 support (β=0.567, p=0.651).

CHAPTER 4: DISCUSSION

Results from the present study provide support for the importance of stability of student expectancies for educational attainment outcomes among Black students. With school grades controlled, students who expected to attain a degree and whose expectations remained at a 2-year degree or higher across adolescence were very likely to actually be enrolled in college both 1- and 3- years post-secondary, across SES and gender groups. Even students who expected less than a college degree on average showed higher levels of actual college enrollment than students who fell within the unstable expectations patterns. The four hypothesized latent trajectories were supported, with the exception of a high stable group, which appeared in this sample as a high expectation group with a slow decline.

Results also supported the importance of an admired adult in Grade 7 for high student educational attainment expectations, but there was no evidence of an enduring impact. Analyses of longitudinal change in students' perceptions of how much they felt they could rely on adults when they had personal and social problems at school revealed a downward trend in felt support through Grade 11. Students' perceptions of racial discrimination as a barrier were much higher in Grade 11 than Grade 8, while perceptions of gender discrimination showed the reverse pattern. Finally, the relationship between perceptions of racial barriers and educational attainment was moderated by gender and income group, and the relationship between perceptions of racial barriers and educational attainment *expectations* was moderated by perceptions of adult support at school. Students' perceptions of gender barriers were related to their educational attainment

expectations only among high-income girls, whose perceptions of barriers due to gender were *positively* predictive of expectations.

Development of Educational Attainment Expectations

Findings from the growth mixture model for educational attainment expectations across Grades 7, 8, and 11 supported the hypothesized number of latent classes, with four trajectory patterns. The hypothesized patterns high stable, low stable, increasing, and decreasing were drawn from prior work by Park et al. (2015), describing both 1990s and 2000s cohorts of 10th to 12th grade adolescents as stable over time on average, with groups of students increasing, decreasing, and remaining stable over time. Recent research with longitudinal data from African American students aged 14 to18 suggested a group of high stable and a group of low stable attainment expectation students (Mello et al., 2012).

In the growth mixture model in the current study, a low stable group of students was identified, with "low" defined as below a college degree (either two- year or four-year). The model suggested that instead of a high stable pattern (2-year college education or above), a group was identified with a high intercept and a slow decline that still falls somewhere between expecting a 2-year degree or a 4-year degree by Grade 11. The largest group of students, almost half, fell into this category. Results of the analyses also identified a group of students whose expectations increased over time and a group that decreased over time. Those students tended to be on the extreme ends of expectations in Grade 7, each moving toward the mean educational expectation, which fell between a 2-year degree and a 4-year degree in Grades 7, 8, and 11.

I expected that high SES girls would be most likely to be in a high-stable expectations group, and that low-SES boys would be most likely to be in a low stable or decreasing group. Those hypotheses were partially supported, as boys were more likely than girls to be members of

the least stable classes (very low with a moderate increase or high with a steep decrease). A gender by income group interaction could not be modeled reliably due to complexity of the analytic technique; however, low SES students were more likely than any other income group to be in the low-stable group. Low-SES students also made up about one third of the group that began with expectations for college attainment and declined, but remained above expecting a 2-year degree on average. The finding could reflect unbalanced cell sizes, as there were fewer families in Income group 1 compared to Income Group 4 (see Table 3 for means and cell sizes).

Students who grow up in areas of concentrated poverty are less likely than their peers from higher-income families to maintain their status as high achievers (Wyner et al., 2007), but resilience is a developmental process of person-environment transactions, and it can be nurtured (Egeland, Carlson, & Sroufe, 1993). Low-income students on a college-bound trajectory can provide insight on their perceptions of their own strengths and protective factors, which are important for researchers and practitioners serving low-income Black youth. For example, in a small scale qualitative study with low-income Black youth from single-parent homes, students themselves identified caregivers' high but realistic expectations and the presence of at least one caring adult at school as contributing to their academic success (Williams & Bryan, 2013).

I expected students in the high stable expectations and increasing expectations groups to have a greater likelihood of college enrollment 1- and 3- years postsecondary compared to youth with low stable and decreasing patterns of expectations. Hypotheses were partially supported for class membership as a predictor of attainment outcomes. Students in the majority latent class (high, slow decline) showed the greatest actual college enrollment both 1- and 3- years post-secondary. Contrary to hypotheses, students in the class with increasing expectations had the lowest levels of college enrollment both 1- and 3- years post-secondary. One explanation for this

finding is that students in this latent class started with very low expectations and had the greatest variability in rate of change compared to the other classes. When plotting estimated and observed means for each of the latent classes, the overlap was significant for all classes except this class. Whereas the four-class model was a good fit for the data and a better fit than the five-class model, one may in theory fit even greater numbers of classes (six or seven, etc.). Both an asset and a drawback to this method is that the model fits the data, which could mean that the investigator is describing the true nature of a phenomenon or could mean the investigator is over-fitting the data. Class 3, which comprised just 11.7% of the sample, might include a highly heterogeneous group of youth.

Thus, on average, Black students have differing experiences based on their Gender and SES, resulting in disproportionate over- or under-representation in developmental trajectories of educational attainment expectations. The experiences underlying the development of expectancy trajectories are unmeasured in the design of the present study, and results suggest student Gender and SES shape the likelihood that individuals will have experiences conducive to being on a trajectory of educational expectations associated with the greatest likelihood of college attendance in the United States. These factors can include, for example, racially oppressive or gendered features of the educational environment in which students learn and grow (Byrd & Chavous, 2011; Hope, Skoog & Jagers, 2015).

Of interest to developmentalists and interventionists addressing educational inequities, and an important topic for future research, is investigation and evaluation of the environmental contingencies that serve adolescents from diverse backgrounds in constructing and maintaining educational expectancies. Such investigation must consider students' social, economic, and cultural realities. For example, race-specific experiences such as racial micro-aggressions from

peers and teachers, and ethnocentric course materials have been identified as persistent stressors among youth of color (Lin, Torino, Capodilupo & Rivera, 2009). Consequences of such experiences are poor mental health, lower work productivity, and lower problem-solving abilities, among others (Salvatore & Shelton, 2007; Sue, Capodilupo, & Holder, 2008). Experiences of racial microaggressions are directly related to students' perceptions of school climate and hostility, and are also highly related to college retention (Allen, 2010; Brooks, Jones, & Burt, 2013. Therefore, it is likely that such experiences shape the development of students' educational attainment expectations).

Present study findings are contrary to the findings of Mello et al. (2012), which suggested more variability in trajectories of educational attainment expectations among African American girls compared to boys in a nationally representative sample of youth. Youth were in the same birth cohort for the present study as compared to participants from Mello et al. (2012). A possible explanation for these differences in findings is that Mello et al. measured expectations when students were 14, 16, and 18 years of age, and therefore their trajectories did not capture the transition from middle school to high school. It is possible that greater stability among boys may emerge only in high school due to a gender differences in assignment to school tracks. Literature suggests that girls aspire more than boys to college-preparatory academic tracks, but rigidity of tracking by gender has not been investigated (Buchmann & Dalton, 2002; Trusty & Niles, 2004). It is possible that girls are afforded more flexibility in course selection than boys on average. Teachers tend to view boys less favorably than girls in Grades K-5, but to my knowledge, this has not been investigated in adolescence (Matthews, Kizzie, Rowley, & Cortina, 2010). Expectations capture student certainty about the future, the gap between aspirations and expectations present a way to quantify student *uncertainty* about future educational attainment.

In the next section, I explore findings regarding the gap between students' aspirations and their expectations.

Aspiration-Expectation Gap in Black Youth

Prior studies examining developmental change in the gap between students' educational aspirations and their expectations from Grade 2 to Grade 8 showed the gap to be stable over time, with a trend toward a widening gap in low-SES Black youth (Cook et al., 1996). However, no prior research has examined trends in this gap across adolescence, a critical time for student decision-making about course-taking, extracurricular involvement, and other college preparatory activities. Further, to the best of the author's knowledge, the present study is the first to connect these trajectories (i.e., not *levels* of *expectations*, but rather *changes* in the *gap* between aspirations and expectations) to actual educational attainment outcomes.

No predictions were made about changes in incongruence of aspirations and expectations over time, but results showed there were significant individual differences in Grade 7 gap scores, and the average trend was a slight but statistically meaningful drop over time, indicating that students on average are bringing their aspirations in line with expectations. Modeling expectations and aspirations separately, the data suggested that both students' aspirations and expectations declined on average, but the decline in aspirations was steeper than the decline in expectations. Given the fairly rigid structure and timing of college preparation in high school, narrowing of the gap over time is not surprising. Although GPA was a significant predictor of Grade 7 gaps, grades were not a predictor of the decline. Finally, students with smaller gaps or steeper declines in gaps were more likely to be enrolled in college one year post-secondary. The effect disappeared by three years post-secondary, well into young adulthood.

Compared to higher-SES peers, students from low SES backgrounds showed bigger gaps between aspirations and expectations in Grade 7, as hypothesized. This result supports Boxer et al.'s (2010) assertion that socioeconomic status is one of the strongest factors associated with aspiration-expectation incongruence. The cost of higher education in the United States can be a significant burden for families, limiting the likelihood that low-income youth can realistically expect to matriculate.

The aspiration-expectation gap did not differ by gender, and the hypothesis that low SES boys would show greater incongruence than girls was not supported, as the reverse was true in Grade 7. On average, low SES girls had the largest gap in Grade 7 compared to all groups, and the steepest decline in that gap over time. Low SES boys showed a smaller gap than low SES girls in Grade 7, with little to no change over time. In spite of group differences, it should be noted that in Grade 7, mean aspirations and expectations for all income by gender groups were at or above completing a 4-year degree, and the aspiration-expectation gap was a poor predictor of educational attainment outcomes overall. Although not a predictor of attainment outcomes, the gap might be important for mental health outcomes among students, particularly if youth are experiencing fewer indications that they are likely to achieve their goals. Teachers are a primary socializing agent in the school setting; in the next section I explore results regarding effects of an admired adult at school.

Admired Adult at School and the Development of Educational Attainment Expectations

In the present study, the role of school-based adult social support was examined as a social-contextual factor contributing to the development of educational attainment expectation trajectories. The proposed admired adult latent growth curve model and parallel processes model were developed based on theory and research on the topic of student-teacher relationships.

Empirical evidence suggests a buffering role of high teacher expectations in the schooling context for fostering motivation (Gregory & Huang, 2013; Wood et al., 2007). Students' supportive relationships with adults at school are predictive of motivational outcomes such as classroom engagement, and school support is thought to fulfill adolescent needs for autonomy, competence, and relatedness (Furrer & Skinner, 2003; Roeser, Eccles & Sameroff, 2000; Skinner & Pitzer, 2012). Evidence from the current study suggests that presence of an admired adult at school in Grade 7 is positively related to students' educational attainment expectations, over and above variation linked to student gender, income, and GPA. The hypothesis suggesting that this effect would be influential for trajectories across the transition to high school was not supported.

There are several possible explanations for the fade-out of this effect. Across the transition to high school students' peer relationships become important for academic achievement, a great deal of cognitive development occurs with the restructuring of the prefrontal cortex, and adolescents may undergo identity development processes across multiple domains (e.g., Arnett, 2015; Rambaran, Hopmeyer, Steglich, Badaly, & Veenstra, 2017; Steinberg, 2005). Moreover, the continuous presence of role models may be necessary to maintain a positive effect on educational expectations rather than continued effects due to an admired adult known to the child in Grade 7. Other "third variable" explanations may also capture the observed effect of admired adult, including the fact that students who reported "yes" to the presence of an admired adult at school may be attending a higher quality school in Grade 7 than students who did not report an admired adult. Another limitation in the use of this measure is that it is unknown why students have admiration for the self-identified admired adult. As an extension of this study, it would be useful to analyze information on the qualities the student

seeks in his or her adult mentors, providing insight into the types of support and adult behaviors that foster positive educational attainment expectations.

For students who did report the presence of an admired adult in Grade 7, level of perceived care from that adult was included as a predictor. Contrary to hypotheses, the extent of felt support from the admired adult did not predict higher educational expectations above the effect of presence of an admired adult. The measure had considerable variability, meeting normality of distribution assumptions, so a potential skew based on those who reported an admired adult was ruled out. No more than 12% of the variability in educational attainment expectations slopes was captured by any model under investigation, suggesting that while social group membership and presence of an admired adult in Grade 7 may be a correlate of expectations, these variables together are not explaining a large amount of the rich variability observed in the data, nor the apparent robustness of expectations the majority of students hold for future college attendance.

Adult Social Capital and Educational Attainment Expectations as Parallel Processes

To begin to investigate a causal association between students' perceptions of adult social support for personal and social problems experienced at school and educational attainment expectations, the unconditional latent trajectory of students' perceptions of that social capital first had to be modeled independently. I expected a similar kind of variability as was seen with expectations, but such variation was not supported by the data. There was significant variability in students' perceptions of support reported in Grade 7, but the intercept and slope were uncorrelated: Starting values were unrelated to change over time. In fact, students' perceptions of adult social capital fell from Grade 7 to Grade 11, almost uniformly at the same rate, and there was no meaningful variability in slopes. The mean intercept value showed students endorsing the

midpoint value of perceiving support "about half the time," and this value fell to closer to "not too often" by the end of Grade 11. This result in and of itself is a notable finding, as students' general perceptions of adult social capital in schools had not been modeled longitudinally among Black youth.

It is unclear if students' perceptions of adult social support are reflective of overall school climate or of a particular adult or set of adults in the school. School climate is a significant predictor of mental health, school adjustment, and self-esteem among students of color (Demarary et al., 2005; Way & Robinson, 2003), whereas support that is specifically from teachers is related to school identification and engagement (Wang & Eccles, 2012). Furthermore, students who perceive positive attitudes from teachers and staff about race report higher intrinsic motivation, as do students who report high levels of racial identity-context congruence at school (Brand et al., 2003; Byrd & Chavous, 2011). In each of these studies, proximal motivational constructs were measured, which are linked to academic achievement and attainment outcomes (Brand et al., 2003; Byrd & Chavous, 2011; Wang & Eccles, 2012). In addition, Perna (2000) found that social capital was particularly important for African American students' decision to attend a 4-year college, but the reported social capital was from a variety of sources. The potential causal impact of perceptions of adult social capital at school on student educational attainment expectations was explicitly modeled in the present study, to link social support at school over time to changes in educational attainment expectations over time.

Given the robustness of college-going expectations and the variability in those trajectories, this evidence already indicated that the two process model (educational attainment expectations and student perceptions of adults at school) would not be as expected. Any maintenance of high educational attainment expectations among students appears to be in spite

of perceptions of social capital, rather than students being supported or buffered by this particular type of social capital. Family systems scholars that parental and family involvement tend to be of greatest importance to African American students' college preparation and enrollment success (Perna & Titus, 2005; Tierny & Aurbach, 2005). Nonetheless, evidence suggesting that teachers do have an impact (Gregory & Huang, 2013; Perez-Felkner, 2013) and low perceptions of support and lack of variability in students' perceptions of teachers in the present sample preclude conclusions of positive impact.

These findings raise a number of questions for future research. First, most of the literature on student-teacher relationships has focused on early childhood and has substantiated linkages to behavioral and mental health outcomes much more robustly than to academic outcomes (e.g., Hamre & Pianta, 2001; Hughs & Kwok, 2012; Meehan et al., 2003). Another notable finding from early childhood studies is that conflict with teachers more strongly predicts negative outcomes than support predicts positive outcomes (Hamre & Pianta, 2001). When acting as a buffer, the role of teacher support seems to be to lessen negative behaviors, not necessarily foster positive ones (Meehan et al., 2003). Due to changes in the brain (e.g., lower levels of regulatory activity in the amygdala in early adolescence), the middle and high school years may be a developmental period during which conflict may be more salient to students than positive interactions (Swartz, Carrasco, Wiggins, Thomason, & Monk, 2014). It is possible that negative experiences are more emotionally laden, and positive experiences with teachers are not as rewarding for the teen brain. Student reports of negative social experiences with adults in the schooling context may be a better (negative) predictor of student educational expectations than positive experiences (Baker et al., 2008).

The meaning of adult social support or social capital may vary over time, as well as across cultures and subcultures. For example, students may read the measure "When you have a social/personal problem at school, how often can you depend on your teachers to help you out", and interpret this statement in a number of ways. One interpretation may be direct help, such as interceding on a student's behalf, which could be developmentally inappropriate for a teen who is gaining more autonomy and problem solving skills, particularly if the social problem involves peers (Eccles et al., 1997). The perceived help might be in the form of counsel or changes in school policy, which are qualitatively different from perceptions of support.

The adult social capital measure in the present study accounts for student perceptions, rather than teacher reports of support given, which is a methodological strength; however, it does not specify the types of supports, behavioral or emotional, that may be important for student motivational outcomes and be appropriate for the social and cultural background of the student. Bottiani, Bradshaw, and Mendelson (2016) identified a three-factor model of adult support at school to assess race differences in perceptions of school support among students in a statewide assessment in Maryland. The three dimensions were caring, high expectations, and equity, with caring mapping onto the present study. Black students reported lower perceived caring than White students, and reports of caring were not related to school racial diversity or school SES (Bottiani et al., 2016). This result supports the conclusion that findings from the present study are not likely masked by a major school-level effect. In future work, I would like to identify and measure teacher behavioral and emotional supports that are intrusive or culturally inappropriate, in order to illuminate targets for teacher training in culturally-responsive support for student educational goals.

Finally, as already mentioned, family processes may be much more important for some students than social capital at school for solving social and personal problems, even when such problems occur at school. Whether or not a student turns to an adult at school for help could also be the function of the type of social or personal problem. Problems related to racial and gender discrimination, for example, may be more difficult for students to report or talk about with adults in the school system, whereas some parents may regularly racially socialize their children as a compensatory strategy with positive academic and motivational benefits (e.g, Neblett, Philip, Cogburn, & Sellers, 2006). In the next section, I discuss findings related to students' perceptions of racial and gender barriers to educational goals.

Perceived Barriers to Educational Attainment due to Race and Gender

Hypotheses regarding changes in students' perceptions of educational attainment barriers due to race and gender from Grade 8 to Grade 11 were partially supported. Perceptions of barriers due to race increased from Grade 8 to Grade 11 for all gender and income groups, except low-income girls, whose perceptions of racial barriers decreased. A possible explanation for the unexpected result for low-income girls is that these students may view socioeconomic status as the most salient barrier to educational attainment. For low-income boys, who are least represented in higher education, their views of barriers due to race and due to socioeconomic status may both be salient, or race might be more salient. For all gender and income groups, perceptions of barriers due to gender fell from Grade 8 to Grade 11. This result was contrary to the hypotheses. One way to provide insight into the intersectional nature of these barriers would be to develop a measure to tease apart students' perceptions of the barriers themselves (i.e., cost, social support, sufficient academic credentials for admittance) and their perceptions of the causes of those barriers (i.e., poverty, racism, opportunity).

The link between perceived barriers and educational attainment among Black youth has had mixed support in the literature, with some research showing no association among youth of all income levels (Harris, 2008), and some showing a negative association, but only among middle income youth (Wood et al., 2011). Results from the present study add more perplexing findings: Grade 8 perceptions of barriers due to racial discrimination were negatively predictive of college enrollment 1- year post-secondary for low income girls, positively predictive of college enrollment for a subset of middle income boys, and not at all predictive for any other group. Grade 11 perceptions of barriers due to racial discrimination were positively predictive of college enrollment for a subset of middle-income boys, and not at all predictive for any other group. In some circumstances, youth might respond to perceptions of barriers with hopelessness and the decision to not pursue higher education, some may not experience the deleterious impact of barrier awareness through race socialization processes (Neblett et al., 2008), and others might be motivated to work harder than ever in order to surmount those barriers (Carter, 2008; Sanders 1997).

Taken together, the mixed findings point to a need for more precise measurement and theory. Claims that awareness of racial barriers undermines academic achievement (e.g., Smith, et al., 2003) have been countered by other research indicating that youths' critical awareness, when accompanied by perceived efficacy about their capacity to overcome racial injustice, serves to empower youth to sustain academic excellence (Diemer & Blustein, 2006). The present study results suggest that gender and socioeconomic status moderate the relationship between perceived barriers and actual college enrollment; however, gender and socioeconomic status are proxies for more nuanced life experiences, potentially related to students' perceptions of agency and empowerment.

Evidence also suggests that students' perceptions of gender barriers are not related to their educational attainment expectations, except among high-income girls, whose perceptions of gender barriers positively predicted expectations. Capacity building features of the educational environment might better explain both higher educational expectations and higher educational attainment among youth who have high awareness of barriers. Capacity building in the form of intentional community-research partnerships to identify community-specific needs have long been used successfully in health initiatives and preventative medicine, as well as educational development programs such as the US Peace Corps (Baker, Homan, Schonhoff, & Kreuger, 1999; US Peace Corps, 1996). Strategies co-developed by researchers and community members to overcome barriers must be present in addition to knowledge of the barriers in order to result in positive outcomes.

Limitations and Future Directions

Measurement and study design are limitations inherent in secondary data analysis. It is unclear how students were interpreting the single-item measure regarding educational attainment. Single-item measures for this construct have been used ubiquitously in national educational datasets (e.g., Mello et al., 2012; Zhang et al. 2011). Nonetheless, future research with multi-item psychometrics would provide valuable insight into the dynamics of student academic self-schemas. For example, the single item did not permit students to distinguish among levels of expectations (i.e., very high confidence versus lower confidence in completion of a certain level of education). Moreover, the present study only assessed educational attainment expectations with a single item on three occasions across adolescence, which were not selectively spaced. Students may be vulnerable to changes in educational expectations at the

close of semester or quarter ends when grades are reported, as well as during periods of course selection, or upon learning the cost of attending an institution of interest.

Microgenetic research design has clear advantages over longitudinal design for understanding the impact of academic setbacks on a great number of student academic beliefs and behaviors related to the maintenance of educational attainment expectations. The process of resolving hoped for and possible selves at vulnerable times, as conceptualized in self-schema theory, is largely unexamined within socio-cultural context. Oyserman and colleagues (2006) demonstrated a successful intervention strategy based on self-schema theory that fostered academic motivation among low-income minority teens. A fruitful avenue for research could be examining successful parenting strategies already employed by parents of Black students, including the provision of role models, the normalization of failure on the way to success, and articulation of explicit strategies to achieve goals that account for students' lived experiences within a socially stratified society.

Peculiarities of the MADIC dataset are a limitation as well. First, the use of a 1990s cohort may not reflect student perceptions today. Schools in Prince George's County, Maryland are much more racially segregated now than in the early 1990s, when racial integration legislation was enforced. Such legislation had been a regular occurrence since the 1970s (*Swann v. Charlotte-Mecklenburg Board of Education*, 402 U.S. 1, 1971). A constitutional challenge to the teacher-transfer program designed to desegregate was pursued by 12 county teachers in 1993, who were among 35 teachers who had been involuntarily transferred under the county system (Eaton & Crutcher, 1996; Murphy Plan, 1985).Although the teachers were transferred, many cases were brought before the court on the topic of integration complaints, and integration efforts have decreased over the years due to lack of funding efforts from the state (Ayscue, 2013).

In 1993, Black teachers made up about one-fourth of the county's 6,000 teachers, and the student body was predominately Black. This disproportionality is still true today. According to Census data, in 1990, 25% of Prince George's neighborhoods were more than 85% Black, a percentage demographers consider a high level of segregation. Today, 27% of neighborhoods are more than 85% Black. Data from the state of Maryland last year corroborate the present study findings, suggesting that Black adolescents still have relatively low perceptions of care from their predominately White teachers (Bottiani et al., 2016). Finally, attrition between Grade 11 and the 1-year post-secondary time point is of concern for interpreting college enrollment as an outcome; only 56% of the original sample responded, and they were disproportionately female.

Whereas gender and income were both included to capture sociodemographic variability within race, the categories themselves are still quite crude for understanding the psychological impact of social stratification. Changes in income over time were not captured. Measures such as subjective social status and similar intersubjective experiences may be better indicators to move beyond sociodemographic risk. As stated by Spencer, Dupree, & Hartmann (1997), describing the Phenomenological Variant of Ecological Systems Theory (PVEST):

> "It is not merely the experience but one's perception of experiences in different cultural contexts that influences how one perceives oneself. Perceptual processes are dependent upon social–cognitive processes which aid in explaining the developmental variations in response. Consequent meaning making processes include responsive coping methods or corrective problem-solving strategies pursued" (p. 817)

In spite of these limitations, the present study contributes empirical evidence to support the incorporation of social-cognitive processes into developmental theories of motivation. Differential treatment and systemic inequalities within the socially stratified United States have implications for student-teacher interactions within the school system and the pathways through which students develop academic identities and goals.

Table 1.

MADIC Study Data Collection Timetable

			Informants		
Wave	Year	Grade in School	Student	PCG	SCG
1*	1991	Grade 7 (Beginning)	X	X	X
2	1992	Summer after Grade 7	X	X	
3*	1993	Grade 8	X	X	X
3T	1993	Summer after Grade 8		X	
4*	1996	Grade 11	X	X	
5*	1998	1 year postsecondary	X		
6*	2000	3 years postsecondary	X		

*Measures from these waves included in the current study
PCG= Primary Caregiver
SCG= Secondary Caregiver

Table 2.

Means, Standard Deviations, and Bivariate Correlations of Key Aim 1 Variables (N = 918)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Grade 7 Expectations	5.78	1.77	1								
2. Grade 8 Expectations	5.99	1.64	**.456***	1							
3. Grade 11 Expectations	5.30	1.84	**.272***	**.370***	1						
4. Gender	1.53	.50	**-.081***	**-.159***	**-.188***	1					
5. Income	2.57	1.06	**.198***	**.240***	**.178***	-.012	1				
6. College Enrollment 1-yr. post-secondary	1.41	.492	**-.225***	**-.295***	**-.367***	.095	**-.317***	1			
7. College Enrollment 3-yrs. Post-secondary	1.48	.50	**-.246***	**-.325***	**-.304***	**.130***	**-.299***	**.723***	1		
8. Confidence in graduating from college	4.73	1.82	.145	.139	**.248***	**-.248***	-.064	---	-.074	1	
9. GPA	3.43	.77	.**242***	**.335***	**.309***	**-.336***	**-.169***	**-**.039	**-.454***	**-.46***	1

*** p<.05**

***Note**:*

Expectations: 1-8 scale (6= graduate from 4-year college)
Gender: 1 = female, 2 = male
Income: 1= Poverty line or below for household size
2= $25,000-$39,999
3= $40,000- $64,999
4= $65,000+

College Enrollment: 1=Yes, full-time, 2=No

Confidence in completing college: 1-5 scale (5=Very likely)

Table 3.

Educational Attainment Means by Gender and Income

Girls	**Cell Size**	**Mean**	**SD**	**Boys**	**Cell Size**	**Mean**	**SD**
Income Level				Income Level			
Poverty	**n=83**			Poverty	**n=93**		
Grade 7 Expectations		5.22	.75	Grade 7 Expectations		5.23	1.78
Grade 8 Expectations		5.81	1.87	Grade 8 Expectations		5.04	1.91
Grade 11 Expectations		5.31	1.99	Grade 11 Expectations		4.29	2.28
$25,000-$39,999	**n=98**			$25,000-$39,999	**n=111**		
Grade 7 Expectations		5.70	1.97	Grade 7 Expectations		5.64	1.78
Grade 8 Expectations		5.86	1.67	Grade 8 Expectations		5.60	1.50
Grade 11 Expectations		5.62	1.91	Grade 11 Expectations		4.82	1.76
$40,000-$64,999	**n=123**			$40,000-$64,999	**n=138**		
Grade 7 Expectations		6.13	1.57	Grade 7 Expectations		5.57	1.60
Grade 8 Expectations		6.36	1.67	Grade 8 Expectations		5.98	1.49
Grade 11 Expectations		5.78	1.50	Grade 11 Expectations		5.04	1.75
$65,000+	**n=99**			$65,000+	**n=103**		
Grade 7 Expectations		6.42	1.77	Grade 7 Expectations		6.13	1.28
Grade 8 Expectations		6.91	1.38	Grade 8 Expectations		6.12	1.19
Grade 11 Expectations		5.97	1.47	Grade 11 Expectations		5.63	1.54

Table 4.

Fit Indices for GMM Class Solutions

No. of Latent Classes	BIC	AIC	Entropy	LMR-LRT	BLRT
1	8569.203	8530.652	---	---	---
2	8415.510	8362.501	.872	p<.001	p<.001
3	8415.269	8347.804	.846	p=.014	p<.001
4	**8187.793**	**8105.871**	**.903**	**p<.001**	**p<.001**
5*	8197.441	8101.062	.885	p=.13	p=.05

*The 5 latent class model did not have a final stage log-likelihood value that was replicated, in spite of increasing start values from STARTS= 20 4 to STARTS= 800 160. The class 5 estimates must be interpreted with caution.

Decreasing values of the Bayesian Information Criterion (BIC) and Akaike information criterion (AIC) indicate better fit, indicating balance of model complexity with goodness-of-fit.

Entropy indicates average classification accuracy. A value below .8 was considered unacceptable, and values closer to 1 are best.

LMR-LRT and BLRT are a direct comparison of nested models. A value of p<.05 indicates the *k*-1 class model should be rejected in favor of the *k* class model.

Table 5.

Model Estimated Latent Intercept and Slope Factors for each Latent Class

	Percent of Sample (N)	Intercept Est. (S.E.)	Slope Est. (S.E.)
Class 1	48.4% (431)	**5.993* (.05)**	**-.16* (.026)**
Class 2	27.6% (282)	**7.662* (.038)**	**-.457* (.035)**
Class 3	11.7% (109)	**2.132 *(.058)**	**.595* (.074)**
Class 4	12.3% (93)	**4.25* (.144)**	.116 (.079)

*Significant variability in starting point and/or rate of change within class (*p*<.001)

Table 6.

Probability Scales for Class Membership by Gender and Income (0= impossible to 1=certain)

	Class 1 (High, slow dec.) *n* = 385	Class 2 (High, steep dec.) *n* = 219	Class 3 (Very low, mod. inc.) *n* = 93	Class 4 (Low, stable) *n* = 98
Gender				
Boy	41%	52%	64%	38%
Girl	59%	48%	36%	62%
Income				
Poverty	32%	15%	31%	54%
$25,000-$39,999	27%	24%	26%	31%
$40,000-$64,999	29%	33%	27%	14%
$65,000+	11%	29%	17%	0%

Table 7.

Means, Standard Deviations, and Bivariate Correlations of Key Aim 2 Variables (N = 918)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Grade 7 Asp-Exp Gap	0.904	1.48	1								
2. Grade 8 Asp-Exp Gap	0.852	1.31	**.125***	1							
3. Grade 11 Asp-Exp Gap	0.712	1.15	**.105***	**.197***	1						
4. Gender	1.52	0.50	-.013	-.001	.044	1					
5. Income	2.58	1.06	**-.107***	**-.137***	**-.10***	-.012	1				
6. College Enrollment 1-yr. post-secondary	1.41	.492	.002	**.150***	**.189***	**.095***	**-.317***	1			
7. College Enrollment 3-yrs. Post-secondary	1.48	.50	.068	**.180***	**.162***	**0.13***	**-.299***	**.723***	1		
8. Confidence in graduating from college	4.73	1.82	-.052	.00	-.07	**-.238***	-.064	---	-.074	1	
9. GPA	3.44	.869	-.062	**-.140***	**-.121***	**.334***	**.286***	**-.454***	**-.460***	**.201***	1

*** p<.05**

***Note**: Gender: 1 = female, 2 = male*
Income: 1= Poverty line or below for household size
2= $25,000-$39,999
3= $40,000- $64,999
4= $65,000

Table 8.

*Means, Standard Deviations, and Bivariate Correlations of Key Aim 3 Variables (N=*918)

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Grade 7 Expectations	5.78	1.77	1							
2. Grade 8 Expectations	5.99	1.64	**.456***	1						
3. Grade 11 Expectations	5.30	1.84	**.272***	**.370***	1					
4. Gender	1.53	.50	**-.081***	**-.159***	**-.188***	1				
5. Income	2.57	1.06	**.198***	**.240***	**.178***	-.012	1			
6. Admired Adult	1.53	0.50	-0.60	**-.092***	**-.097***	**.072***	.023	1		
7. Perceived Support from Admired Adult	4.31	0.54	.085	.057	.082	**-.137***	-.031	.092	1	
8. GPA	3.44	.869	**.231***	**.319***	**-.188***	**-.334***	**.268***	.025	.082	1

*** p<.05**

***Note**: Gender: 1 = female, 2 = male*
Income: 1= Poverty line or below for household size
2= $25,000-$39,999
3= $40,000- $64,999
4= $65,000
Admired Adult: 1 = yes, 2 = no

Table 9.

Aim 3 Predictors of Latent Educational Attainment Expectations Intercepts and Slopes (N=918)

Variable Name	Latent Intercept (S.E.)	p-value	Latent Slope (S.E.)	p-value
Gender	**-.313 (.156)**	**.044**	-.154 (.239)	.517
Income	**.215 (.045)**	**<.001**	-.040(.069)	.556
Student GPA	**.290 (.043)**	**<.001**	-.082 (.070)	.241
Admired Adult	**-.116 (.043)**	**.007**	-.012(.021)	.569
Admired Adult X Gender	.311 (.161)	.054	.025 (.248)	.919

Bolded estimates were significant

Table 10.

Aim 3 Predictors of Latent Educational Attainment Expectations Intercepts and Slopes: Only students responding "yes" to presence of admired adult (N=427)

Variable Name	Latent Intercept (S.E.)	p-value	Latent Slope (S.E.)	p-value
Gender	-.032 (.068)	.635	-.137 (.098)	.162
Income	**.204 (.069)**	**.003**	-.078(.102)	.442
Student GPA	**.246 (.071)**	**.001**	**0.290 (.106)**	**.001**
Support	0.101(.066)	.123	.010(.096)	.913

Bolded estimates were significant

Table 11.

Means, Standard Deviations, and Bivariate Correlations of Key Aim 4 Variables (N = 922)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Grade 7 Expectations	5.78	1.77	1								
2. Grade 8 Expectations	5.99	1.64	**.456***	1							
3. Grade 11 Expectations	5.30	1.84	**.272***	**.370***	1						
4. Gender	1.53	.50	**-.081***	**-.159***	**-.188***	1					
5. Income	2.57	1.06	**.198***	**.240***	**.178***	-.012	1				
6. Grade 7 Percep. of Adult Social Capital	2.82	3.13	.027	.010	.001	.020	**-.09***	1			
7. Grade 8 Percep. of Adult Social Capital	2.84	2.27	.012	.074	.070	-.069	-.001	**.274***	1		
8. Grade 11 Percep. of Adult Social Capital	2.57	1.08	.045	.073	**.128***	-.022	-.044	**.296***	**.261***	1	
9. GPA	3.44	.869	**.231***	**.319***	**-.188***	**-.334***	**.268***	.019	.045	-.073	1

*** p<.05**

***Note**: Gender: 1 = female, 2 = male*

Income: 1= Poverty line or below for household size
2= $25,000-$39,999
3= $40,000- $64,999
4= $65,000

Percep. of Adult Social Capital (1-5, 5=almost always)

Table 12.

Aim 4 Predictors of Latent Educational Attainment Expectations and Perceptions of Adult Social Capital Intercepts and Slopes

Variable Name	Latent Intercept (S.E.)	p-value	Latent Slope (S.E.)	p-value
	Educational Attainment Expectations			
Gender	-.036 (.046)	.431	-.175 (.104)	.091
Income	**.216 (.047)**	**p<.001**	-.056 (.093)	.547
Student GPA	**0.307 (.049)**	**p<.001**	0.105 (.099)	.289
	Perceptions of Adult Social Capital			
Gender	.001 (.062)	.989	-.494 (.980)	.614
Income	**-.134 (.063)**	**.034**	.408(.832)	.623
Student GPA	.028 (.067)	.672	-.516 (1.03)	.619

Bolded estimates were significant

Table 13.

Means, Standard Deviations, and Bivariate Correlations of Key Aim 5 Variables: Barriers Due to Race (N = 440)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Grade 8 Expectations	5.99	1.64	1										
2. Grade 11 Expectations	5.30	1.84	**.370***	1									
3. Grade 8 Race Disc.	1.58	.814	.085^	.071^	1								
4. Grade 11 Race Disc.	1.86	.975	**.082***	-.003	**.150***	1							
5. Grade 8 General Barrier	1.47	.50	**.159***	**.188***	**.181***	-.023	1						
6. Grade 11 General Barrier	1.73	.443	**.108***	.048	**.158***	**.093***	-.036	1					
7. Gender	.527	.50	**-.150***	**-.181***	**-.170***	.021	.003	.036	1				
8. Income	2.57	1.06	**.240***	**.178***	.038	**.086***	.012	**.142***	-.010	1			
9. GPA	3.44	.869	**.319***	**.298***	**.127***	.075^	**.334***	.050	**-.175***	**.268***	1		
10. Grade 8 Adult Percep.	.374	.484	.063	.059	.09^	-.06	**.08***	-.05	**-.087***	-.024	.023	1	
11. Grade 11 Adult Percep.	.263	.441	.078	**.113***	.051	-.083	.075^	.017	-.066	.040	-.038	**.216***	1
Outcome Variables													
12. College Enrollment 1-yr post	.59	.49	**.295***	**.367***	.038	**.143***	**.097***	.032	**-.097***	**.317***	**.454***	.025	-.03
13. College Enrollment 3yrs post	.52	.50	**.325***	**.304***	.076	**.103***	**.130***	.079	**-.123***	**.299***	**.46***	.006	-.04
14. Confidence in college compl.	4.73	1.82	.139	**.248***	.041	**.228***	**.248***	.001	**-.25***	-.06	**.2***	-.04	.01

*** p<.05**

^p<.10

Table 14.

Means, Standard Deviations, and Bivariate Correlations of Key Aim 5 Variables: Barriers Due to Gender

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Grade 8 Expectations	5.99	1.64	1										
2. Grade 11 Expectations	5.30	1.84	**.370***	1									
3. Grade 8 Gender Disc.	2.24	0.83	.010	.031	1								
4. Grade 11 Gender Disc.	1.54	.81	.030	.025	.14*	1							
5. Grade 8 General Barrier	1.11	.316	.056	**.081***	**.123***	**.092***	1						
6. Grade 11 General Barrier	1.92	.74	**.09***	.046	**.15***	**.19***	**.133***	1					
7. Gender	.527	.50	**-.150***	**-.181***	**-.14**	**-.16***	**-.22***	**-.18***	1				
8. Income	2.57	1.06	**.240***	**.178***	.05	.02	.02	.01	-.01	1			
9. GPA	3.44	.869	**.319***	**.298***	.05	**.08***	**.09***	.07^	**-.33***	**.268***	1		
10. Grade 8 Adult Percep.	.374	.484	.063	.059	-.01	-.01	-.01	.03	**-.087***	-.024	.023	1	
11. Grade 11 Adult Percep.	.263	.441	.078	**.113***	**.14***	-.06	-.02	.05	-.066	.040	-.038	**.216***	1
<u>Outcome Variables</u>													
12. College Enrollment 1-yr post	.59	.49	**.295***	**.367***	.027	.06	.07	**.113***	**-.097***	**.317***	**.454***	.025	-.03
13. College Enrollment 3yrs post	.52	.50	**.325***	**.304***	.028	.05	**.132***	.026	**.123***	**.299***	**.46***	.006	-.04
14. Confidence in college compl.	4.73	1.82	.139	**.248***	.10	**.32***	.17	.12	**-.25***	-.06	**.2***	-.04	.01

*** p<.05**

^p<.10

Table 15.

Girls' Perceptions of Racial Discrimination as a Barrier to Educational Attainment in Grades 8 and 11

Group	Grade Level	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Girls below Poverty Line **(n=42)**					
	Grade 8	1.71	.118	1.48	1.16
	Grade 11	1.45	.149	1.16	1.75
Girls $25,000-$39,999 **(n=53)**					
	Grade 8	1.57	.105	1.36	1.77
	Grade 11	1.79	.132	1.53	2.05
Girls $40,000-$64,000 **(n=67)**					
	Grade 8	1.73	.093	1.59	1.91
	Grade 11	1.81	.118	1.57	2.04
Girls $65,000+ **(n=55)**					
	Grade 8	1.73	.093	1.59	1.91
	Grade 11	1.81	.118	1.57	2.04

Note: Racial discrimination as a barrier to educational attainment was measured on a 5-point scale.

Table 16.

Boys' Perceptions of Racial Discrimination as a Barrier to Educational Attainment in Grades 8 and 11

Group	Grade Level	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Boys below Poverty Line		**(n=32)**			
	Grade 8	1.34	.135	1.08	1.61
	Grade 11	1.91	.170	1.57	2.24
Boys $25,000-$39,999		**(n=49)**			
	Grade 8	1.55	.109	1.36	1.77
	Grade 11	2.02	.138	1.75	2.29
Boys $40,000-$64,000		**(n=83)**			
	Grade 8	1.39	.084	1.19	1.51
	Grade 11	1.81	.106	1.60	2.01
Boys $65,000+		**(n=59)**			
	Grade 8	1.49	.099	1.30	1.69
	Grade 11	1.97	.126	1.71	2.21

Note: Racial discrimination as a barrier to educational attainment was measured on a 5-point scale.

Table 17.

Path Estimates for Grade 8 Perceptions of Race Discrimination, Grade 11 Educational Expectations, and College Enrollment 1- year post-secondary

Group	**Path**	**Standardized Est.(S.E.)**	**P-Value**
1= Poverty line or below for household size			
Girls			
	G8RDis→G11Exp	.19 (.135)	.158
	G8RDis→Coll5	**-.259* (.132)**	**.05**
	G11Exp→Coll5	.152 (.133)	.253
Control	GPA→Coll5	**.456* (.14)**	**.001**
Control	Pedu→Coll5	**.368*(.13)**	**.005**
Boys			
	G8RDis→G11Exp	-.287^ (.148)	.053
	G8RDis→Coll5	-.031 (.257)	.611
	G11Exp→Coll5	.109 (.215)	.903
Control	GPA→Coll5	.01 (.237)	.967
Control	Pedu→Coll5	.345(.13)	.192

Group	Path	Standardized Est.(S.E.)	P-Value
2= $25,000-$39,999			
Girls			
	G8RDis→G11Exp	-.124 (.13)	.337
	G8RDis→Coll5	.082 (.147)	.578
	G11Exp→Coll5	**.435* (.112)**	**<.001**
Control	GPA→Coll5	.157 (.115)	.172
Control	Pedu→Coll5	**.326* (.13)**	**.011**
Boys			
	G8RDis→G11Exp	.033 (.142)	.818
	G8RDis→Coll5	-.07 (.15)	.657
	G11Exp→Coll5	.291 (.169)	.086
Control	GPA→Coll5	**.31* (.138)**	**.024**
Control	Pedu→Coll5	.239(.15)	.11
3= $40,000- $64,999			
Girls			
	G8RDis→G11Exp	0.06 (.119)	.610
	G8RDis→Coll5	.033 (.099)	.740
	G11Exp→Coll5	**.169* (.094)**	**.037**
Control	GPA→Coll5	**.474* (.095)**	**p<.001**
Control	Pedu→Coll5	**.299* (.12)**	**.012**

Group	Path	Standardized Est.(S.E.)	P-Value
Boys			
	G8RDis→G11Exp	-0.51 (.116)	.662
	G8RDis→Coll5	**.315* (.112)**	**.005**
	G11Exp→Coll5	**.226* (.10)**	**.025**
Control	GPA→Coll5	**.317* (.101)**	**.002**
Control	Pedu→Coll5	**.390* (.119)**	**.001**

4= $65,000+

Girls

Girls

	G8RDis→G11Exp	0.096 (.133)	.471
	G8RDis→Coll5	-.07 (.123)	.567
	G11Exp→Coll5	**.360* (.117)**	**.002**
Control	GPA→Coll5	**.284* (.124)**	**.022**
Control	Pedu→Coll5	.195 (.124)	.116

Boys

	G8RDis→G11Exp	.031 (.144)	.827
	G8RDis→Coll5	.127 (.164)	.438
	G11Exp→Coll5	.024 (.128)	.06^
Control	GPA→Coll5	**.432* (.109)**	**p<.001**
Control	Pedu→Coll5	**.445* (.179)**	**.013**

Table 18.
Path Estimates for Grade 8 Perceptions of Race Discrimination, Grade 11 Educational Expectations, and College Enrollment 3-years post-secondary

Group	**Path**	**Standardized Est.(S.E.)**	**P-Value**
1= Poverty line or below for household size			
Girls			
	G8RDis→G11Exp	.170 (.138)	.22
	G8RDis→Coll6	-.026 (.178)	.882
	G11Exp→Coll6	.018 (.15)	.907
Control	GPA→Coll6	.298^ (.157)	.058
Control	Pedu→Coll6	**.440*(.128)**	**.001**
Boys			
	G8RDis→G11Exp	-.292^ (.154)	.057
	G8RDis→Coll6	.002 (.602)	.998
	G11Exp→Coll6	.219 (.227)	.334
Control	GPA→Coll6	.209 (.162)	.196
Control	Pedu→Coll6	.372^ (.216)	.085

Group	Path	Standardized Est.(S.E.)	P-Value
2= $25,000-$39,999			
Girls			
	G8RDis→G11Exp	-.109 (.130)	.401
	G8RDis→Coll6	.055 (.123)	.655
	G11Exp→Coll6	.198 ^(.12)	.098
Control	GPA→Coll6	**.258* (.105)**	**.014**
Control	Pedu→Coll6	**.562*(.094)**	**p<.001**
Boys			
	G8RDis→G11Exp	.048 (.140)	.732
	G8RDis→Coll6	-.195 (.139)	.161
	G11Exp→Coll6	.219 (.144)	.129
Control	GPA→Coll6	.133 (.138)	.333
Control	Pedu→Coll6	**.483* (.122)**	**p<.001**

Group	Path	Standardized Est.(S.E.)	P-Value
3= $40,000- $64,999			
Girls			
	G8RDis→G11Exp	.062 (.119)	.605
	G8RDis→Coll6	-.014 (.096)	.885
	G11Exp→Coll6	**.202* (.098)**	**.030**
Control	GPA→Coll6	**.398* (.097)**	**p<.001**
Control	Pedu→Coll6	**.450*(.097)**	**p<.001**
Boys			
	G8RDis→G11Exp	-.017 (.119)	.883
	G8RDis→Coll6	.09 (.11)	.411
	G11Exp→Coll6	**.234* (.144)**	**.020**
Control	GPA→Coll6	**.353* (.113)**	**.002**
Control	Pedu→Coll6	**.442* (.122)**	**p<.001**

Group	Path	Standardized Est.(S.E.)	P-Value
4= $65,000+			
Girls			
	G8RDis→G11Exp	.096 (.133)	.473
	G8RDis→Coll6	-.001 (.140)	.996
	G11Exp→Coll6	.123 (143)	.389
Control	GPA→Coll6	.187 (.127)	.141
Control	Pedu→Coll6	**.320*(.121)**	**.008**
Boys			
	G8RDis→G11Exp	.054 (.141)	.701
	G8RDis→Coll6	-.69 (.206)	.738
	G11Exp→Coll6	.138 (.188)	.464
Control	GPA→Coll6	**.324* (.149)**	**.029**
Control	Pedu→Coll6	.140* (.175)	.423

Table 19.

Path Estimates for Grade 11 Perceptions of Gender Discrimination, Grade 11 Educational Expectations, and College Enrollment 1-year post-secondary

Group	**Path**	**Standardized Est.**	**P-Value**
1= Poverty line or below			
Girls			
	G11GDis→G11Exp	.127 (.134)	.347
	G11GDis→Coll5	.023 (.13)	.857
	G11Exp→Coll5	.153 (132)	.248
Control	GPA→Coll5	**.432* (.127)**	**.004**
Control	Pedu→Coll5	.195 (.129)	.130
Boys			
	G11GDis→G11Exp	-.33^ (.126)	.009
	G11GDis→Coll5	.151 (.308)	.625
	G11Exp→Coll5	.146 (.244)	.551
Control	GPA→Coll5	-.05 (.203)	.804
Control	Pedu→Coll5	.289^(.157)	.066

Group	Path	Standardized Est.	P-Value
2= $25,000-$39,999			
Girls			
	G11GDis→G11Exp	-.037 (.123)	.764
	G11GDis→Coll5	-.115 (.114)	.314
	G11Exp→Coll5	**.446* (.107)**	**p<.001**
Control	GPA→Coll5	.196^ (.114)	.085
Control	Pedu→Coll5	.158 (.113)	.164
Boys			
	G11GDis→G11Exp	.044 (.128)	.733
	G11GDis→Coll5	**.266* (.122)**	**.029**
	G11Exp→Coll5	**.363* (.145)**	**.021**
Control	GPA→Coll5	**.296* (.131)**	**.024**
Control	Pedu→Coll5	.016 (.131)	.900

Group	Path	Standardized Est.	P-Value
3= $40,000- $64,999			
Girls			
	G11GDis→G11Exp	-.110 (.125)	.379
	G11GDis→Coll5	.044 (.110)	.689
	G11Exp→Coll5	**.225* (.095)**	**.081**
Control	GPA→Coll5	**.509* (.089)**	**p<.001**
Control	Pedu→Coll5	.115 (.104)	.272
Boys			
	G11GDis→G11Exp	-.199^ (.111)	.071
	G11GDis→Coll5	.101 (.120)	.400
	G11Exp→Coll5	**.272* (.113)**	**.017**
Control	GPA→Coll5	**.364* (.105)**	**.001**
Control	Pedu→Coll5	-.002 (.110)	.989

Group	Path	Standardized Est.	P-Value
4= $65,000+			
Girls			
	G11GDis→G11Exp	**.284* (.115)**	**.013**
	G11GDis→Coll5	-.047 (.146)	.747
	G11Exp→Coll5	**.387* (.120)**	**.001**
Control	GPA→Coll5	**.302* (.117)**	**.010**
Control	Pedu→Coll5	-.089 (.125)	.479
Boys			
	G11GDis→G11Exp	.143 (.128)	.262
	G11GDis→Coll5	-.006 (.136)	.966
	G11Exp→Coll5	.240^ (.132)	.07
Control	GPA→Coll5	**.364* (.105)**	**.001**
Control	Pedu→Coll5	**.476* (.107)**	**p<.001**

Table 20.

Girls' Perceptions of Gender Discrimination as a Barrier to Educational Attainment in Grades 8 and 11

Group	Grade Level	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Girls below Poverty Line **(n=42)**					
	Grade 8	2.30	.119	2.07	2.54
	Grade 11	1.61	.122	1.37	1.85
Girls $25,000-$39,999 **(n=53)**					
	Grade 8	2.05	.104	1.85	2.26
	Grade 11	1.78	.107	1.57	1.99
Girls $40,000-$64,000 **(n=67)**					
	Grade 8	2.55	.096	2.36	2.74
	Grade 11	1.65	.098	1.45	1.84
Girls $65,000+ **(n=55)**					
	Grade 8	2.56	.105	2.35	2.77
	Grade 11	1.85	.108	1.46	1.84

Note: Gender discrimination as a barrier to educational attainment was measured on a 5-point scale.

Table 21.

Boys' Perceptions of Gender Discrimination as a Barrier to Educational Attainment in Grades 8 and 11

Group	Grade Level	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Boys below Poverty Line		**(n=32)**			
	Grade 8	2.27	.133	2.01	2.53
	Grade 11	1.41	.136	1.14	1.67
Boys $25,000-$39,999		**(n=49)**			
	Grade 8	1.87	.110	1.65	2.09
	Grade 11	1.50	.113	1.28	1.72
Boys $40,000-$64,000		**(n=83)**			
	Grade 8	2.06	.088	1.89	2.23
	Grade 11	1.40	.090	1.22	1.58
Boys $65,000+		**(n=59)**			
	Grade 8	2.13	.101	1.93	2.32
	Grade 11	1.34	.103	1.14	1.55

Note: Gender discrimination as a barrier to educational attainment was measured on a 5-point scale.

Table 22.

Means and Standard Deviations of Key Variables as a function of Wave 5 Participation

	Participated in Wave 5 (N=502) Mean (Std. Dev.)	Did not participate in Wave 5 (N=418) Mean (Std. Dev.)
1. Grade 7 Expectations*	**5.89 (1.68)**	**5.63 (1.87)**
2. Grade 8 Expectations*	**6.10 (1.56)**	**5.80 (1.75)**
3. Grade 11 Expectations*	**5.44 (1.78)**	**5.02 (1.93)**
4. Income*	**2.67 (1.05)**	**2.45 (1.07)**
5. Gender*	**1.42 (.49)**	**1.66 (.47)**
6. Grade 7 Aspirations*	**6.77 (1.50)**	**6.54 (1.67)**
7. Grade 8 Aspirations	6.87 (1.34)	6.79 (1.48)
8. Grade 11 Aspirations	6.05 (1.51)	5.92 (1.66)
9. GPA*	**3.65 (.85)**	**3.18 (.83)**
10. Parent Education*	**4.75 (2.07)**	**3.86 (2.11)**
11. Grade 8 Race Disc.	1.61 (.82)	1.51 (.80)
12. Grade 11 Race Disc.	1.87 (.99)	1.84 (.97)
13. Grade 8 Gender Disc.	2.27 (.86)	2.17 (.74)
14. Grade 11 Gender Disc.	1.58 (.84)	1.48 (.74)

***Between Group Comparison p<.05**

Table 23.

Means and Standard Deviations of Key Variables as a function of Wave 6 Participation

	Participated in Wave 6 (N=483) Mean (Std. Dev.)	Did not participate in Wave 6 (N=437) Mean (Std. Dev.)
1. Grade 7 Expectations	5.83 (1.77)	5.70 (1.78)
2. Grade 8 Expectations*	**6.14 (1.57)**	**5.80 (1.71)**
3. Grade 11 Expectations*	**5.59 (1.70)**	**4.83 (1.96)**
4. Income*	**2.65 (1.04)**	**2.48 (1.08)**
5. Gender*	**1.41 (.49)**	**1.64 (.47)**
6. Grade 7 Aspirations*	**6.77 (1.56)**	**6.55 (1.60)**
7. Grade 8 Aspirations*	**6.95 (1.29)**	**6.69 (1.50)**
8. Grade 11 Aspirations*	**6.23 (1.37)**	**5.66 (1.76)**
9. GPA*	**3.65 (.83)**	**3.20 (.85)**
10. Parent Education*	**4.52 (2.11)**	**3.86 (2.11)**
11. Grade 8 Race Disc.*	**1.65 (.82)**	**1.47 (.80)**
12. Grade 11 Race Disc.^	1.92 (.99)	1.78 (.96)
13. Grade 8 Gender Disc.	2.24 (.87)	2.23 (.79)
14. Grade 11 Gender Disc.	1.58 (.84)	1.48 (.76)

***Between Group Comparison p<.05**

^p<.10

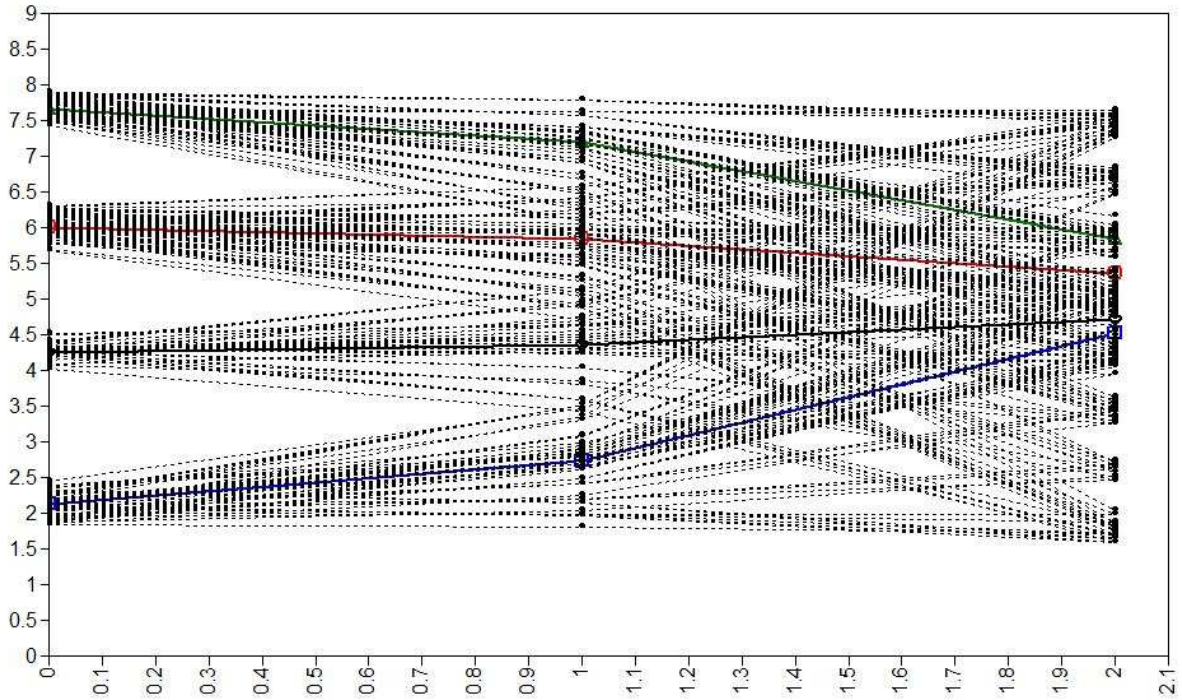

Figure 1. GMM estimated latent class means and estimated individual processes for educational attainment expectations.

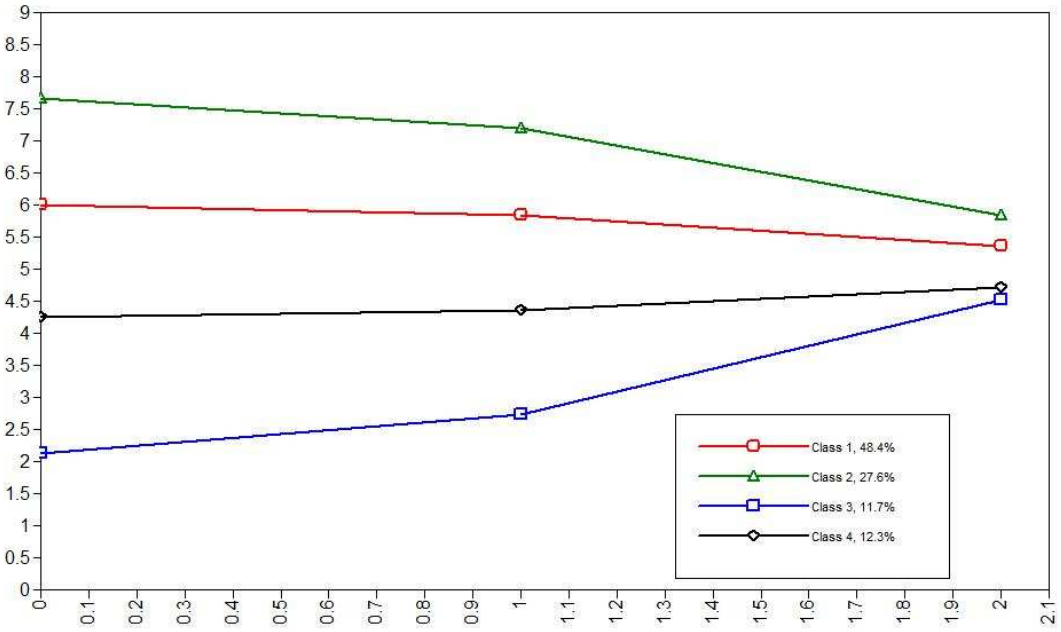

Figure 2. GMM estimated means.

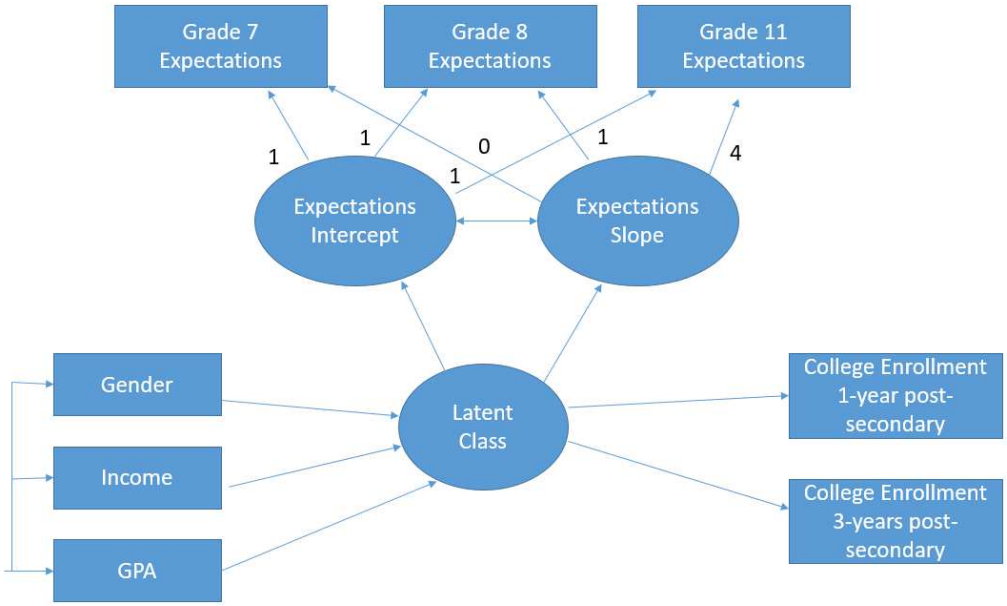

Figure 3. Final four-class growth mixture model. Estimates from predictors to latent class are presented in probability scale for each of the four latent classes are presented in Table 6. Probability scales for college enrollment by latent class are presented in text.

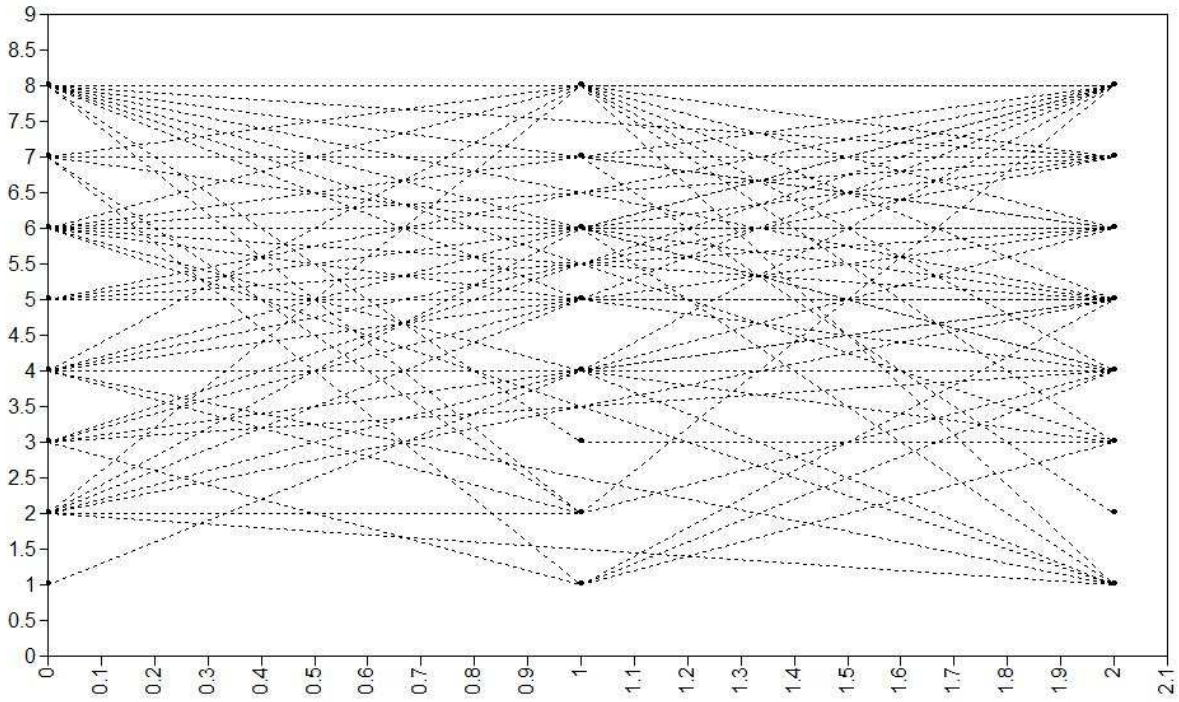

Figure 4. Random sample of 150 individual observed educational attainment expectation trajectories.

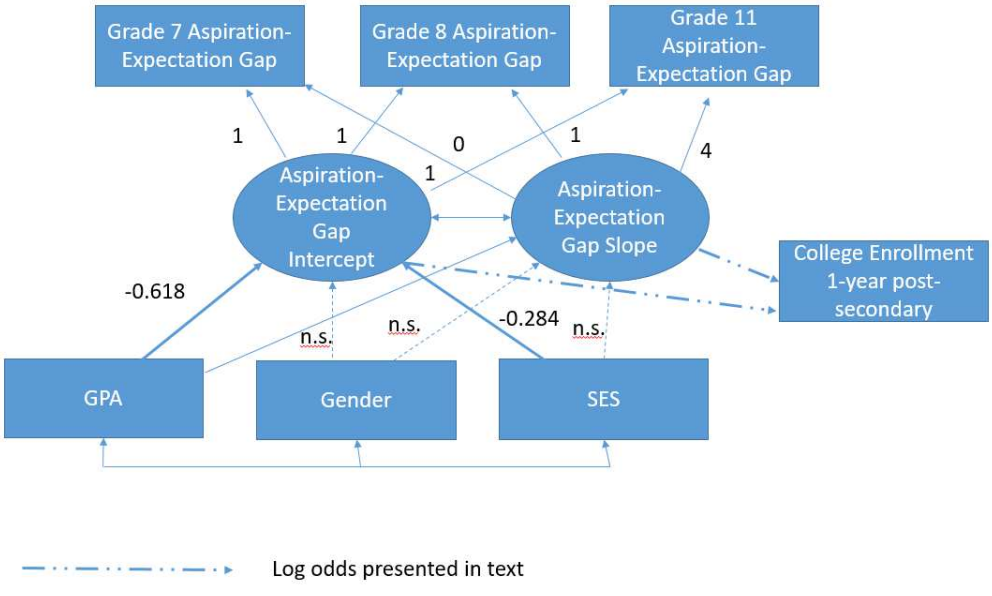

Figure 5. Aspiration-expectation gap conditional model. Although not show in the model, predictors were allowed to covary.

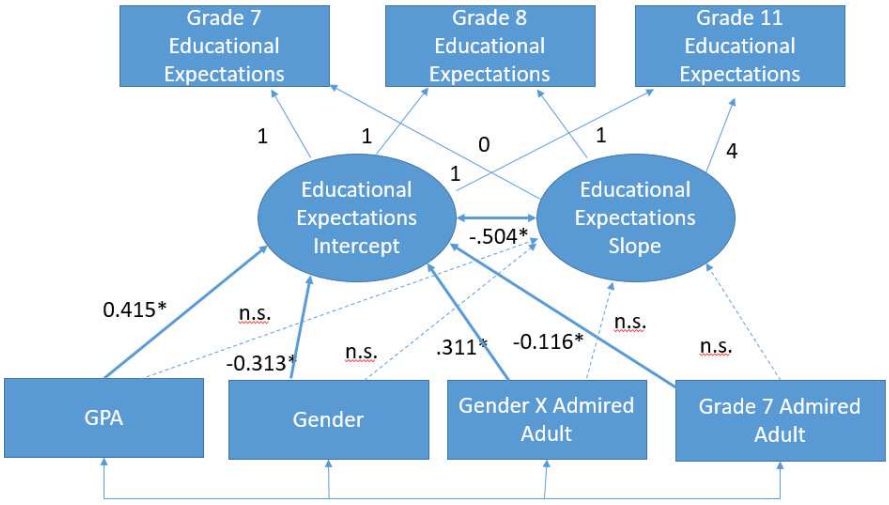

Figure 6. Latent growth curve model for educational attainment expectations with admired adult as a predictor (Aim 3). Although not show in the model, predictors were allowed to covary.

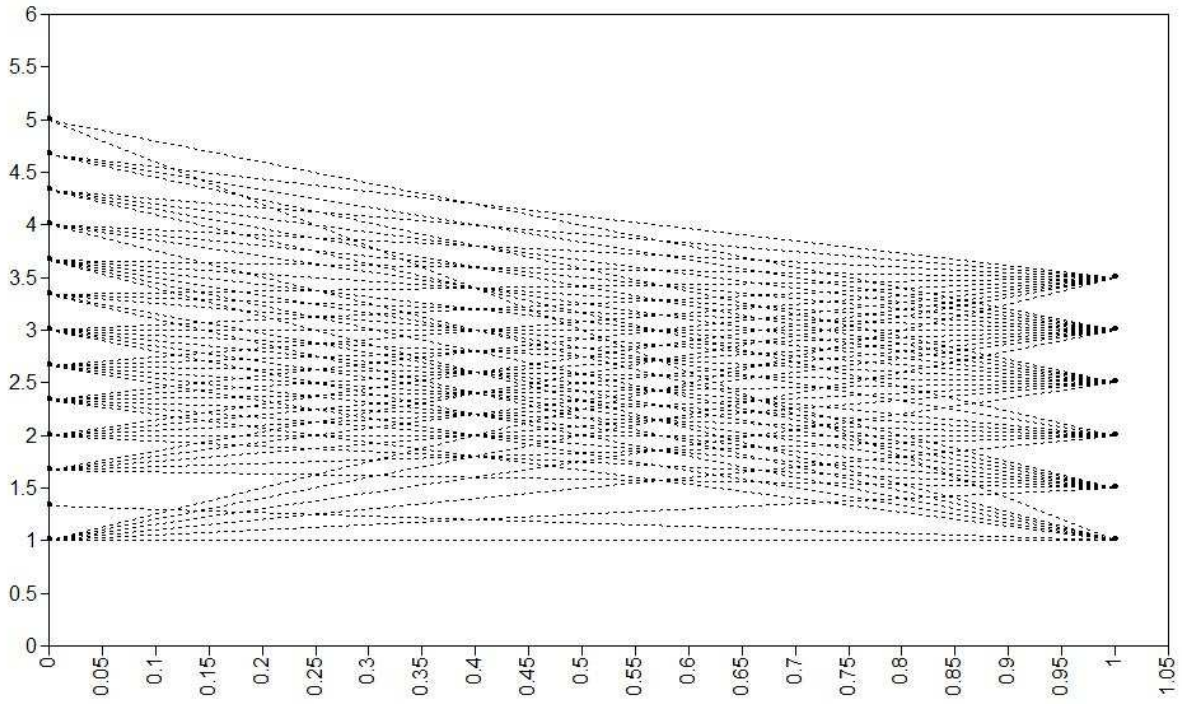

Figure 7. Random sample of 250 individual observed perceptions of adult social capital trajectories.

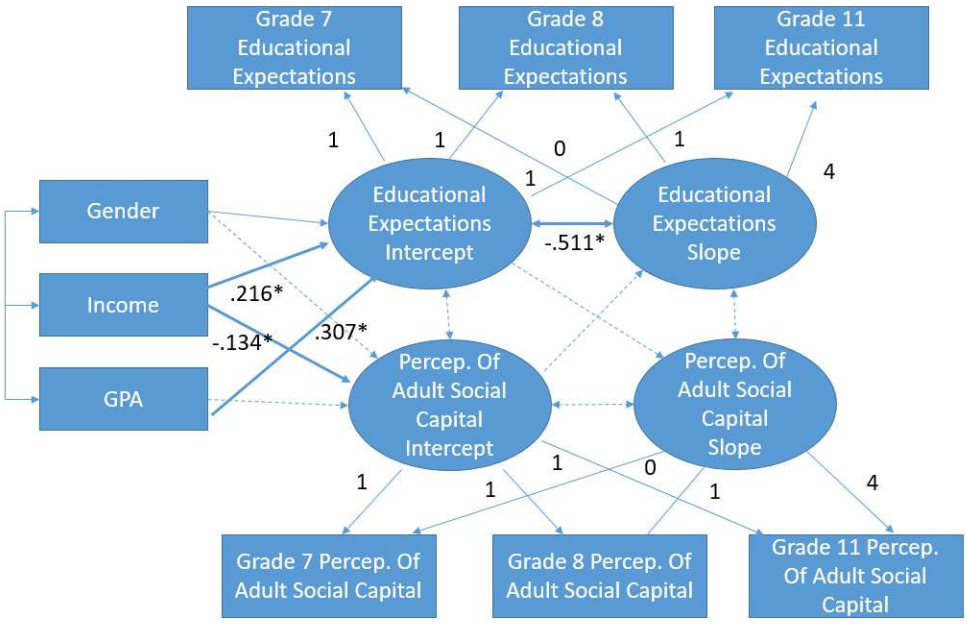

Figure 8. Parallel processes latent growth curve model. Bolded pathways were significant; dashed pathways were non-significant. Paths from GPA, income, and gender to latent slopes were all nonsignificant and were omitted for clarity.

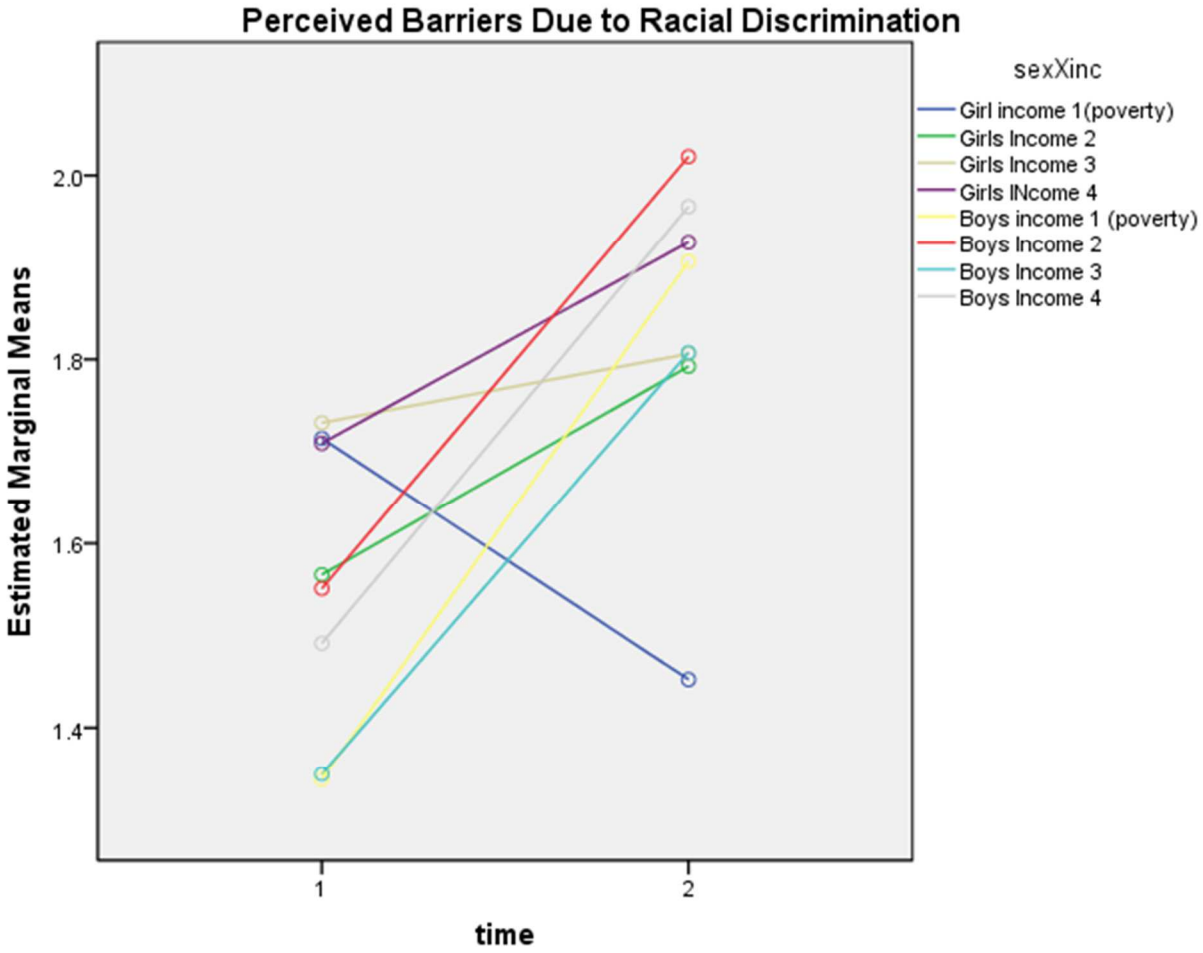

Figure 9. Marginal means for perceived barriers due to racial discrimination for Grade 8 (time 1 on the plot) and Grade 11 (time 2 on the plot).

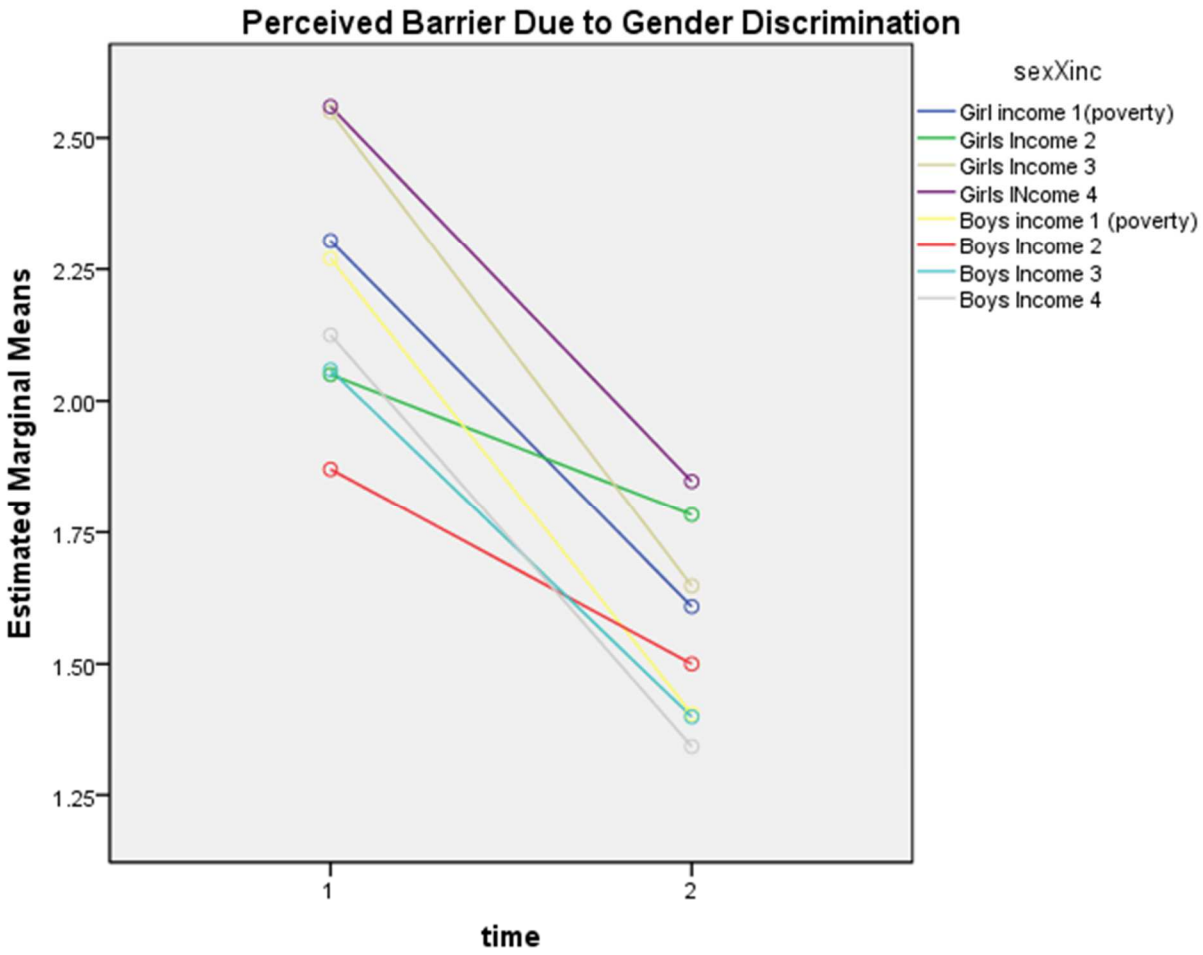

Figure 10. Marginal means for perceived barriers due to gender discrimination for Grade 8 (time 1 on the plot) and Grade 11 (time 2 on the plot).

APPENDIX: MEASURES

Aspirations for Future Educational Attainment

(Grade 7, Grade 8, Grade 11)

Item	Response Options
"If you could do exactly what you wanted, how far would you like to go in school?"	1 = less than high school 2 = graduate from high school 3 = post high school vocational or technical training 4 = some college 5 = graduate from a 2-year college 6 = graduate from a 4-year college 7 = complete a Masters degree, teaching credential, or other professional degree 8 = complete a law degree, M.D., or Ph. D.

Expectations for Future Educational Attainment

(Grade 7, Grade 8, Grade 11)

Item	Response Options
"We can't always do what we most want to do. How far do you think you actually will go in school?"	1 = less than high school 2 = graduate from high school 3 = post high school vocational or technical training 4 = some college 5 = graduate from a 2-year college 6 = graduate from a 4-year college 7 = complete a Masters degree, teaching credential, or other professional degree 8 = complete a law degree, M.D., or Ph. D.

Youth social resources: Admired adult at school

Grade 7

Item	Response Options
"Is there a teacher or other adult you see at school who you really admire?"	1 = Yes 2= No
1. "How much do you think this person cares for you?" 2. "How much do you think this adult cares for you?" 3. "How much do you think this adult believes in your ability?"	1 = not at all 2 = not very much 3 = some 4 = pretty much 5 = A lot
4. "Does this person care about you even when you make mistakes?"	1 = almost never 2 = occasionally 3 = about half the time 4 = fairly often 5 = almost always

Youth social resources: Perceptions of Adult Social Capital at School

(Grade 7, Grade 8, Grade 11)

Item	Response Options
1. "When you have a social/personal problem at school, how often can you depend on your teachers to help you out?"	1 = almost never 2 = not too often 3 = about half the time 4 = fairly often 5 = almost always
2. "When you have a social/personal problem at school, how often can you depend on adults at school to help you out?"	
3. "When you have a social/personal problem at school, how often can you depend on the principal to help you out?"	

Perceptions of Barriers due to Race

(Grade 8, Grade 11)

Item	Response Options
Discrimination due to race as a barrier:	
Grade 8 and Grade 11: 1. "How much do you think discrimination because of your race might keep you from getting the amount of education you want?" 2. "How much do you think discrimination because of your race might keep you from getting the job you want?"	1 = not at all 2 = a little 3 = some 4 = quite a bit 5 = a lot
Generalized barriers due to race:	
Grade 8: "Do you think it will be harder for you to get ahead in life because you are (Black/African American)?" (Re-coded)	1= no 2=yes
Grade 11: "Being Black will make it harder for my success."	1 = no 2 = yes

Perceptions of Barriers due to Gender

(Grade 8, Grade 11)

Item	Response Options
Discrimination due to sex as a barrier:	
Grade 8 and Grade 11: 1. "How much do you think discrimination because of your sex might keep you from getting the amount of education you want?" 2. "How much do you think discrimination because of your sex might keep you from getting the job you want?"	1 = not at all 2 = a little 3 = some 4 = quite a bit 5 = a lot
Generalized barriers due to sex:	
Grade 8: "Do you think it will be harder for you to get ahead in life because you are a (boy/girl)?" (Re-coded)	1= no 2=yes
Grade 11: "Because of your sex, no matter how hard you work, you will always have to work harder than others to prove yourself."	1 = no 2=yes

High School Graduation Status

Item	Response Options
"Have you graduated from high school?"	1=Yes 2=No

College Enrollment Status

Item	Response Options
"Are you in college?"	1=Yes, part time or Yes, full time 2=No *This was reverse coded for Aim 5

Confidence in completing post-secondary education

Item	
"How likely do you think it is that you will get a bachelor's degree?"	1= not at all likely to 5= very likely
"How likely do you think it is that you will earn the highest degree you would like to get?"	

Covariates

Grade 7, 8, and 11 grade point averages were obtained from school records and are coded on a 5-point scale (1=F, 2=D, 3=C, 4=B, 5=A)

Socioeconomic Status

Item	Response Options
Primary Caregiver report: Total family income before taxes from all sources in	1 = Less than $5,000 2 = Between $5,000-9,999 3 = Between $10,000-14,999 4 = Between $15,000-19,999 5 = Between $20,000-24,999 6 = Between $25,000-29,999 7 = Between $30,000-34,999 8 = Between $35,000-39,999 9 = Between $40,000-44,999 10 = Between $45,000-49,999 11 = Between $50,000-54,999 12 = Between $55,000-59,999 13 = Between $60,000-64,999 14 = Between $65,000-69,999 15 = Between $70,000-74,999 16 = More than $75,000

Item	Response Options
Highest level of education obtained (mean for primary caregiver and secondary caregiver) 1990	1 = did not complete high school 2 = GED 3 = high school diploma 4 = associate's degree 5 = bachelor's degree 6 = master's degree 7 = doctoral degree

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