

The Development of Educational Expectations and Educational Utility Values in African American
Adolescents: A Dissertation in Two Studies

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ABSTRACT

This doctoral dissertation, which includes two distinct studies, focuses on the development of educational expectations and educational utility values in African American adolescents. Guiding frameworks for the project include expectancy-value theory (Wigfield & Eccles, 2000), theory on adolescent development (Steinberg, 2001), Cooley's (1902) symbolic interactionist theory, and the concepts of risk and resilience (Luthar et al., 2000). Data for the study are drawn from the African American subsample ($N = 876$) of the Maryland Adolescent Development in Multiple Contexts Study (MADICS) (Eccles, 1997), and span the six year period between the time during which youth were enrolled in Grade 7 and one year after high school graduation.

In the first study, multiple regression and logistic regression models demonstrated that reflected appraisals of parents and teachers were related to African American adolescents' educational utility values and expectations for future educational attainment during Grade 7 and again during Grade 11. The strength of the relation between reflected appraisals of parents and youths' educational utility values decreased between Grade 7 and Grade 11, whereas the strength of the relation between reflected appraisals of teachers and utility values increased over time. The magnitude of associations between reflected appraisals and expectations/values did not change during this period. In addition, findings suggested that affiliation with achievement-oriented peers may buffer youth from the harmful impact of low reflected appraisals of teachers during Grade 7, and from the harmful impact

of low reflected appraisals of parents during Grades 7 and 11. Finally, reflected appraisals of parents and teachers during Grade 11 were associated with high school graduation status at levels that were marginally significant. The relation between reflected appraisals of parents and completion of high school appeared to be mediated by youths' educational expectations.

In the second study, latent growth models were used to examine trajectories of educational expectations and utility values between Grade 7 and Grade 11, with a special focus on gender differences. Boys' and girls' expectations and values were statistically equivalent during Grade 7. On average, expectations did not change across the time period examined, although the trajectory for boys was significantly less positive than the trajectory for girls. In addition, the sample average for educational utility values decreased across time in a manner that was the same for girls as for boys. Although the hypothesized gender difference in college participation did not materialize, logistic regression models revealed that educational expectations and educational utility values uniquely contributed to the variability in adolescents' college participation status one year after high school graduation.

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CHAPTER 1

GENERAL INTRODUCTION

In the United States, completion of a postsecondary degree is associated with a number of quality of life indicators. Unfortunately, rates of postsecondary educational attainment are lower for African Americans than for European Americans. In 2001-03, for example, although 35% of European Americans between the ages of 25 and 29 years had completed 4 or more years of college, only 18% of their African American counterparts had done so (Harvey & Anderson, 2005). Because they are less likely to complete college, African Americans are less likely than other groups to enjoy the benefits typically associated with obtaining a postsecondary degree, including better health, longer life, higher earnings, higher levels of savings, increased personal and professional mobility, and more leisure activity (Day & Newburger, 2002; Institute for Higher Education Policy, 1998; Perna, 2005).

In light of racial disparities in postsecondary educational outcomes and associated quality of life indicators, it is critical that researchers elucidate the pathways by which African Americans achieve adaptive educational attainment outcomes. The primary goal of the proposed research is to better understand the motivational processes during middle and high school that precede educational attainment among African American young adults. To this end, longitudinal models that explain motivational processes believed to precede educational attainment are proposed. Many of the theoretical pathways to be tested in these

models are grounded in Eccles' and Wigfield's (Eccles et al., 1983; Wigfield & Eccles, 2000) expectancy-value theory of achievement motivation. At the heart of the proposed models are adolescents' expectancies for future educational attainment and educational utility values, two constructs theorized and documented to be determinants of achievement-related behaviors in youth (Eccles et al., 1983; Eccles, Vida, & Barber, 2004; Wigfield & Eccles, 2000).

Educational Expectations in African American Adolescents

Prior research shows that African American adolescents typically hold high expectations for their future educational attainment. Sirin and Rogers-Sirin (2004) examined the educational expectations of middle class African American adolescents and found that a majority of sample members expected to attend college. Using a very low income sample of African Americans, Wood, Kaplan, and McLoyd (2007) found that, on average, adolescents reported high levels of confidence that they would attend and complete college. This expectation seems unlikely to be realized, given the fact that participants in that study were enrolled in a school district with a high school graduation rate of only 46% (Orfield, Losen, Wald, & Swanson, 2004). Thus, it appears that African American youth maintain high expectancies for future educational attainment even in the face of considerable barriers to upward educational mobility.

In theory, there are reasons to suspect that high educational expectations among African Americans may not pay off in the form of improved academic and other behavioral outcomes. According to Graham (1994), past generations of theorists conceptualized high expectations among African Americans as dysfunctional (i.e. "delusional"; p. 95). Furthermore, the fact that high expectations appear to be so ubiquitous among African

Americans casts doubt on their power to predict future outcomes for members of this group. Contrary to these arguments, empirical studies suggest that high educational expectations among African Americans are, in fact, adaptive because they appear to be associated with educational attainment and other positive behavioral outcomes. For example, Ensminger and Slusarcick (1992) found that African American adolescents with higher expectations for future attainment were more likely to graduate from high school than their lower expectations counterparts. Other research has shown that high expectations for future attainment among African American adolescents predict non-academic behaviors that may facilitate the accomplishment of positive academic goals. For example, high expectations have been shown to predict lower levels of pregnancy among African American adolescent girls (Hockaday, Crase, & Shelley, 2000), and lower levels of delinquency among African American boys (Joseph, 1996). This overall pattern of findings is consistent with expectancy-value theory, which posits that educational expectations are determinants of academically-relevant behavioral choices.

Academic Values in African American Adolescents

There are numerous theoretical models that imply that African American adolescents should not value high academic achievement. According to Ogbu's cultural-ecological theory, because African Americans are an involuntary minority brought to this country through conquest and subsequently enslaved, and because they do not have equal access to the opportunity structure, members of this group disparage high academic achievement as the domain of Whites (Ogbu, 1978). Further elaboration of this framework suggests that African American students must dissociate from academic achievement to avoid being seen as betrayers, or as "acting White," by members of their same-race peer group (Fordham &

Ogbu, 1986). Steele's (1997) stereotype threat framework also suggests that valuing academic achievement may have negative consequences for African American students. In particular, his work suggests that African Americans may cope with negative stereotypes about their group's intellectual competence by disidentifying from intellectually-relevant domains. In the context of stereotype threat, disidentification from academics is seen as adaptive to the extent that it serves to protect self-esteem.

In opposition to these theoretical formulations, most of the research on achievement values among African American adolescents indicates that these youth do, in fact, value high academic achievement. Using a questionnaire to elicit Likert-type responses, Mickelson (1990) found that African American high school students endorsed the dominant ideology regarding education (i.e., that education opens doors to opportunity and is the solution to many social problems) more strongly than did European Americans. Similar results have been obtained using middle school samples. For example, Spencer and colleagues (Spencer, Noll, Stoltzfus, & Harlapani, 2001) reported that African American middle school students viewed school success as important, as indicated by their affective responses to hypothetical positive (e.g., receiving an academic honor) and negative (e.g., failing a class) school-related events. Taylor and Graham (2007) used a more subtle way of tapping into achievement values in African American elementary and middle school students. Students in this study were asked to nominate peers whom they admired, respected, and most wanted to be like. Girls in all age groups and elementary school boys overwhelmingly nominated high-achieving same-gender peers, suggesting that they valued the display of high academic achievement. Although findings for African American middle school boys were not

consistent with those for other age/gender groups, their lower achievement values appeared to be related to perceived barriers to educational and occupational opportunity.

Unfortunately, achievement values have received less attention in the research literature than have expectancies for success (Wigfield & Eccles, 2002). A recent search of the PsycInfo database suggests that there is no research examining the longitudinal consequences of subjective task values in African American youth. (For research examining the longitudinal consequences of expectations for future attainment in African Americans, see Mello (2007, 2008)). One goal of the proposed study is to redress this disparity in knowledge about the motivational processes of African Americans.

Consequences of Educational Expectations and Values

The hypotheses of the studies proposed here are derived primarily from Eccles' and Wigfield's expectancy-value theory of achievement motivation (Eccles et al., 1983; Wigfield & Eccles, 2000). The guiding premise of expectancy-value theory is that an individual's expectancies for success and subjective task values determine the likelihood that he or she will choose to engage in a given task, as well as his or her level of effort, persistence, and performance on that task. Within this framework, expectancies, or one's beliefs about the probability of success on a particular task, are informed by perceptions of task difficulty and self-concepts of relevant abilities (Eccles, 1983). Subjective task values are broadly conceptualized as the value that one attaches to a particular task. Utility values, which are the focus of the present study, are defined as the degree to which an individual believes that a given task is useful in accomplishing goals for the future. In the present study, it is posited that adolescents' expectancies for educational attainment and educational utility values predict high school completion and future decisions to enroll in college.

Past research indicates that expectations and values are associated with distinct achievement-related outcomes. Specifically, expectations are known to influence performance on a particular task, whereas values are known to influence individuals' decisions about whether or not to engage in that task (Wigfield & Eccles, 2000). For instance, Meece and colleagues found that early adolescents' expectancies for success in mathematics predicted current math performance even more strongly than did prior grades (Meece, Wigfield, & Eccles, 1990). In the same study, it was found that adolescents' valuing of mathematics was associated with intentions to continue taking mathematics courses in the future, but not with actual performance in mathematics. Consistent with the pattern of findings described in these previous research studies, I predict that educational utility values will be associated with the decision to enroll in college. Breaking somewhat from past research findings, I also predict that expectations for future attainment will be associated with the decision to enroll in college. Although a link between expectancies for success on a task (in the proposed study, expectancies for successful completion of a particular level of educational attainment) and the decision to pursue that task has not typically been found in other studies, it seems logical that expectancies for completing education in the future will be related to the decision to enroll in college, given that successful attainment of a particular level of education is contingent upon enrollment in corresponding educational programs.

Overview of Chapters

This dissertation includes two distinct studies, both of which make use of the African American subsample of the Maryland Adolescent Development in Multiple Contexts Study (MADICS) to test hypotheses grounded in Eccles' and Wigfield's expectancy-value theory.

In each study, I examine longitudinal and cross-sectional correlates of expectancies for future educational attainment and general educational utility values.

In Study 1 (Chapter 2), I examine the impact of adolescents' reflected appraisals of parents and teachers (i.e., adolescents' perceptions of what parents and teachers think about their academic abilities) on their expectations and values during Grade 7 and again during Grade 11. Gender and age differences in the strength of the relations between reflected appraisals and youths' motivational outcomes are also explored. In Study 1 I also test the potential protective-stabilizing influence of parents, teachers, and peers in the relations between reflected appraisals and youths' motivational outcomes. Finally, I evaluate the real-world implications of reflected appraisals by testing mediational models linking reflected appraisals, expectations, values, and high school completion status.

Study 2 (Chapter 3) focuses on gender differences in trajectories of expectations and values between Grade 7 and Grade 11. Additionally, I consider a possible influence on the hypothesized downward trend in boys' motivation: affiliation with achievement-oriented peers. Study 2 also includes tests of the predictive properties that high expectations and values have for adolescents' future engagement in postsecondary educational pursuits, and how these properties vary by gender.

Finally, in Chapter 4, I discuss how both studies contribute to the broader literature on achievement motivation in African Americans and I make suggestions for future research.

CHAPTER 2

ASSOCIATIONS OF REFLECTED APPRAISALS WITH EXPECTATIONS AND VALUES DURING EARLY AND LATE ADOLESCENCE (STUDY 1)

In addition to linking expectations and values with achievement-related behaviors, the expectancy-value framework provides a model to explain how children's achievement-related expectations and values develop. According to this model, expectations and values are shaped by a number of external forces, including the beliefs and behaviors of important socializing agents (e.g., teachers, parents, and peers), as well as children's perceptions of those beliefs and behaviors. Although ample empirical work indicates that parents, teachers, and peers influence a variety of achievement motivation indicators in children (see Wigfield and Eccles (2002) for reviews) relatively little research has focused on how these socializing agents specifically affect educational attainment expectations and general (as opposed to academic domain-specific) educational utility values. The research that does exist on this topic is consistent with expectancy-value theory. For example, using a sample of African American adolescents, Trusty (2002) found that parents' expectations for their children's future attainment during Grade 8 predicted youths' own expectations for future attainment during early adulthood, a finding that held even when controlling for adolescents' prior academic achievement. As compared to research on educational expectations, much less work has focused on how socializing agents shape children's educational values. Research in

the tradition of self-determination theory (Deci & Ryan, 1985) indicates that competence and autonomy supports from parents and teachers promote intrinsic education-related motivation in adolescents (see Grolnick, Gurland, Jacob, & Decourcey, 2002, for a review). The construct of intrinsic motivation in self-determination theory is analogous to the construct of interest values in expectancy-value theory (Wigfield & Eccles, 2000).

A central tenet of expectancy-value theory is that children's perceptions of the education-related beliefs and attitudes of socializing agents contribute to their corresponding expectations and values. Along these lines, in Study 1, I focused on the role of adolescents' perceptions of adults' (i.e., parents and teachers) beliefs about their personal academic competence in the development of expectations and values. Parents' and teachers' education-related beliefs about children may shape child outcomes via many routes, and children's perceptions of those beliefs are just one possible path of influence. Furthermore, the role of reflected appraisals (i.e., one's beliefs about how others view him or her) in development is interesting from a theoretical standpoint. The idea that reflected appraisals influence self-perceptions is much older than the expectancy-value framework. At the beginning of the 20th century, Cooley (1902, as cited by Harter, 1999), asserted that children internalize the opinions they believe others hold of them, and integrate those opinions into their enduring attitudes and beliefs about the self.

In Study 1, I hypothesized that adolescents' perceptions of adults' beliefs about their personal academic competence would be positively related to expectations for future attainment and educational utility values. Very little research on African American adolescents' perceptions of adults' beliefs about their academic competence has been conducted; furthermore, few studies have examined the simultaneous influences of both

parents and teachers (Benner & Mistry, 2007). One exception is work by Gill and Reynolds (1999). Using a sample of low-income African American sixth graders, these researchers examined the associations of youths' perceptions of parents' and teachers' expectations for their future attainment with youths' academic achievement. Results indicated that children's perceptions of adults' expectations for their future attainment were unrelated to adults' corresponding self-reports. However, adults' self-reported expectations for children's future educational success and children's perceptions of those expectations each exerted a unique effect on math and reading achievement. Other research conducted with predominantly non-African American children also indicates that children's perceptions of adults' educational beliefs play a role in achievement and motivational processes. For instance, Bouchev and Harter (2005) reported that adolescents' perceptions of others' beliefs about their academic competence were directly related to self-perceptions of academic competence and educational importance values, and were indirectly related to scholastic behaviors and grades.

Compared to research on parent influences, there is less research on the role of teachers in adolescent development. One goal of Study 1 was to redress this gap in the literature. The lack of research on how teachers influence adolescent development is somewhat surprising for two reasons. First, a major developmental trend during adolescence is the growing need for autonomy from parental control and increased influence of forces outside the family. Although scholars typically conceptualize "forces outside the family" in terms of peer influences, other extra-familial entities like teachers may also exert increasing influence during the adolescent period, at least in some spheres of development. Second, according to ecological systems theory (Bronfenbrenner, 1979; Bronfenbrenner & Morris,

1998), entities that are most proximal to a given outcome should exert a stronger effect on that outcome than more distal entities. School-level processes, including those that involve teachers, seem especially proximal to outcomes pertaining to achievement motivation. The limited research on teachers of African American youth suggests that they do, in fact, affect their students' motivation and achievement (e.g., Kaplan & Maehr, 1999; Teel, DeBruin-Parecki, & Covington, 1998; Wentzel, 2002). For instance, Wentzel (2002) found that African American sixth graders who believed that their teacher exhibited high levels of democratic communication and maturity demands reported stronger mastery orientation and interest in classroom activities. The theorized and empirically demonstrated linkages between teachers and motivational outcomes in African American adolescents lend tenability to the hypothesis that, as for those of parents, reflected appraisals of teachers would be associated with African American adolescents' educational expectations and utility values.

Risk and resilience processes in relation to expectations and values. Of course, not all adolescents who perceive unfavorable parental and teacher opinions about their academic competence will experience lower self-expectations and educational values, and the processes by which these youth achieve resilience are of interest. According to Luthar and colleagues (Luthar, Cichetti, & Becker, 2000), factors that play a promotive role in one context can serve as a protective factor in other contexts where children are experiencing non-competence-promoting processes. Recent research by Brody and colleagues (Brody, Dorsey, Forehand, & Armistead, 2002) has focused attention on how the effects of suboptimal processes within the family or school context may be offset by competence-promoting processes within the other context. Thus, an adolescent who perceives that his or her teachers hold unfavorable views about his or her academic competence may be more

likely to maintain high levels of motivation if he or she concurrently perceives favorable opinions from parents, and vice versa. Along these lines, Wood et al., (2007) reported that high teacher expectations appeared to protect youths' expectations from the harmful impact of low parent expectations. In Study 1, I examined the protective role of both perceived parent opinions and perceived teacher opinions, in addition to their direct effects on adolescents' expectations and values. In accord with the protective-stabilizing interaction pattern described by Luthar et al. (2000), which states that protective attributes may "confer stability in competence despite increasing risk" (p. 547), I hypothesize that competence-promoting reflected appraisals from parents will protect youths' expectations and values from the harmful impact of believing that teachers hold unfavorable opinions about their academic competence (and vice versa).

The peer group is another potential source of protection from the harmful influence of believing that parents and/or teachers hold unfavorable views of one's academic competence. As children make the transition to adolescence and the strength of family influences on development begins to decrease, the strength of peer influences begins to increase across multiple spheres of development, including academic development. Prior researchers have found affiliations with academically-oriented peers to have a positive influence on the academic achievement and engagement of African American adolescents. For instance, Engerman and Bailey (2006) reported that affiliation with achievement-oriented peers during 10th grade predicted 12th grade achievement in a nationally representative sample of African American students, a finding that is consistent with other research (e.g., Somers, Owens, & Piliawsky, 2008; Stewart, 2008). Overall, patterns found in extant research suggest that the African American peer group has the potential to exert an enhancing effect on the

achievement orientation of its members (e.g., Horvat & Lewis, 2004; Oyserman, Bybee, & Terry, 2006). In the present study, I expect that affiliations with achievement-oriented peers will have a protective-stabilizing effect on the expectations and values of youth who believe that teachers or parents hold unfavorable opinions about their academic competence.

A major concern when conducting correlational research on peer influences pertains to the bidirectional nature of the relation between adolescents and their peer group. Although it is likely that the peer group influences individual adolescents' beliefs and attitudes, it is also the case that adolescents tend to select peers who are similar to themselves (Steinberg, 2001). Thus, if the data for the present study reveal that adolescents who affiliate with achievement-oriented peers remain optimistic about prospects for future educational attainment and continue to believe in the usefulness of education even in the face of unfavorable reflected appraisals of parents and/or teachers, it would be impossible to make any judgment regarding whether peer group affiliation *caused* this resilient outcome. An equally plausible explanation is that, even when they believe that parents and teachers hold negative views of their academic competence, youth who hold positive education-related beliefs and attitudes choose friends who have similar beliefs. To address this matter, I will attempt to disentangle the temporal relations between peer group affiliation and adolescents' expectations and values by testing a cross-lagged and autoregressive path analytic model. Although longitudinal associations between youths' peer group affiliations and educational expectations/values are correlational and therefore cannot be used for drawing causal inferences, testing the hypothesized model may bring us one step closer to understanding the possible causal ordering of these three variables.

Moderating influences of adolescent age and gender. In addition to positing links between perceived parent and teacher beliefs and adolescents' self-expectations and educational values, I examined whether the strength of these relations changed between Grade 7 and Grade 11. To this end, two competing hypotheses were tested as part of Study 1. The first hypothesis was that the direct influence of parents would decrease as youth progressed from Grade 7 to Grade 11. This hypothesis was based on theoretical suppositions that the influence of parents on adolescent outcomes weakens as youth increasingly seek autonomy from parental control (for a review, see Grotevant, 1998). In addition, by late adolescence, youth are better able to differentiate their own beliefs from those of important socializing agents than they were during earlier stages of development (Harter, 1999). This combination of social and cognitive developmental factors suggests that the strength of the association between adolescents' perceptions of parental beliefs about their academic competence and adolescents' self-beliefs related to academic competency should wane over time.

The competing hypothesis was that the influence of parents would actually increase over time. This hypothesis is consistent with research showing that, contrary to theory, experiences within the family continue to exert a substantial influence on children's self-perceptions throughout adolescence (e.g., Harter, 1990; Greene & Way, 2005). Another piece of support for this second hypothesis comes from the fact that expectations for future educational attainment during 11th grade probably reflect actual planning for the future, as well as college goal-oriented behaviors (e.g., taking college admissions exams, visiting college campuses), that are currently underway. Making educational plans for the future and carrying out goal-oriented behaviors are processes that typically involve parental input and

collaboration. Thus, youth at this point in adolescence may have received sufficient input from parents to have a realistic view of parental beliefs about their academic competence. These parental beliefs, in turn, are likely to influence the process of planning for the future, and thus to shape adolescents' expectations for future attainment and the extent to which they believe education will be useful to them in the future.

It is plausible that the influence of teachers also varies over time; however, there are no theories of teacher socialization to guide hypotheses concerning this matter. Therefore, analyses testing variation in the magnitude of the relation between perceived teacher beliefs and youth outcomes were treated as exploratory. Research suggests that adolescents seek autonomy from adults in general, a phenomenon that may cause results for teacher influences to mirror those predicted for parents (i.e., a decrease in the influence of teachers over time). However, as adolescents attempt to remove themselves from parental influence, they may become more impressionable to other sources of adult influence, including teachers. If this is the case, the influence of teachers may become more powerful over time.

In addition to examining whether time moderates the proposed relations, in Study 1 I assessed whether or not these links were moderated by youth gender. Because there is little theoretical or empirical basis for hypotheses about how the models might operate differently for boys as compared to girls, analyses concerning the moderating role of gender were treated as exploratory. One possibility was that links between independent and dependent variables would be stronger for boys than for girls. Given the host of contextual risk factors believed to be present in the lives of African American boys (e.g., pervasive negative societal stereotypes, exposure to racism, opportunities for engaging with negative peer groups), perceiving that teachers and parents view them as academically competent might prove

crucial in the formation of boys' achievement-related self-perceptions and attitudes. In line with this argument, Dubois and colleagues (Dubois, Felner, Brand, Adan, & Evans, 1992; Dubois, Felner, Meares, & Krier, 1994) found evidence that early adolescents who experience multiple stressors may be more receptive to the salutary effects of competence-promoting features of the environment as compared to youth experiencing few or no stressors. On the other hand, the multiple contextual risks faced by African American boys might make it difficult for them to construct healthy achievement orientations even in the face of positive reflected appraisals of adults. Luthar and colleagues (Luthar et al., 2000) theorized that the beneficial effects of factors typically associated with developmental competencies may essentially get drowned out in the context of severe environmental stressors. If this is the case, then links between independent and dependent variables would be stronger for girls than for boys.

Overview of Study 1

The first set of hypotheses for Study 1 pertained to the relations between reflected appraisals of parents and teachers and adolescents' educational expectations and utility values. Using expectancy-value theory as a guide, I hypothesized that adolescents' perceptions of parents' and teachers' beliefs about their academic competence would be significantly related to expectations and values during Grade 7 and again during Grade 11. In line with Luthar et al.'s (2002) protective-stabilizing hypothesis, I also expected that perceptions of positive parent beliefs would buffer the relation between perceptions of unfavorable teacher beliefs and low expectations/values in adolescents. If criteria for the protective-stabilizing interaction pattern were met, expectations/values would remain high in the presence of perceptions of unfavorable teacher beliefs under the condition that parents are

perceived to hold favorable beliefs. I also hypothesized that positive reflected appraisals from teachers would protect adolescents' expectations/values from perceptions of unfavorable parental beliefs.

The second set of hypotheses for Study 1 concerns the role of peers in the development of adolescents' expectations for future attainment and educational utility values. Given that adolescence is a time when peers become particularly salient as socializing agents, I hypothesized that affiliation with achievement-oriented peers will be positively and significantly related to expectations and values across time. Furthermore, affiliation with achievement-oriented peers was also hypothesized to play a protective-stabilizing role in the relation between reflected appraisals from parents and teachers and adolescents' expectations and values.

The third set of hypotheses for this study addressed group differences (i.e., older vs. younger adolescents, boys vs. girls) in the magnitude of the relations between reflected appraisals of parents and teachers and adolescents' expectations/values. First, I proposed two competing hypotheses concerning how these relations would change across time. On one hand, adolescent theorists would argue that the influence of parents, in particular, should decrease over time, as youth increasingly seek autonomy from adult authority. On the other hand, empirical evidence suggests that parental influences remain strong even into late adolescence (e.g., Greene & Way, 2005), especially within education-related domains. Additionally, as older adolescents collaborate with parents in planning and preparing for college (or not), their beliefs about how parents view their academic competence may impact expectations and values more markedly than during earlier periods of development. If this

second set of circumstances is operating, then the influence of reflected appraisals from parents on expectations and values may actually increase over time.

The second group difference hypothesis pertains to gender differences in the magnitude of the relations between reflected appraisals and expectations/values. Two competing hypotheses were offered. First, given that African American boys, more so than girls, are believed to experience multiple chronic risk factors for educational difficulty, it seems plausible that reflected appraisals from important adults may play a crucial role in the formation of adaptive education-related attitudes and beliefs for members of this group. If this is the case, links between reflected appraisals from adults and expectations/values would be stronger for boys than for girls. On the other hand, it is equally possible that the multiple risks experienced by boys negate the potentially positive influence of believing that parents and teachers hold high regard for one's academic competence. If this is the case, links between reflected appraisals and expectations/values would be stronger for girls as compared to boys.

The final goal of Study 1 was to assess whether reflected appraisals of parents and teachers contributed to variation in adolescents' completion of high school. To this end, mediational models linking reflected appraisals, expectations/values, and high school graduation status were tested.

Study 1 Method

Data Source and Sample

Data for the present studies were drawn from the Maryland Adolescent Development in Context Study (MADICS) (Eccles, 1997), a longitudinal study designed to examine the influence of social contexts on adolescent development. In the fall of 1991, 1,700 youth and

their families were invited to participate; 87% ($N = 1,482$) agreed to do so. Approximately 61% of successfully recruited families identified as African American during the first wave of data collection. Parents and youth were first interviewed in the fall of 1991 as youth were entering middle school. Data collection continued through the year 2000, three years after most youth had graduated from high school. The MADICS data collection timetable is displayed in Table 2.1. Analyses for the present studies draw upon data collected during Grade 7 (Wave 1), the summer following Grade 8 (Wave 2), Grade 11 (Wave 3), and one year post-high school graduation (Wave 5). These waves will hereafter be referred to as Time 1 (Wave 1), Time 2 (Wave 3), Time 3 (Wave 4), and Time 4 (Wave 5). At Times 1, 2, and 3, youth and primary caregivers completed a 50-minute face-to-face interview and a 30-minute self-administered questionnaire. At Time 4, self-administered surveys were mailed to youths' homes and completed at participants' convenience.

Participating families in MADICS resided in a single county on the Eastern seaboard of the United States, and focal youth attended one of 23 7th and 8th grade public junior high schools at the time of recruitment to the study. In 1995, 51% of households in this county were African American and 43% were White. One unique feature of the county at the time of the study was the relative socioeconomic equality between African American and White residents in comparison to the rest of the country. In 1990, the annual household income of African Americans was 86% of that for Whites, as compared to 60% for the United States as a whole (Wong, Eccles, & Sameroff, 2003).

The present study focuses on the 876 African American members of MADICS (462 (53%) boys; 414 (47%) girls) who, at the time of the study's inception, had a mean age of 12.29 years ($SD = .58$). Individuals were classified as African American if they self-

identified as such during at least one wave of data collection, and never indicated membership in any other racial/ethnic category during another wave of data collection. For example, youth who identified as African American at three data collection time points were excluded from the sample if they self-identified as mixed African American and White at a separate time point. Approximately 6% ($N = 53$) of individuals who identified as African American at one or more time points were excluded from the final study sample because they reported membership in a different racial/ethnic category at a separate time point. Of the 876 sample youth who participated at Time 1, 69% ($N = 606$) participated at Time 2, 70% ($N = 613$) participated at Time 3, and 54% ($N = 472$) participated at Time 4. Several patterns of participation across the four time points were identified. These patterns and the number of participants corresponding with each are presented in Table 2.2.

Data regarding adolescents' socioeconomic status were obtained from primary and secondary caregivers at Wave 1. At that time point, 100% ($N = 876$) of final sample members had a reporting primary caregiver (PCG) (86% mothers, 6% fathers, 8% other). PCGs reported a median annual household income of \$40,000-\$44,999. Although 7% of PCGs reported that they had not completed high school, 66% had earned a high school diploma, 7% had earned an associate's degree, and 21% had earned a bachelor's degree or higher. Fifty-eight percent of PCGs reported that they were married and living with their partner. About 73% ($N = 640$) of PCGs indicated that the target adolescent had a secondary caregiver (SCG). SCGs were designated by the PCG as someone who lived in the same household with the PCG and adolescent, and who had the second-most responsibility for the focal adolescent. A total of 415 SCGs participated in the study (60% fathers, 14% stepfathers, 6% mothers, and 20% other). About 9% of SCGs reported that they had not

completed high school, whereas 56% had earned a high school diploma, 10% had obtained an associate's degree, and 25% had obtained a bachelor's degree or higher.

Measures

Expectations for future educational attainment. Adolescents' expectations for future educational attainment were assessed with a single item: "How far do you think you actually will go in school?" Response options varied slightly at each wave of data collection, and were therefore recoded as follows to permit comparisons between time points: 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 4-year college*, 6 = *complete a master's degree, teaching credential, or other professional degree*, 7 = *complete a law degree, M.D., or Ph.D.* This and other similar single-item measures have been used widely to assess adolescents' educational expectations (Benner & Mistry, 2007; Kalil, 2002; Gill & Reynolds, 1999; Mello, 2008; Ou & Reynolds, 2008; Sanchez, Esparza, & Colon, 2008).

Failure to correctly distinguish individuals' expectations from their aspirations is a problem that has clouded the research literature on adolescents' future orientation (see, for example, Kao & Tienda, 1998; Sirin & Rogers-Sirin, 2004). To ensure that study participants were appropriately differentiating between these two constructs, the expectations item used in the present study was immediately preceded by an item designed to measure aspirations: "If you could do exactly what you wanted, how far would you like to go in school?" Response options for this item were identical to those for the item about expectations.

Educational utility values. Three items were used to assess the degree to which adolescents believed that education would be useful to them in accomplishing their goals for the future (e.g., “I have to do well in school if I want to get ahead in life.”). Responses were recorded on a Likert-type scale, with response options ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Negatively worded items were reverse coded so that higher scores were indicative of stronger educational utility values. The average of participants’ responses to the three items at each time point was computed, yielding a single score reflecting educational utility values for each wave of data collection. Cronbach’s alphas for Times 1-3 were .52, .63, and .63, respectively.

Reflected appraisals of parents. Adolescents’ perceptions of parents’ beliefs about their academic competence were measured with three items. The first item asked adolescents to report how far their parents believe they will go in school. Response options ranged from not finishing high school (1) to completing a doctoral degree (7). The second item asked, “How good of a student do your parents expect you to be in school?” (1 = *One of the worst*; 5 = *One of the best*). The third item asked, “Would your parents say that you can do schoolwork better than, the same as, or not as good as other kids in your school?” (1 = *Better than all*; 5 = *Poorer than all*). Because the response scales differed across items, participants’ responses for each of the three items were standardized. For each time point, the average of these three standardized response scores was computed to create a single score. Cronbach’s alpha was .50 at both Times 1 and 3.

Reflected appraisals of teachers. Adolescents’ perceptions of their teachers’ beliefs about their academic competence was assessed with a single item: “At the school I go to now, my teachers think I’m a good student” (1 = *Strongly agree*; 5 = *Strongly disagree*).

Responses at each time point were reverse coded so that higher scores corresponded with more favorable reflected appraisals.

Affiliation with achievement-oriented peers. Affiliation with achievement-oriented peers was measured with four items asking adolescents to report how many of the friends that they spend most of their time with display various achievement-related attitudes and behaviors (e.g., plan to go to college, do well in school) (1 = *None of them*; 5 = *All of them*). For each time point, the average of participants' responses to the four items was computed to create a single score. Cronbach's alphas for the three time points were .69, .66, and .77, respectively.

Academic self-concept. Self-perceptions of academic competence were assessed with four items asking adolescents to rate how good they are in math and other subjects (1 = *Not good at all*; 7 = *Very good*), and how well they do in math and other subjects compared to their age mates (1 = *Much worse than other kids*; 7 = *Much better than other kids*). Because the items used differing response scales, participants' scores for each item were standardized before being used to calculate an average academic self-concept score for Times 1 and 3. Cronbach's alpha for this measure was .77 both at Time 1 and at Time 3.

High school graduation status. High school graduation status was assessed at Time 4 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 0.

Academic achievement. Given the known association of academic achievement with African American adolescents' educational expectations and values (e.g., Eccles et al., 2006; Sirin & Rogers-Sirin, 2004), adolescents' achievement was covaried in the analyses.

Achievement was measured with a composite score that included participants' scores on a standardized achievement test administered in Grade 5 and end of year grade point averages (GPAs) for Grade 7. Achievement test scores were calculated as the mean of students' standardized scores on the reading and mathematics subtests of the 5th grade California Achievement Test (CAT) ($\alpha = .83$). Grade 7 GPAs were computed on the basis of final report card grades in math, science, reading, and health, which were obtained from school records. Students' grades in each class were coded on a 5-point scale (1 = F, 2 = D, 3 = C, 4 = B, 5 = A), and Grade 7 GPA was calculated by computing the average of these codes. Adolescents' scores on these two measures were standardized, and a single composite score for academic achievement was computed as the average of these standardized scores ($\alpha = .64$).

Family socioeconomic status. Family socioeconomic status (SES) is a known correlate of African American youths' expectations for future attainment (e.g., Wood et al., 2007; Trusty & Harris, 1999) and educational values (e.g., Mickelson, 1990), and thus were also covaried in the models. Following the recommendations of Entwisle and Astone (1994), indicators of SES were entered separately into regression models. SES indicators for the present study included the primary and secondary caregivers' average education level and the family's annual household income during the fiscal year prior to Wave 1 data collection.

A complete description of all research measures can be found in the Appendix.

Study 1 Results

Preliminary analyses. Prior to testing the study hypotheses, several preliminary analyses were conducted. First, data were checked for univariate outliers, of which none were found. This is not surprising given that all study variables used a limited range of

response options. In addition, all variables were found to be approximately normally distributed. Means, standard deviations, and bivariate correlations for key variables are presented in Table 2.3.

In another set of preliminary analyses, I examined whether subgroups within the sample significantly differed from each other with respect to mean scores on continuous study variables and frequency of occurrence on categorical variables. First, youth who participated in all waves of data collection were compared with those who did not. Results of ANOVAs used to test subgroup differences on continuous study variables are presented in Table 2.4. Youth who participated at fewer than four time points had lower scores on many of the motivation-related variables and came from homes that reported lower annual incomes and lower levels of parental education. Chi-square analyses were used to assess differences between full and partial study participants on categorical study variables (i.e., parental marital status, high school graduation status, and college participation status). These analyses revealed that youth with incomplete participation were significantly more likely than youth with complete data to have primary caregivers who reported being unmarried at Time 1 (47%, as compared to 33% for youth who completed all four waves of data collection), $\chi^2 = 17.51$ (1, $N = 876$), $p < .05$. Youth who had missed at least one of the four waves of data collection were also significantly more likely to be male than female ($\chi^2 = 24.60$ (1, $N = 876$), $p < .05$); about 71% of sample boys missed at least one wave of data collection, as compared to 54% of sample girls. Of youth who participated in the post-high school wave of data collection (Time 4), those who had missed at least one wave of data collection during high school were less likely than those with complete participation to have received a high school diploma, a finding that was marginally significant, $\chi^2 = 3.35$ (1, $N =$

416), $p = .07$; 14% of those who missed a wave had not graduated from high school at Time 4, whereas the same was true for only 7% of those who did not miss a wave. In contrast, there were no significant between-group differences with respect to completion of at least one year of college, $\chi^2 = 1.99$ (1, $N = 414$), $p = .16$. About 55% of youth who missed a wave had completed at least one year of college at Time 4, as compared to 62% of those who did not miss a wave.

A second series of ANOVAs and chi-square difference tests were used to test for gender differences on study variables. Results of ANOVAs, which are presented in Table 2.5, indicated that boys fared significantly worse than girls on most indicators of motivation. Boys also had significantly lower levels of achievement than girls, but were statistically equivalent to girls with respect to mean parent education level and annual household income. A marginally significant gender difference was observed for parental marital status, $\chi^2 = 3.64$ (1, $N = 876$), $p = .06$; about 45% of boys had primary caregivers who reported being unmarried at Time 1, whereas the same was true for 39% of girls. Of youth who participated in Time 4 data collection, 7% of girls ($N = 19$) and 10% of boys ($N = 15$) reported that they had not graduated from high school, a difference that was not statistically significant, $\chi^2 = .64$ (1, $N = 416$), $p = .42$. In addition, 63% of girls ($N = 162$) and 55% of boys ($N = 86$) who participated in Time 4 data collection reported that they were enrolled in college, a difference that was also not statistically significant, $\chi^2 = 2.38$ (1, $N = 414$), $p = .12$.

Study 1 Sample Modifications

A major goal of Study 1 was to examine whether the magnitude of many of the hypothesized relations changed between Grade 7 (Time 1) and Grade 11 (Time 3). Because Grade 7 and Grade 11 data were analyzed in separate models, it was necessary for the

composition of the sample to be identical at each time point. Therefore, only youth who participated both at Time 1 and at Time 3 were included in analyses for this study. This resulted in a final sample size of 613 youth (70% of the original African American sample), 50% ($N = 307$) of whom were male. Means for youth as a function of their inclusion in or exclusion from the Study 1 sample are shown in Table 2.6. Excluded youth fared significantly worse on Time 1 expectations, Time 2 values, and academic achievement ($p < .05$). They also reported lower levels of reflected appraisals from teachers at Time 1, lower Time 2 expectations, and came from families with lower levels of mean parent education; however, these latter two differences were only marginally significant ($p < .06$). In addition, excluded youth were significantly more likely to be male than female ($\chi^2 = 6.52$ (1, $N = 876$), $p < .05$); 59% of excluded youth were boys, as compared to 50% of youth who were included in Study 1. Of youth who participated in Time 4, 14% of youth excluded from Study 1 ($N = 9$) did not graduate from high school, whereas the same was true for only 8% of included youth ($N = 25$), a difference that approached significance, $\chi^2 = 3.50$ (1, $N = 414$), $p = .06$. Excluded youth did not differ from included youth with respect to college participation status ($\chi^2 = .86$ (1, $N = 414$), $p = .35$) or family marital status ($\chi^2 = 2.47$ (1, $N = 876$), $p = .11$).

Associations of Reflected Appraisals with Educational Expectations and Utility Values

Multiple regression models used to test associations between reflected appraisals and youths' expectations/values were estimated using the Mplus (Version 5) statistical software package (Muthén & Muthén, 1998-2007). Model parameters were estimated using full information maximum likelihood estimation (FIML), which is suitable for use with datasets that include some missing data. FIML permits all available data to be included in an analysis

and yields parameter estimates that tend to be less biased than those yielded by ad hoc missing data techniques (i.e., listwise deletion, pairwise deletion, mean imputation) (Collins, Schafer, & Kam, 2001; Enders, 2001; Schafer & Graham, 2002). Unlike imputation-based techniques for missing data, FIML does not involve estimating values for missing data points. Instead, FIML uses an iterative procedure to estimate the population parameters most likely to have produced the available sample data.

Grade 7. Hierarchical multiple regression (HMR) analyses were used to examine the extent to which reflected appraisals from parents and teachers uniquely contributed to the variability in adolescents' educational expectations and educational utility values during Grade 7. Results for educational expectations are presented in the left panel of Table 2.7 and will be described first. The first step of the HMR was to assess the proportion of variability in expectations accounted for by covariates (i.e., annual household income, parent education level, academic achievement, and academic self-concept; see Model 1e of Table 2.7). Covariates accounted for 9% of the variability in expectations. Of the covariates, parents' education level and youths' academic achievement were significantly related to the dependent variable, $B = .20$, $SE B = .06$; $B = .21$, $SE B = .08$, respectively, p 's $< .05$. Reflected appraisals from parents were added in Model 2e. As hypothesized, reflected appraisals from parents were significantly associated with youths' expectations ($B = .70$, $SE B = .09$, $p < .05$), and accounted for an additional 11% of the variability in this variable. Reflected appraisals from teachers were added in Model 3e. Although the association of reflected appraisals from teachers with expectations was in the predicted direction, the link between these two variables was not significant, $B = .12$, $SE B = .07$, $p = .08$.

Results for Grade 7 educational utility values are shown in the right panel of Table 2.7. Covariates accounted for 9% of the variability in utility values (Model 1v), with youths' academic achievement and academic-self-concept emerging as significant correlates in the model, $B = .08$, $SE B = .02$; $B = .20$, $SE B = .03$, respectively, p 's $< .05$. Model 2v shows that reflected appraisals from parents were significantly related to values ($B = .21$, $SE B = .04$, $p < .05$), and accounted for 5% of the variability above and beyond covariates (Model 2v). Reflected appraisals from teachers (Model 3v) were also significantly related to values ($B = .11$, $SE B = .04$, $p < .05$), accounting for an additional 2% of variability.

Grade 11. Results for Grade 11 expectations are shown in the left panel of Table 2.8. Covariates accounted for 27% of the variability in the dependent variable (Model 1e). Of the covariates, parents' education level ($B = .20$, $SE B = .06$, $p < .05$), youths' prior academic achievement ($B = .50$, $SE B = .07$, $p < .05$), and youths' concurrent academic self-concept ($B = .34$, $SE B = .07$, $p < .05$) were significant in the model. Reflected appraisals from parents were added in Model 2v and, as hypothesized, were significantly related to expectations ($B = .71$, $SE B = .11$, $p < .05$), explaining an additional 11% of the variability. Reflected appraisals from teachers were also significantly related to expectations ($B = .16$, $SE B = .06$, $p < .05$) and explained another 1% of the variability (Model 3e).

Regression models for Grade 11 educational utility values are displayed in the left panel of Table 8. Model 1v indicates that covariates accounted for 12% of the variability in eleventh graders' values. Prior achievement ($B = .19$, $SE B = .04$, $p < .05$) and concurrent academic self-concept ($B = .16$, $SE B = .04$, $p < .05$) were significant among the covariates. Reflected appraisals from parents were added in Model 2v, and were significantly associated with values ($B = .17$, $SE B = .04$, $p < .05$), accounting for 2% of the variability above and

beyond covariates. Reflected appraisals from teachers were also significantly related to values ($B = .39$, $SE B = .04$, $p < .05$), and accounted for an additional 16% of the variability in eleventh graders' educational utility values.

To facilitate comparisons of coefficients across grade levels, diagrams depicting links between reflected appraisals and youths' expectations and values in Grade 7 and Grade 11 are shown in Figure 2.1.

Protective-Stabilizing Influences of Parents, Teachers, and Peers

Hypotheses concerning the protective-stabilizing roles of parents, teachers, and peers were tested by entering the parent reflected appraisals (RA parents) x teacher reflected appraisals (RA teachers), RA parents x affiliation with achievement-oriented peers, and RA teachers x affiliation with achievement-oriented peers interaction terms individually into the original models. Again, these models were estimated with FIML in Mplus. Because of high levels of collinearity between interaction terms, each interaction was tested in a separate model. In order to ensure that interaction effects did not differ by gender group, and that nonsignificant interaction terms were not an artifact of gender group differences in interaction effects, a series of 3-way interactions by gender was also tested for each of the two-way interactions. Significant interactions were probed in the manner recommended by Aiken and West (1991) using an internet-based interactive calculation tool designed for this purpose by Preacher, Curran, and Bauer (2006). Specifically, simple slopes for the relations between the focal predictor and dependent variable at high (1 *SD* above the mean), average, and low levels (1 *SD* below the mean) of the moderator were calculated and plotted.

Grade 7. Grade 7 maximum likelihood regression models for two-way interactions are presented in Table 2.9, and models for three-way interactions are shown in Tables 2.10 and 2.11.

The RA parents x affiliation with achievement-oriented peers interaction term was significantly related to expectations ($B = .17$, $SE B = .08$, $p < .05$). This variable accounted for 1% of the variability in expectations, above and beyond other variables in the model (see Model 3e in Table 2.9). The plot of this interaction is displayed in Figure 2.2, and shows that simple slopes for the relation between reflected appraisals from parents and youths' expectations increased as a function of youths' affiliation with achievement-oriented peers. At relatively low levels of affiliation with achievement-oriented peers, the slope for this relation was $.55$ ($SE = .13$, $p < .05$). At the average level of peer affiliation, this slope was $.68$ ($SE = .09$, $p < .05$), and at relatively high levels it was $.81$ ($SE = .08$, $p < .05$). Figure 2.2 indicates that this interaction pattern is not consistent with the notion that affiliation with achievement-oriented peers exerts a protective-stabilizing effect on adolescents' educational expectations in the presence of low reflected appraisals from parents. Rather, the association of reflected appraisals from parents with adolescents' expectations appeared to be magnified in the presence of relatively high affiliation with achievement-oriented peers. Aside from the RA parents x affiliation with achievement-oriented peers interaction, no other two- or three-way interactions were significant in the models for Grade 7 expectations.

When modeling Grade 7 educational utility values, the RA teachers x achievement-oriented peers interaction term was significant ($B = .07$, $SE B = .03$, $p < .05$). Figure 2.3 shows the simple slopes for the relation between reflected appraisals from teachers and adolescents' educational utility values at high, average, and low levels of affiliation with

achievement-oriented peers. When affiliation with achievement-oriented peers was 1 SD above the mean, the slope of the relation between the focal variables was not statistically significant ($B = .05$, $SE B = .05$, $p = .37$). However, at the mean and 1 SD below the mean of affiliation with achievement-oriented peers, the slope of this relation was statistically significant ($B = .10$, $SE B = .04$, $p < .05$; $B = .15$, $SE B = .04$, $p < .05$; respectively). Visual inspection of the plot suggests that the pattern of this interaction is consistent with the protective-stabilizing hypothesis. It appears that the educational utility values of high achievement-oriented peer affiliation youth remained high even in the presence of low reflected appraisals from teachers.

Although no other two-way interactions were significant in predicting Grade 7 educational utility values, the three-way interaction of RA parents x affiliation with achievement-oriented peers x gender was significant. The visual depiction of this interaction is shown in Figure 2.4. For girls, the simple slope between reflected appraisals from parents and values was $.10$ ($SE B = .05$, $p < .05$) for relatively high levels of affiliation with achievement-oriented peers and $.22$ ($SE B = .05$, $p < .05$) for relatively low levels of affiliation with achievement-oriented peers. Visual inspection of the plot for girls suggests that the interaction pattern is consistent with the hypothesis that achievement-oriented peers serve a protective-stabilizing function in the presence of low reflected appraisals from parents. A different pattern emerged for boys. Specifically, the slope for the relation between reflected appraisals from parents and educational utility values appeared to become steeper as a function of affiliation with achievement-oriented peers. For relatively values of peers, $B = .16$, $SE B = .08$, $p < .05$. For higher values of peers, $B = .35$, $SE B = .07$, $p < .05$. Evidence for boys does not suggest that peers serve a protective-stabilizing function for

values in the presence of low reflected-appraisals from parents. Instead, the association of reflected appraisals from parents with educational utility values appeared to be magnified in the presence of relatively high levels of affiliation with achievement-oriented peers. No other 3-way interactions for Grade 7 utility values were statistically significant.

Grade 11. Grade 11 regression models for two-way interactions are presented in Table 2.12, and models for three-way interactions are shown in Tables 2.13 and 2.14.

None of the two-way interactions was significantly related to Grade 11 expectations. However, the RA parents x RA teachers interaction term was significantly associated with Grade 11 utility values ($B = .11$, $SE B = .05$, $p < .05$). This interaction was plotted twice: once with RA parents as the focal predictor and RA teachers as the moderator (Figure 2.5), and once with RA teachers as the focal predictor and RA parents as the moderator (Figure 2.6). Figure 2.5 shows that, when reflected appraisals from teachers were relatively low, the slope of the relation between RA parents and utility values was .01 ($SE B = .05$, $p = .81$). At the average of teacher appraisals, the slope of this relation was .10 ($SE B = .04$, $p < .05$), and at relatively high levels of teacher appraisals, the slope was .19 ($SE B = .06$, $p < .05$). Visual inspection of the plot indicates that the pattern of this interaction is not consistent with the hypothesized protective-stabilizing effect of reflected appraisals from teachers. The plot of the interaction with reflected appraisals from teachers as the focal predictor is also inconsistent with the protective-stabilizing hypothesis. The slope of the relation between teacher appraisals and adolescents' utility values was .34 ($SE B = .04$, $p < .05$) at relatively low levels of reflected appraisals from parents, .42 ($SE B = .04$, $p < .05$) at the average of appraisals from parents, and .50 ($SE B = .07$, $p < .05$) at relatively high levels of reflected

appraisals from parents. No other two-way interactions were significantly associated with educational utility values in Grade 11.

As was the case during Grade 7, the RA parents x affiliation with achievement-oriented peers x gender interaction was significantly related to Grade 11 educational utility values (see Figure 2.7). In addition, the pattern of slopes observed during Grade 11 is similar to those observed at the middle school time point. For girls, the simple slope between reflected appraisals from parents and values was $-.03$ ($SE B = .04$, $p = .74$) for relatively high levels of affiliation with achievement-oriented peers and $.13$ ($SE B = .07$; $p = .07$) for relatively low levels of affiliation with achievement-oriented peers. Although this second slope was only marginally significant, the pattern of slopes is generally consistent with the hypothesis that achievement-oriented peers serve a protective-stabilizing function in the presence of low reflected appraisals from parents (see Figure 2.7). A different pattern emerged for boys, which resembled the pattern observed for boys during Grade 7 and which was not consistent with a protective-stabilizing role for peers. For lower values of peers, $B = .07$, $SE B = .06$, $p = .23$. For higher values of peers, $B = .31$, $SE B = .12$, $p < .05$. No other 3-way interaction terms were significantly related to Grade 11 utility values.

Moderating Influence of Youths' Gender

To test whether the magnitude of the relations of reflected appraisals from parents/teachers with expectations/values differed as a function of youths' gender, the youth gender x RA parents and youth gender x RA teachers interaction terms were entered simultaneously into models for Grade 7 and Grade 11 data. Regression coefficients for these models are presented in Table 2.15. Neither interaction term was significantly related to expectations or values at either time point. However, during Grade 7, the relation between

youth gender x RA parents interaction term and educational expectations approached statistical significance ($B = -.29$, $SE B = .17$, $p = .08$). Plots of the simple slopes for boys and girls revealed that the association between RA parents and expectations was stronger for girls ($B = .83$, $SE B = .10$, $p < .05$) than for boys ($B = .54$, $SE B = .14$, $p < .05$), although, as already noted, this difference was only marginally significant.

Moderating Influence of Age

Clogg et al.'s (1995) method was also used to assess whether the strength of the hypothesized relations changed between Grade 7 and Grade 11. This method is appropriate for comparing the regression coefficients associated with a particular variable between models that contain identical variables but that were estimated using different samples. The test entails using the following equation to obtain a t -value:

$$\frac{B_1 - B_2}{\sqrt{[(SE B)_1]^2 + [(SE B)_2]^2}} = t$$

Significant t -values indicate that the regression coefficients being compared are significantly different from each other. In the present study, comparisons were made for all variables (including interaction terms) that were significantly associated with either expectations or values during Grade 7 and/or Grade 11. Regression coefficients used in tests of the moderating influence of age, as well as associated t -values, are presented in Table 2.16.

Results of regression coefficient comparisons revealed change over time in the magnitude of some relations. Although relations between reflected appraisals and expectations did not appear to change, the association of reflected appraisals from parents with adolescents' educational utility values appeared to decrease significantly between Grade

7 and Grade 11 ($t = 2.00, p < .05$). In contrast, the association of reflected appraisals from teachers and adolescents' values appeared to increase significantly over time ($t = -4.67, p < .05$). This result is consistent with the findings 1) that parent reflected appraisals accounted for 5% of the variability in values during Grade 7, but only 2% of the variability later on during Grade 11, and 2) that teacher reflected appraisals accounted for only 2% of the variability in values during Grade 7, but a full 16% of the variability during Grade 11.

Interaction coefficients that were significant at one and/or the other time point were compared to ascertain whether interaction effects were the same across time. Results revealed change over time in some effects. The coefficient for the RA parents x peers interaction term for expectations, which was significant during Grade 7, was significantly different from its nonsignificant analog during Grade 11 ($t = 2.50, p < .05$); the same pattern was true for the coefficient of the RA teachers x peers interaction on educational values ($t = -2.20, p < .05$). The nonsignificant Grade 7 RA parents x RA teacher interaction coefficient for values was significantly different from its Grade 11 counterpart, which was significant ($t = -2.74, p < .05$). Finally, the coefficients of the RA parents x peers x gender interaction for values, which were significant at both time points, were not significantly different from each other ($t = -.39, p = .70$). This finding suggests that this 3-way interaction effect was the same during Grade 11 as it was during Grade 7. Similarities between the plots for Grade 7 and Grade 11 (Figures 2.4 and 2.7) seem to corroborate this result.

Longitudinal Relations between Expectations, Values, and Affiliation with Achievement-Oriented Peers

Figure 2.8 shows the results for tests of the hypothesis that affiliation with achievement-oriented peers is predictive of expectations and values across time. Paths

between Time 1 and Time 2 variables were estimated by regressing Time 2 variables onto Time 1 variables and covariates (i.e., prior achievement, annual household income at Time 1, and mean caregiver education level at Time 1). Paths between Time 2 and Time 3 variables were estimated by regressing Time 3 variables onto Time 2 variables, while controlling for Time 1 variables and covariates. These models were estimated with FIML in Mplus.

Regression coefficients for the full model are shown in Table 2.17. Although the models explained a considerable proportion of the variability in expectations and values, the overall pattern for model fit indices suggests a poor fit between the data and the hypothesized model (RMSEA = .14, TLI = .16, CFI = .95). In addition, results did not provide clear evidence for the hypothesized cross-lagged associations from affiliation with achievement-oriented peers to educational expectations and educational utility values. Although Time 1 expectations significantly predicted Time 2 affiliation with achievement-oriented peers ($B = .06$, $SE B = .02$, $p < .05$), Time 1 affiliation with achievement-oriented peers did not predict future expectations ($B = .09$, $SE B = .07$, $p = .19$). Time 2 expectations predicted Time 3 peer affiliation at a level that was almost statistically significant ($B = .06$, $SE B = .03$, $p = .05$). In addition, the coefficient for Time 2 peers predicting Time 3 expectations approached statistical significance ($B = .15$, $SE B = .08$, $p = .09$). This latter finding is the only piece of evidence gleaned from this model to suggest that affiliation with achievement-oriented peers predicts future educational expectations. Furthermore, the model provided no evidence for longitudinal relations in either direction between affiliation with achievement-oriented peers and educational utility values, all p 's $> .10$.

Grade 11 Expectations and Values as Mediators of the Relation between Reflected Appraisals and High School Graduation

In the final set of analyses for Study 1, I tested the hypotheses that Grade 11 reflected appraisals from teachers and parents are associated with high school graduation status, and that these relations are mediated by educational expectations and educational utility values. Only sample members for whom high school graduation data were available (i.e., sample members who participated at Time 4) were included in these analyses. High school graduation data were available for a total of 352 individuals (216 girls, 126 boys). A series of ANOVAs (see Table 2.18) and chi-square analyses revealed that youth for whom high school graduation data were not available differed from other Study 1 sample members in a number of ways. Specifically, individuals who did not participate at Time 4 had lower mean scores on a number of motivational variables, as well as on prior academic achievement and annual household income at Time 1. Non-participants were also significantly more likely to be male than female, $\chi^2 = 42.09$ (1, $N = 613$), $p < .05$. About 56% ($N = 170$) of Study 1 boys did not participate in Time 4, as compared to 30 % ($N = 90$) of Study 1 girls. There were no significant differences between participants' and non-participants' primary caregivers' reports of marital status, $\chi^2 = 2.05$ (1, $N = 613$), $p = .15$).

High school graduation status was a binary categorical variable (1 = completed high school; 0 = did not complete high school); therefore, logistic regression models were used to test hypotheses in which graduation status was a dependent variable. In contrast to multiple regression models, FIML is not an option for handling missing data in logistic regression models. Instead, multiple imputations (MI) were used to impute missing values on independent variables. Like FIML, MI techniques for missing data tend to produce parameter estimates that are less biased than those yielded by ad hoc methods for handling missing data (Schafer & Graham, 2002). The NORM multiple imputation software package

(Schaffer, 1997), which is appropriate for use with multivariate continuous variables that are normally distributed, was employed to create imputed datasets. Like other programs for MI, NORM predicts each participant's missing values from his or her own observed values, while adding in a "random noise" component that represents missing data uncertainty better than purely regression-based and mean imputation methods (Shafer & Graham, 2002). NORM was used to create a total of 6 datasets with imputed values for missing independent variables. These datasets were then analyzed using the multiple imputation (mim) function in Stata (Version 10). Stata was selected for this particular set of analyses because of its capacity to provide odds ratios (ORs) as opposed to log odds when computing logistic regression coefficients (odds ratios tend to be easier to interpret than log odds), as well as its ability to provide predicted probabilities for independent variables in the models (i. e., model-predicted probabilities of a positive outcome on the dependent variable for various levels of a given independent variable, while holding all other independent variables at their mean). These features are not available in Mplus.

The criteria for mediation established by Baron and Kenny (1986) were used to test meditational effects. According to these criteria, the first step of establishing mediation is to show that the focal predictor (i.e., reflected appraisals from parents/teachers) is associated with the outcome (i.e., high school graduation status) (Step 1). If this condition is met, the next step is to demonstrate that the focal predictor is associated with the mediator (i.e., expectations/values) (Step 2). Step 3 is to show that the mediator is related to the outcome, even when controlling for the focal predictor. The final step in testing mediation is to show that the relation between the focal predictor and the outcome variable is diminished when the mediator is included in the model (Step 4). In the present study, two separate sets of

mediational models were estimated: one set to test the mediating role of educational expectations, and a second set to test the mediating role of educational utility values. For all models, annual household income, parent education level, prior academic achievement, and academic self-concept were controlled. Diagrams depicting both mediational models are presented in Figure 2.9, and full regression models (including covariates) used to test mediation via both expectations and values are presented in Table 2.19.

Table 19 shows the logistic regression model used to establish that reflected appraisals were, in fact, related to high school graduation (Step 1). Parameter estimates for this model show that reflected appraisals from parents and teachers were both associated with high school graduation status at marginally significant levels ($OR = 1.81, SE = .56, p = .05$; $OR = 1.52, SE = .34, p = .06$; respectively). Predicted probabilities were calculated in Stata to facilitate interpretation of odds ratio coefficients. These predicted probability values represent the model-predicted probability of high school graduation for an individual who has a given score on the focal independent variable, while the scores of all other variables in the model are held at their mean. When reflected appraisals from parents were near their lowest observed value (-2) and all other variables held at their mean, the probability of graduating from high school was predicted to be 0.92. When reflected appraisals from parents were near their highest observed value (1.0), the predicted probability of high school graduation was .99. When reflected appraisals from teachers were at their lowest possible value (1), the predicted probability of high school graduation was .93; when they were at their highest possible value (5), this predicted probability changed to .99. Given that the coefficients for reflected appraisals from parents and teachers on high school graduation

status were very close to being statistically significant, the additional steps for testing expectations and values as mediators were carried out.

Expectations as a mediator. In Step 2 of testing expectations as a mediator of the relation between reflected appraisals from parents/teachers and high school graduation status, the significant association between reflected appraisals from parents and adolescents' expectations was demonstrated ($B = .69$, $SE = .12$, $p < .05$). However, the association between teacher appraisals and expectations was not significant ($B = .12$, $SE = .08$, $p = .14$); therefore, adolescents' educational expectations could be ruled out as a mediator between teacher reflected appraisal effects and high school graduation.

Analyses for Step 3 revealed that expectations were, in fact, related to high school graduation status ($OR = 1.54$, $SE = .30$, $p < .05$), even when reflected appraisals from parents were in the model. The final step (Step 4) was to assess the relation between reflected appraisals from parents and high school graduation with the hypothesized mediator (expectations) in the model. When controlling for expectations, the coefficient for reflected appraisals from parents in predicting high school graduation status was reduced to 1.31 ($SE = .45$) and was no longer statistically significant ($p = .42$). This pattern of results suggests that educational expectations fully mediated the relation between reflected appraisals from parents and adolescents' high school graduation status. Calculation of predicted probabilities for expectations revealed that, when expectations were at their lowest (1), the predicted probability of high school graduation was .89. When expectations were at their highest (7), the predicted probability of high school graduation was .99.

Values as a mediator. Step 2 in testing educational values as a mediator of the relation between reflected appraisals from parents and high school graduation status showed

that reflected appraisals from parents were significantly related to educational values ($B = .10$, $SE = .04$, $p < .05$), as were reflected appraisals from teachers ($B = .39$, $SE B = .05$, $p < .05$). Step 3 was to test the relation between educational values and high school graduation status while controlling for reflected appraisals from parents and teachers. Under this condition, the association of values with high school graduation status was not statistically significant ($OR = 1.18$, $SE = .44$, $p = .66$). Furthermore, the association of reflected appraisals of parents and high school graduation status decreased only negligibly when educational values were entered into the model ($OR = 1.80$, $SE = .57$, $p = .07$). The same was true for reflected appraisals from teachers ($OR = 1.42$, $SE = .45$, $p = .27$). Thus, it does not appear that educational utility values mediated the relation between reflected appraisals from parents/teachers and high school graduation status.

Summary of Study 1 Results

Reflected appraisals from parents and teachers each appeared to exert a unique effect on adolescents' educational expectations and educational utility values during Grade 7 and again during Grade 11. The one inconsistency to this pattern was the marginally significant relation between RA teachers and educational expectations during Grade 7, $p < .10$. In addition, some support for the protective-stabilizing hypotheses described on pp. 17-18 was also obtained. In particular, the pattern of the significant RA teachers x peers interaction during Grade 7 suggests that relatively high levels of affiliation with achievement-oriented peers may protect youths' educational utility values from the harmful influence of unfavorable reflected appraisals from teachers (see Figure 2.3). Peers also appeared to protect utility values from the harmful influence of unfavorable reflected appraisals from parents during Grade 7 and again during Grade 11; however, this pattern of results was

observed for girls only (see Figures 2.4 and 2.7). Results of Study 1 provide no evidence to support the hypotheses that protective-stabilizing effects emanate from either reflected appraisals of teachers or from reflected appraisals of parents.

In general, the magnitude of the relations between reflected appraisals and expectations/values was equivalent for boys and girls. The one exception to this pattern was a marginally significant gender difference ($p < .10$) in the strength of the relation between RA parents and educational expectations during Grade 7; specifically, RA parents appeared to exert a greater impact on girls' expectations than on the expectations of boys. In addition, the magnitude of some relations changed over time. The influence of RA parents on educational utility values appeared to wane between Grade 7 and Grade 11, whereas the influence of RA teachers on values appeared to grow stronger over time. Certain interaction effects also changed over time. In particular, the significant Grade 7 RA teachers x peers interaction, which provided evidence for a protective-stabilizing influence from peers, had dissipated by Grade 11. Furthermore, all non-hypothesis-supporting significant interaction effects (i.e., the RA parents x peers interaction on educational expectations during Grade 7 and the RA parents X RA teachers interaction on values during Grade 11) appeared at only one or the other time point.

As indicated in Figure 2.8, there was not much evidence in support of longitudinal relations from affiliation with achievement-oriented peers to adolescents' educational expectations and educational utility values. Time 2 peer affiliation predicted Time 3 expectations at a level that was marginally significant ($p < .10$). The opposite direction of effect was also supported: Specifically, Time 1 expectations significantly predicted peer affiliation at Time 2, and Time 2 expectations predicted peer affiliation at Time 3 with

marginal significance ($p < .10$). No evidence for links from affiliation with achievement-oriented peers to educational utility values, or vice versa, was found.

Marginally significant ($p < .10$) associations of reflected appraisals from parents and teachers with high school graduation status were observed. The link between RA parents and high school graduation status appeared to be mediated by adolescents' educational expectations, but not by their educational utility values. The link between RA teachers and high school graduation status did not appear to be mediated by either expectations or values.

Study 1 Discussion

Reflected Appraisals and Motivation in African American Adolescents

On average, adolescents in the present study believed that significant adults in their lives held favorable views of their academic competencies. At both time points studied, more than 70% of respondents reported that their parents thought they would attain a 4-year college degree or higher; more than 30% reported that their parents thought they would complete a doctoral degree. Participants also tended to believe that teachers regarded their academic competencies in a positive light, as indicated by ratings during Grades 7 and 11 of about 3.9 (on a 1-5 scale) on the single-item measure for reflected appraisals of teachers.

Results of this study suggest that reflected appraisals from parents and teachers each make a unique contribution to the variability in African American adolescents' motivational outcomes, even when controlling for prior academic achievement and youths' self-perceptions of academic competence. These results add to a growing literature intended to elucidate the multiple pathways by which socializing agents influence youths' achievement motivation. Prior studies have found that adults' perceptions of African American youths' academic competencies are related to youths' self-perceptions and other indicators of

achievement motivation (e.g., Trusty, 2002; Wood et al., 2007; Wood, Copping, Cooke, & Kurtz-Costes, 2007). Results of the present study suggest that adolescents' perceptions of what adults think of them also contribute to their motivational outcomes. Furthermore, these results bolster Eccles and Wigfield's (Eccles et al., 1983; Wigfield & Eccles, 2000) expectancy-value theory by providing evidence that children's perceptions of parents' and teachers' beliefs and attitudes are factored into their expectancies for future educational success and the extent to which they believe that education will be useful to them in accomplishing their goals for the future. Most prior findings in support of expectancy-value theory have been obtained using European American samples; the work presented here illustrates ways in which expectancy-value theory explains the motivational processes of African Americans.

The magnitude of the relation between reflected appraisals of parents and utility values decreased between Grade 7 and Grade 11, whereas the strength of the relation between reflected appraisals of teachers and utility values increased. Given the exploratory nature of analyses concerning the moderating influence of youths' age, these results should not be over-interpreted. However, an examination into how these findings correspond with broader developmental theory may be worthwhile. The finding that the influence of reflected appraisals from parents diminished over time is consistent with the widely-held theory that parental influence on youths' outcomes decreases in parallel with increases in adolescents' levels of autonomy-seeking (Grotevant, 1988). Values are often framed as dimensions of identity (Marcia, 1966); hence, an individual's educational utility values may be conceptualized as a part of his or her *academic identity*. Because individuation is a major goal of identity formation, and because older adolescents are more likely to have fully

engaged in identity formation processes than younger ones, it seems possible that older adolescents might also be less likely to integrate feedback from parents into their academic identities.

This post hoc reasoning used to explain decreases in the influence of reflected appraisals of parents on utility values over time does not explain why the influence of RA teachers appeared to increase over time. One potential explanation is that, as adolescents' gain autonomy from parents, they may become more susceptible to influences from non-familial adults. In addition, African American high school students who perceive low reflected appraisals from teachers may do so as a consequence of repeated experiences with stereotype threat that have occurred over the course of their academic career; these same stereotype threat experiences may have also led youth to devalue academic pursuits in order to protect the self-concept from the potential ill effects of low academic performance (Steele, 1997). Of course, each of these explanations is purely speculative, and additional work should be conducted to assess whether the observed increase in teacher influence is a general phenomenon for African American youth or merely an artifact of the MADICS dataset. In addition, it should be noted that there was no change over time in the strength of the associations of reflected appraisals of parents and teachers with adolescents' educational expectations.

Protective-Stabilizing Influences of Affiliation with Achievement-Oriented Peers

Consistent with the protective-stabilizing hypothesis put forth by Luthar et al. (2000), the results of Study 1 suggest that affiliation with achievement-oriented peers may offset the harmful influence of low reflected appraisals of parents and teachers. Specifically, relatively high levels of affiliation with achievement-oriented peers during Grade 7 appeared to protect

boys' and girls' educational utility values from the harmful influence of low reflected appraisals from teachers. Unfortunately, this effect seems to have dissipated by Grade 11. Relatively high levels of peer affiliation at both time points appeared to protect girls' values from the harmful influence of low reflected appraisals of parents, a pattern that did not apply to data for boys. These findings, along with recent findings from other authors (e.g., Benner & Mistry, 2007; Brody et al., 2002; Chester, Jones, Zalot, & Sterrett, 2007; Forehand, Jones, Brody, & Armistead, 2002; Wood et al., 2007), highlight the importance of incorporating multiple contexts of influence into models seeking to explain adolescents' developmental outcomes.

Importantly, the inferences that may be drawn about the significant Grade 7 RA teachers x peers and Grades 7 and 11 RA parents x peers interactions are somewhat limited. Although interaction plots are consistent with the notion that achievement-oriented peers are serving to neutralize the harmful impact of low reflected appraisals, a different set of causal relations are also consistent with the observed pattern. Specifically, some adolescents may naturally hold strong educational utility values even in the face of low reflected appraisals; youth who are resilient in this way may also be more likely to select achievement-oriented peer groups. Unfortunately, tests of the longitudinal relations from peer affiliations to educational utility values did little to shed light on possible causal ordering of these two variables. Furthermore, the absence of a main effect of peers on educational utility values in the cross-sectional analyses for either time point indicates that a direct association between these two variables either does not exist or exists only for certain subgroups of adolescents.

Although affiliation with achievement-oriented peers did not appear to play a protective role for expectations, they did appear to exert a significant main effect on

expectations during Grade 11. This finding is consistent with results of numerous past studies, which point to peers as a potential source of motivation and a positive influence on the academic identity of African American youth (Engerman & Bailey, 2006; Horvat & Lewis, 2004; Oyserman, Bybee, & Terry, 2006; Somers, Owen, & Piliawsky, 2008; Stewart, 2008).

Reflected Appraisals and High School Graduation Status

Results of this study indicate that reflected appraisals of parents and teachers each made a unique, although marginally significant ($p < .10$), contribution to adolescents' completion of high school. Consistent with expectancy-value theory, the relation between RA parents and high school graduation status was mediated by adolescents' expectations for future attainment (but not by their educational utility values). This finding provides evidence that expectancies for success in future educational pursuits contribute to actual attainment in a meaningful way. Contrary to hypotheses, the association of reflected appraisals of teachers with high school completion was mediated neither by expectations nor by values; furthermore the marginally significant association of RA teachers with graduation status was washed out when expectations and values were included in the models (see Table 2.19).

Interestingly, educational utility values were not significantly associated with high school graduation. It is difficult to ascertain whether values truly have no significant impact on completion of high school, or whether this null finding was a consequence of sample attrition that occurred between Grade 11 and early adulthood. This attrition caused the sample to become increasingly homogenous between these time points and calls into question the external validity of the analyses presented in Table 2.19. It is highly likely that youth who did not graduate from high school were less likely to be included in the analyses

for high school graduation status. This pattern of attrition, which appears to have led to relatively low variability in high school completion status among sample members (only 11% of sample members reported not graduating from high school, as compared to a 30% non-graduation rate for the school district from which they were recruited (Orfield, Losen, Wald, & Swanson, 2004)), may explain why it was difficult to detect significant effects of educational utility values (and reflected appraisals, which were only marginally significant) on high school completion. This attrition may also explain why a significant association between reflected appraisals of teachers and expectations was observed for the entire Study 1 sample, but not for the subsample used in the analyses pertaining to high school completion.

Study 1 Limitations and Future Directions

In addition to those already mentioned, the present study had a number of limitations that could be overcome in future work. For one, the available data may not have been ideal for tests of longitudinal relations from affiliation with achievement-oriented peers to future educational expectations. The model presented in Table 2.17 (Figure 2.8) failed to detect significant longitudinal paths between these variables. However, as shown in Model 2e of Table 2.12, peer affiliations *do* eventually become significantly aligned with educational expectations by the time adolescents are in Grade 11. Therefore, it seems likely that longitudinal paths between these variables would also have been significant if data collection time points had been closer together. Future researchers may wish to re-test this model using data collected, for example, at one-year intervals rather than the two-year time lags that were used in MADICS.

Other limitations of Study 1 center on measurement of focal constructs. For one, youths' educational expectations and reflected appraisals of teachers were assessed using

single-item measures. Although not always problematic (Gardner, Cummings, Dunham, & Pierce, 1998), single-item measures may be more prone to problems with construct/content validity and test-retest reliability (Hinkin, 1995). Furthermore, internal reliabilities for the reflected appraisals of parents and educational utility values scales were unimpressive, with Cronbach's alphas tending to hover between .50-.60, suggesting that the individual items used to construct each scale may not have tapped into the same construct. The low internal reliabilities of these measures call into question the specific nature of the factors driving the observed correlations. Future researchers may wish to focus on constructing more precise definitions and measurement tools for conducting research on these constructs.

Eccles and Wigfield's (Wigfield & Eccles, 2002) expectancy-value model specifies a number of potential mediating variables for the relation between reflected appraisals and youths' expectations/values that were not addressed by this study. These mediators are part of the model component labeled "child's goals and general self-schemata" (p. 93), and, for the models presented in the present study, may include factors such as short-term performance goals, long-term career goals, perceptions of the difficulty associated with pursuing challenging educational tasks, and self-perceptions of academic competence. Interestingly, results of the present study are consistent with the hypothesis that self-perceptions of general academic competence partially mediated the relations between some reflected appraisals and expectations and values (see Tables 2.7 and 2.8). In the future, more comprehensive tests of the expectancy-value framework should assess the mediating role of this and other variables.

Given the potential influence of reflected appraisals on expectations and values, future researchers may also wish to uncover social context factors that shape adolescents'

perceptions of what adults believe about them. According to expectancy-value theory, reflected appraisals of adults are derived from adults' actual beliefs about children's academic competencies. However, this link has yet to be empirically demonstrated. Contrary to the theory, Gill and Reynolds (1999) found that sixth grade African American children's perceptions of their parents' attainment expectations were unrelated to parents' own reports of their expectations; however, it is possible that adolescents' reflected appraisals and adults' actual beliefs become increasingly aligned across the adolescent years, as youth become more adept at accurately interpreting and processing feedback from the social environment (Nicholls, 1979; Weinstein, Marshall, Sharp, & Botkin, 1983).

In addition to adults' actual beliefs about their competencies, youth may draw upon adults' behaviors to formulate reflected appraisals. For instance, parents' direct verbal messages to children about their academic performance, as well as messages implied by the depth and quality of involvement in children's schoolwork, affective responses to children's academic performance, and discipline and/or rewards meted out as a consequence of performance may inform adolescents' beliefs about how competent their parents believe them to be. Scholars have pointed to a number of ways in which teachers' differential treatment of high versus low-achieving children, in the form of differential teacher behaviors like praise/criticism, autonomy-granting, strictness, warmth, and encouragement for class participation might cue children's reflected appraisals from teachers (Irvine, 1990; Weinstein et al., 1983)

For African American youth, one factor that might shape reflected appraisals of teachers is the perception of school-based racial discrimination. It seems likely that youth who perceive teachers to be biased against African Americans will adjust their reflected

appraisals from teachers accordingly. If this is the case, it is plausible that reflected appraisals of teachers mediate the documented negative association between school-based experiences with racial discrimination and adolescents' achievement motivation (Chavous, Rivas-Drake, Smalls, Griffin, & Cogburn, 2008; Eccles, Wong, & Peck, 2006; Neblett, Philips, Cogburn & Sellers, 2007; Wong, Eccles, & Sameroff, 2003). Future researchers may also wish to examine the role that reflected appraisals of teachers play in stereotype threat processes (Steele, 1992). African American youth who are aware of negative stereotypes about their group's academic competence may be less susceptible to academic stereotype threat if they believe that teachers view their personal academic competence in a favorable light.

Table 2.1

MADICS Data Collection Timetable

Wave	Year	Grade in School	Youth	<u>Informants</u>		
				Primary Caregivers	Secondary Caregivers	Older Siblings
1*	1991	Beginning of Grade 7	X	X	X	X
2	1992	Summer between Grades 7 and 8	X	X		
3*	1993	Summer following Grade 8	X	X	X	X
3T	1993	Summer following Grade 8		X		
4*	1996	Grade 11	X	X		
5*	1998	1 yr post-high school graduation	X			
6	2000	3 yrs post-high school graduation	X			

* Denotes waves of data collection included in the present report.

Table 2.2

Patterns of Participation among Study Sample Members

<i>N</i>	Percent of Sample	Time 1	Time 2	Time 3	Time 4
325	37%	X	X	X	X
157	18%	X	X	X	
106	12%	X			
79	9%	X	X		
69	8%	X		X	X
62	7%	X		X	
45	5%	X	X		X
33	4%	X			X
Total participation per time point*		100%	69%	70%	54%
		<i>N</i> = 876	<i>N</i> = 606	<i>N</i> = 613	<i>N</i> = 472

*Percentages for each pattern may not add to percentage for total participation due to rounding.

Table 2.3

Bivariate Correlations Between Key Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Expectations (T1)																			
2. Expectations (T2)	.46*																		
3. Expectations (T3)	.40*	.46*																	
4. Values (T1)	.20*	.18*	.17*																
5. Values (T2)	.11*	.24*	.20*	.32*															
6. Values (T3)	.07	.13*	.28*	.32*	.36*														
7. Peers (T1)	.13*	.09*	.11*	.13*	.07	.04													
8. Peers (T2)	.16*	.25*	.21*	.14*	.28*	.08	.29*												
9. Peers (T3)	.21*	.26*	.35*	.13*	.12*	.22*	.28*	.33*											
10. Tch. Refl. App. (T1)	.19*	.21*	.15*	.29*	.22*	.16*	.22*	.21*	.20*										
11. Tch. Refl. App. (T3)	.14*	.16*	.29*	.25*	.26*	.50*	.10*	.15*	.19*	.22*									
12. Par. Refl. App. (T1)	.39*	.37*	.26*	.33*	.21*	.18*	.13*	.16*	.18*	.25*	.12*								
13. Par. Refl. App. (T3)	.22*	.30*	.54*	.17*	.20*	.29*	.04	.12*	.25*	.14*	.27*	.30*							
14. Ac. self-conc. (T1)	.17*	.22*	.19*	.28*	.21*	.21*	.11*	.15*	.18*	.39*	.15*	.33*	.15*						
15. Ac. self-conc. (T3)	.18*	.27*	.31*	.16*	.17*	.24*	.08	.15*	.25*	.17*	.40*	.28*	.24*	.29*					
16. Youth gender	-.10*	-.18*	-.24*	-.11*	-.14*	-.14*	-.20*	-.20*	-.29*	-.17*	-.22*	-.05	-.11*	-.03	-.05				
17. Prior achievement	.27*	.39*	.46*	.23*	.29*	.29*	.05	.16*	.29*	.30*	.22*	.29*	.34*	.37*	.31*	-.30*			
18. Ann. hhld. income	.20*	.26*	.23*	.06	.04	.14*	.02	.03	.16*	.06	.02	.10*	.19*	.08*	.01	-.03	.34*		
19. Parent education	.24*	.29*	.31*	.04	.12*	.12*	.04	.07	.20*	.05	.08	.17*	.24*	.09*	.11*	-.04	.33*	.49*	
Mean	4.96	5.12	5.03	4.28	4.17	4.13	3.49	3.36	3.33	3.87	3.93	-.01	.05	.00	.00	--	-.01	9.48	2.50
(SD)	(1.47)	(1.36)	(1.36)	(.64)	(.74)	(.74)	(.79)	(.70)	(.83)	(.91)	(.84)	(.73)	(.76)	(.77)	(.77)	--	(.89)	(4.32)	(.99)

Table 2.4

Means and Standard Deviations on Continuous Study Variables as Function of Longitudinal Participation Status

	All Waves ($N = 325$)	<All Waves ($N = 551$)
	$M (SD)$	$M (SD)$
1. Expectations (T1)*	5.15 (1.35)	4.86 (1.53)
2. Expectations (T2)*	5.25 (1.29)	4.96 (1.41)
3. Expectations (T3)*	5.23 (1.29)	4.79 (1.36)
4. Values (T1)	4.32 (.63)	4.27 (.65)
5. Values (T2)*	4.27 (.68)	4.06 (.79)
6. Values (T3)*	4.21 (.72)	4.01 (.74)
7. Peers (T1)	3.54 (.77)	3.45 (.80)
8. Peers (T2)*	3.41 (.68)	3.30 (.72)
9. Peers (T3)*	3.43 (.79)	3.44 (.79)
10. Tchr. Refl. App. (T1)*	4.00 (.87)	3.80 (.92)
11. Tchr. Refl. App. (T3)*	4.00 (.80)	3.83 (.88)
12. Parent Refl. App. (T1)	.04 (.74)	-.03 (.74)
13. Parent Refl. App. (T3)	.10 (.73)	-.01 (.78)
14. Academic self-conc. (T1)	.05 (.74)	-.03 (.79)
15. Academic self-conc. (T3)	.04 (.75)	-.06 (.79)
17. Prior achievement*	.24 (.85)	-.16 (.89)
18. Annual hhld. Income*	10.20 (4.14)	9.02 (4.37)
19. Parent education*	2.64 (.99)	2.42 (.98)

*Significant between-group difference, $p < .05$

Table 2.5

Means and Standard Deviations on Continuous Study Variables as a Function of Youths' Gender

	Girls (<i>N</i> = 414)	Boys (<i>N</i> = 462)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
1. Expectations (T1)*	5.12 (1.59)	4.82 (1.34)
2. Expectations (T2)*	5.38 (1.42)	4.89 (1.26)
3. Expectations (T3)*	5.36 (1.35)	4.7 (1.28)
4. Values (T1)*	4.36 (.58)	4.22 (.69)
5. Values (T2)*	4.29 (.68)	4.07 (.78)
6. Values (T3)*	4.23 (.66)	4.02 (.79)
7. Peers (T1)*	3.65 (.77)	3.34 (.78)
8. Peers (T2)*	3.52 (.68)	3.24 (.68)
9. Peers (T3)*	3.57 (.82)	3.08 (.77)
10. Tchr. Refl. App. (T1)*	4.04 (.82)	3.73 (.96)
11. Tchr. Refl. App. (T3)*	4.11 (.79)	3.74 (.85)
12. Parent Refl. App. (T1)	.03 (.73)	-.04 (.74)
13. Parent Refl. App. (T3)*	.13 (.74)	-.03 (.77)
14. Academic self-conc. (T1)	.02 (.78)	-.02 (.76)
15. Academic self-conc. (T3)	.04 (.80)	-.04 (.74)
17. Prior achievement*	.27 (.85)	-.27 (.85)
18. Annual hhld. income	9.59 (4.33)	9.37 (4.31)
19. Parent education	2.54 (1.03)	2.46 (.95)

*Significant between-group difference, $p < .05$

Table 2.6

Means and Standard Deviations on Continuous Study Variables as a Function of Inclusion in or Exclusion from Study 1

	Included (<i>N</i> = 414)	Excluded (<i>N</i> = 462)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
1. Expectations (T1)	5.06 (1.41)	4.74 (1.58)
2. Expectations (T2) [†]	5.17 (1.34)	4.91 (1.39)
3. Expectations (T3)*	5.03 (1.36)	--
4. Values (T1)	4.31 (.64)	4.24 (.66)
5. Values (T2)*	4.21 (.74)	4.02 (.73)
6. Values (T3)	4.13 (.74)	--
7. Peers (T1)	3.49 (.79)	3.47 (.80)
8. Peers (T2)	3.38 (.67)	3.29 (.77)
9. Peers (T3)	3.33 (.83)	--
10. Tchr. Refl. App. (T1) [†]	3.91 (.90)	3.79 (.92)
11. Tchr. Refl. App. (T3)	3.93 (.84)	--
12. Parent Refl. App. (T1)	.01 (.76)	-.04 (.78)
13. Parent Refl. App. (T3)	.05 (.76)	--
14. Academic self-conc. (T1)	.00 (.77)	-.01 (.78)
15. Academic self-conc. (T3)	.00 (.77)	--
17. Prior achievement*	.04 (.90)	-.12 (.88)
18. Annual hhld. income	9.61 (4.27)	9.14 (4.43)
19. Parent education [†]	2.54 (1.01)	2.40 (.93)

*Significant between-group difference, $p < .05$

Table 2.7

Maximum Likelihood Regression Models Predicting Educational Expectations and Educational Utility Values from Reflected Appraisals During Grade 7 (N = 613)

	<u>Educational Expectations</u>			<u>Educational Utility Values</u>		
	Model 1e	Model 2e	Model 3e	Model 1v	Model 2v	Model 3v
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.02 (.01) [†]	.02 (.01)*	.02 (.01)*	.01 (.01)	.01 (.01)	.01 (.01)
Parent education	.20 (.06)*	.16 (.05)*	.16 (.05)*	-.02 (.02)	-.03 (.02) [†]	-.03 (.02)
Achievement	.21 (.08)*	.13 (.08) [†]	.11 (.07)	.08 (.02)*	.06 (.02)*	.04 (.02) [†]
Ac. self-concept	.16 (.10)	-.02 (.09)	-.05 (.10)	.20 (.03)*	.15 (.04)*	.11 (.04)*
RA Parents		.70 (.09)*	.69 (.09)*		.21 (.04)*	.20 (.03)*
RA Teachers			.12 (.07) [†]			.11 (.04)*
<i>R</i> ²	.09*	.20*	.20*	.09*	.14*	.16*

* $p < .05$, [†] $p < .10$

Table 2.8

Maximum Likelihood Regression Models Predicting Educational Expectations and Educational Utility Values from Reflected Appraisals During Grade 11 (N = 613)

	<u>Educational Expectations</u>			<u>Educational Utility Values</u>		
	Model 1e	Model 2e	Model 3e	Model 1v	Model 2v	Model 3v
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.02 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)
Parent education	.20 (.06)*	.13 (.06)*	.13 (.06)*	-.01 (.04)	-.02 (.04)	-.02 (.04)
Achievement	.50 (.07)*	.34 (.08)*	.33 (.08)*	.19 (.04)*	.15 (.04)*	.12 (.03)*
Ac. self-concept	.34 (.07)*	.21 (.06)*	.15 (.07)*	.16 (.04)*	.13 (.04)*	-.02 (.04)
RA Parents		.71 (.11)*	.68 (.11)*		.17 (.04)*	.10 (.04)*
RA Teachers			.16 (.06)*			.39 (.04)*
<i>R</i> ²	.27*	.38*	.39*	.12*	.14*	.30*

* $p < .05$, † $p < .10$

Table 2.9

*Maximum Likelihood Regression Models Predicting Grade 7 Educational Expectations and Educational Utility**Values from Two-Way Interaction Terms (N = 613)*

	<u>Educational Expectations</u>				<u>Educational Utility Values</u>			
	Model 1e	Model 2e	Model 3e	Model 4e	Model 1v	Model 2v	Model 3v	Model 4v
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.02 (.01)*	.02 (.01)*	.02 (.01)*	.02 (.01)*	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)
Parent education	.16 (.05)*	.16 (.05)*	.17 (.05)*	.16 (.05)*	-.03 (.02)	-.03 (.02)	-.03 (.02)	-.03 (.02)
Achievement	.11 (.07)	.11 (.07)	.12 (.07)	.11 (.07)	.04 (.02) [†]	.04 (.02) [†]	.04 (.02) [†]	.04 (.02)*
Ac. self-concept	-.06 (.09)	-.05 (.10)	-.05 (.10)	-.06 (.10)	.12 (.04)*	.11 (.04)*	.11 (.04)*	.12 (.04)*
RA Parents	.35 (.30)	.68 (.09)*	.10 (.34)	.68 (.09)*	.37 (.12)*	.20 (.03)*	.20 (.15)	.20 (.04)*
RA Teachers	.13 (.07) [†]	.10 (.07)	.10 (.07)	-.29 (.30)	.11 (.04)*	.11 (.04)*	.11 (.04)*	.33 (.10)*
Peers		.11 (.07)	.11 (.07)	-.36 (.38)		.03 (.03)	.03 (.03)	.29 (.13)*
RA Par. x RA Tchr.	.09 (.07)				-.05 (.03)			
RA Par. x Peers			.17 (.08)*				.00 (.04)	
RA Tchr. x Peers				.12 (.09)				-.07 (.03)*
<i>R</i> ²	.20*	.21*	.21*	.21*	.16*	.16*	.16*	.17*

* $p < .05$, [†] $p < .10$

Table 2.10

*Maximum Likelihood Regression Models Predicting Grade 7 Educational Expectations from Three-Way Interaction**Terms (N = 613)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.03 (.01)*	.02 (.01)*	.02 (.01)*	.02 (.01)*	.02 (.01)*	.02 (.01)*	.03 (.01)*	.03 (.01)*
Parent education	.16 (.05)*	.16 (.05)*	.17 (.05)*	.16 (.05)*	.17 (.05)*	.17 (.05)*	.16 (.05)*	.16 (.05)*
Achievement	.07 (.07)	.07 (.07)	.07 (.07)	.09 (.07)	.09 (.07)	.09 (.07)	.08 (.07)	.09 (.07)
Ac. self-concept	-.03 (.10)	-.05 (.09)	-.06 (.09)	-.04 (.09)	-.05 (.09)	-.05 (.09)	-.04 (.09)	-.04 (.09)
RA Parents	.70 (.09)*	.51 (.33)	.95 (.44)*	.69 (.09)*	.23 (.38)	.45 (.60)	.67 (.09)*	.67 (.09)*
RA Teachers	.11 (.06) [†]	.07 (.09)	.07 (.09)	.09 (.07)	.10 (.07)	.10 (.07)	-.34 (.40)	-.40 (.54)
Gender	-.15 (.09)	-.56 (.52)	-.59 (.50)	-.12 (.09)	.84 (.59)	.82 (.58)	.30 (.75)	-.07 (2.1)
Peers				.09 (.07)	.22 (.10)*	.21 (.10)*	-.20 (.41)	-.27 (.57)
RA Par. x RA Tch.		.08 (.07)	-.03 (.11)					
RA Par. x Gender		-.26 (.17)	-.92 (.53) [†]		-.19 (.16)	-.69 (.78)		
RA Tch. x Gender		.11 (.13)	.11 (.13)				.13 (.16)	.22 (.52)
RA Par. x Peers					.15 (.09) [†]	.09 (.15)		
RA Tch. x Peers							.11 (.10)	.12 (.14)
Peers x Gen.					-.27 (.16) [†]	-.27 (.16) [†]	-.26 (.17)	-.16 (.57)
RA Par. x RA Tch. x Gen.			.17 (.12)					
RA Par. x Peers x Gen.						.14 (.20)		
RA Tch. x Peers x Gen.								-.03 (.13)
<i>R</i> ²	.20*	.21*	.21*	.21*	.22*	.22*	.22*	.22*

**p* < .05, [†]*p* < .10

Table 2.11

*Maximum Likelihood Regression Models Predicting Grade 7 Educational Utility Values from Three-Way**Interaction Terms (N = 613)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)
Parent education	-.03 (.02)	-.03 (.02)	-.03 (.02)	-.02 (.04)	-.03 (.02)	-.03 (.02)	-.03 (.02)	-.03 (.02)
Achievement	.04 (.02)	.04 (.02) [†]	.04 (.02)	.12 (.04)*	.04 (.02)*	.04 (.02) [†]	.04 (.02) [†]	.04 (.02) [†]
Ac. self-concept	.11 (.04)*	.12 (.04)*	.13 (.04)*	-.03 (.04)	.12 (.04)*	.12 (.04)*	.12 (.04)*	.12 (.04)*
RA Parents	.20 (.03)*	.33 (.13)*	.06 (.20)	.09 (.04)*	.12 (.16)	.42 (.15)*	.20 (.03)*	.20 (.03)*
RA Teachers	.11 (.04)*	.12 (.04)*	.12 (.04)*	.40 (.03)*	.10 (.04)*	.10 (.04)*	.37 (.11)*	.35 (.22)
Gender	-.01 (.05)	.12 (.18)	.14 (.18)	.04 (.06)	.02 (.22)	-.01 (.20)	.16 (.29)	.04 (1.42)
Peers				.07 (.05)	.04 (.05)	.03 (.05)	.32 (.15)	.29 (.27)
RA Par. x RA Tch.		-.04 (.03)	.02 (.05)					
RA Par. x Gender		.07 (.06)	.47 (.26) [†]		.09 (.06)	-.57 (.30) [†]		
RA Tch. x Gender		-.03 (.05)	-.04 (.05)				-.03 (.05)	.00 (.35)
RA Par. x Peers					.01 (.04)	-.07 (.04) [†]		
RA Tch. x Peers							-.07 (.03)*	-.07 (.06)
Peers x Gen.					-.01 (.06)	.00 (.06)	-.01 (.07)	.02 (.41)
RA Par. x RA Tch. x Gen.			-.11 (.07)					
RA Par. x Peers x Gen.						.19 (.09)*		
RA Tch. x Peers x Gen.								-.01 (.10)
<i>R</i> ²	.16*	.16*	.17*	.16*	.17*	.17*	.17*	.17*

**p* < .05, [†]*p* < .10

Table 2.12

*Maximum Likelihood Regression Models Predicting Grade 11 Educational Expectations and Educational Utility**Values from Two-Way Interaction Terms (N = 613)*

	<u>Educational Expectations</u>				<u>Educational Utility Values</u>			
	Model 1e	Model 2e	Model 3e	Model 4e	Model 1v	Model 2v	Model 3v	Model 4v
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)
Parent education	.13 (.06)*	.13 (.06)*	.12 (.06)*	.13 (.06)*	-.01 (.04)	-.02 (.04)	-.02 (.04)	-.02 (.04)
Achievement	.33 (.08)*	.29 (.08)*	.29 (.08)*	.30 (.08)*	.12 (.03)*	.11 (.04)*	.11 (.04)*	.11 (.04)*
Ac. self-concept	.15 (.08) [†]	.11 (.08)	.13 (.08)	.11 (.08)	-.02 (.04)	-.03 (.04)	-.02 (.04)	-.03 (.04)
RA Parents	.74 (.32)*	.64 (.11)*	1.04 (.27)*	.63 (.11)*	-.32 (.19) [†]	.09 (.04)*	.13 (.20)	.09 (.04)*
RA Teachers	.16 (.07)*	.15 (.06)*	.15 (.06)*	.21 (.26)	.41 (.04)*	.39 (.04)*	.39 (.04)*	.26 (.14) [†]
Peers		.23 (.07)*	.22 (.07)*	.29 (.35)		.07 (.05)	.07 (.05)	-.09 (.18)
RA Par. x RA Tchr.	-.02 (.09)				.11 (.05)*			
RA Par. x Peers			-.13 (.09)				-.01 (.07)	
RA Tchr. x Peers				-.02 (.08)				.04 (.04)
<i>R</i> ²	.39*	.41*	.41*	.41*	.31*	.30*	.30*	.31*

* $p < .05$, [†] $p < .10$

Table 2.13

*Maximum Likelihood Regression Models Predicting Grade 11 Educational Expectations from Three-Way**Interaction Terms (N = 613)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.02 (.01)	.02 (.01)	.02 (.01)	.02 (.01)	.01 (.01)	.02 (.01)	.02 (.01)	.02 (.01)
Parent education	.14 (.06)*	.14 (.06)*	.14 (.06)*	.13 (.06)*	-.02 (.04)	.13 (.06)*	.13 (.06)*	.13 (.06)*
Achievement	.27 (.08)*	.27 (.08)*	.27 (.08)*	.26 (.08)*	.12 (.03)*	.25 (.08)*	.25 (.08)*	.25 (.08)*
Ac. self-concept	.17 (.07)*	.17 (.07)*	.17 (.07)*	.14 (.07) [†]	-.03 (.04)	.15 (.08)*	.13 (.07) [†]	.14 (.08) [†]
RA Parents	.67 (.10)*	.83 (.32)*	.98 (.45)*	.64 (.10)*	.04 (.24)	1.17 (.31)*	.65 (.11)*	.65 (.10)*
RA Teachers	.12 (.06)*	.15 (.10)	.15 (.10)	.12 (.06)*	.39 (.03)*	.13 (.06)*	.38 (.26)	.81 (.41)*
Gender	-.35 (.08)*	-.17 (.54)	-.22 (.53)	-.28 (.09)*	.11 (.23)	.16 (.57)	.71 (.82)	3.81 (2.40)
Peers				.18 (.08)*	.08 (.06)	.23 (.10)*	.50 (.39)	1.00 (.57) [†]
RA Par. x RA Tch.		-.02 (.08)	-.06 (.11)					
RA Par. x Gender		-.13 (.15)	-.42 (.62)		-.19 (.14)	.16 (.45)		
RA Tch. x Gender		-.05 (.14)	-.04 (.14)				-.10 (.13)	-.89 (.50) [†]
RA Par. x Peers					-.18 (.09) [†]	-.14 (.09)		
RA Tch. x Peers							-.06 (.08)	-.18 (.12)
Peers x Gen.					-.12 (.17)	-.13 (.17)	-.18 (.18)	-1.11 (.75)
RA Par. x RA Tch. x Gen.			.07 (.15)					
RA Par. x Peers x Gen.						-.11 (.14)		
RA Tch. x Peers x Gen.								.24 (.16)
<i>R</i> ²	.41*	.41*	.41*	.42*	.42*	.43*	.42*	.42*

**p* < .05, [†]*p* < .10

Table 2.14

*Maximum Likelihood Regression Models Predicting Grade 11 Educational Utility Values from Three-Way**Interaction Terms (N = 613)*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)
Parent education	-.02 (.04)	-.01 (.04)	-.01 (.04)	-.02 (.04)	-.02 (.04)	-.02 (.04)	-.01 (.04)	-.01 (.04)
Achievement	.13 (.04)	.13 (.04)*	.12 (.03)*	.12 (.04)*	.12 (.03)*	.12 (.03)*	.12 (.04)*	.12 (.04)*
Ac. self-concept	-.02 (.04)	-.01 (.04)	-.01 (.04)	-.03 (.04)	-.03 (.04)	-.03 (.04)	-.02 (.04)	-.02 (.04)
RA Parents	.10 (.04)*	-.46 (.18)*	-.70 (.06)*	.09 (.04)*	.04 (.24)	.37 (.23)	.08 (.04)*	.08 (.04)*
RA Teachers	.40 (.04)*	.34 (.06)*	.34 (.06)*	.40 (.03)*	.39 (.03)*	.39 (.03)*	.05 (.17)	.18 (.19)
Gender	.01 (.06)	-.55 (.34)	-.48 (.35)	.04 (.06)	.11 (.23)	.05 (.22)	-.71 (.40)	.23 (1.33)
Peers				.07 (.05)	.08 (.06)	.08 (.06)	-.25 (.20)	-.09 (.20)
RA Par. x RA Tch.		.13 (.05)*	.19 (.08)*					
RA Par. x Gender		.09 (.07)	.51 (.44)		.08 (.08)	-.66 (.29)*		
RA Tch. x Gender		.14 (.08) [†]	.13 (.08)				.17 (.08)*	-.08 (.35)
RA Par. x Peers					.00 (.07)	-.10 (.07)		
RA Tch. x Peers							.08 (.05) [†]	.04 (.05)
Peers x Gen.					-.02 (.07)	-.01 (.06)	.03 (.06)	-.25 (.41)
RA Par. x RA Tch. x Gen.			-.11 (.11)					
RA Par. x Peers x Gen.						.24 (.09)*		
RA Tch. x Peers x Gen.								.07 (.11)
<i>R</i> ²	.30*	.31*	.31*	.31*	.30*	.31*	.31*	.31*

**p* < .05, [†]*p* < .10

Table 2.15

Maximum Likelihood Regression Models Testing the Moderating Influence of Gender on Relations between Reflected Appraisals and Educational Expectations/Values (N = 613)

	<u>Educational Expectations</u>				<u>Educational Utility Values</u>			
	<u>Grade 7</u>		<u>Grade 11</u>		<u>Grade 7</u>		<u>Grade 11</u>	
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.03(.01)*	.02 (.01)*	.02(.01)	.02 (.01)	.01(.01)	.01 (.01)	.01(.01)	.01 (.01)
Parent education	.16(.05)*	.16 (.05)*	.14(.06)*	.14 (.06)*	-.03(.02)	-.03 (.02)	-.02(.04)	-.01 (.04)
Achievement	.07(.07)	.07 (.07)	.27(.08)*	.27 (.08)*	.04(.02)	.04 (.02)	.13(.04)	.13 (.04)*
Ac. self-concept	-.03(.10)	-.04 (.09)	.17(.07)*	.17 (.07)*	.11(.04)*	.12 (.04)*	-.02(.04)	-.01 (.04)
RA Parents	.70(.09)*	.83 (.10)*	.67(.10)*	.74 (.14)*	.20(.03)*	.16 (.04)*	.10(.04)*	.07 (.06)
RA Teachers	.11(.06) [†]	.07 (.09)	.12(.06)*	.15 (.10)	.11(.04)*	.12 (.04)*	.40(.04)*	.33 (.06)*
Gender	-.15(.09)	-.51 (.52)	-.35(.08)*	-.18 (.56)	-.01(.05)	.09 (.18)	.01(.06)	-.43 (.34)
RA Par. x Gen.		-.29 (.17) [†]		-.13 (.15)		.09 (.06)		.05 (.08)
RA Tch. x Gen.		.09 (.13)		-.04 (.14)		-.03 (.05)		.11 (.08)
<i>R</i> ²	.20*	.21*	.41*	.41*	.16*	.16*	.30*	.30*

* $p < .05$, [†] $p < .10$

Table 2.16

Comparisons of Regression Coefficients between Grade 7 and Grade 11

	<u>Grade 7</u>	<u>Grade 11</u>	
IV → DV	B (SE B)	B (SE B)	<i>t</i> -value
RA Parents → Expectations	.69 (.09)*	.68 (.11)*	0.07
RA Teachers → Expectations	.12 (.07) [†]	.16 (.06)*	-0.43
RA Par. x Peers → Expectations	.17 (.08)*	-.13 (.09)	2.50*
RA Parents → Values	.20 (.03)*	.10 (.04)*	2.00*
RA Teachers → Values	.11 (.04)*	.39 (.04)*	-4.67*
RA Par. x RA Tch. → Values	-.05 (.03)	.11 (.05)*	-2.74*
RA Tch. x Peers → Values	-.07 (.03)*	.04 (.04)	-2.20*
RA Par. x Peers x Gender → Values	.19 (.09)*	.24 (.09)*	-0.39

* $p < .05$

Table 2.17

Maximum Likelihood Regression Models Testing Longitudinal Relations between Expectations, Values, and Affiliation with Achievement-Oriented Peers (N = 613)

	<u>Expectations (T2)</u>	<u>Peers (T2)</u>	<u>Values (T2)</u>	<u>Expectations (T3)</u>	<u>Peers (T3)</u>	<u>Values (T3)</u>
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.03 (.02) [†]	.00 (.01)	-.02 (.01) [†]	.00 (.01)	.01 (.01)	.01 (.01)
Parent education	.09 (.06)	.02 (.03)	.05 (.04)	.16 (.06)*	.06 (.04)	.01 (.04)
Achievement	.38 (.07)*	.07 (.04) [†]	.22 (.04)*	.43 (.06)*	.19 (.04)*	.15 (.04)*
Expectations (T1)	.32 (.04)*	.06 (.02)*	-.01 (.02)	.20 (.04)*	.02 (.03)	-.02 (.02)
Expectations (T2)				.20 (.05)*	.06 (.03) [†]	-.03 (.03)
Values (T1)	.08 (.08)	.04 (.05)	.31 (.05)*	.04 (.08)	.03 (.05)	.24 (.05)*
Values (T2)				-.03 (.08)	-.05 (.05)	.25 (.05)*
Peers (T1)	.09 (.07)	.22 (.04)	.02 (.04)	.08 (.06)	.22 (.04)*	.01 (.04)
Peers (T2)				.15 (.08) [†]	.28 (.06)*	-.01 (.05)
<i>R</i> ²	.30*	.11*	.17*	.36*	.24*	.22*

* $p < .05$, [†] $p < .10$

Table 2.18

Study 1 Sample Members' Means and Standard Deviations on Continuous Study Variables as Function of Participation in Time 4 Data Collection

	<u>Participated in Time 4</u>	<u>Did not participate in Time 4</u>
	(<i>N</i> = 352)	(<i>N</i> = 261)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
1. Expectations (T1)	5.10 (1.37)	5.0 (1.47)
2. Expectations (T2)	5.24 (1.31)	5.06 (.140)
3. Expectations (T3)*	5.25 (1.35)	4.74 (1.37)
4. Values (T1)	4.33 (.62)	4.28 (.67)
5. Values (T2)*	4.27 (.68)	4.12 (.82)
6. Values (T3)*	4.21 (.72)	4.02 (.74)
7. Peers (T1)*	3.56 (.76)	3.40 (.81)
8. Peers (T2)	3.43 (.66)	3.32 (.69)
9. Peers (T3)*	3.44 (.81)	3.17 (.84)
10. Tchr. Refl. App. (T1)*	3.99 (.88)	3.91 (.92)
11. Tchr. Refl. App. (T3)*	4.03 (.80)	3.78 (.87)
12. Parent Refl. App. (T1)	.02 (.71)	-.04 (.72)
13. Parent Refl. App. (T3)	.13 (.72)	-.07 (.79)
14. Academic self-conc. (T1)	.04 (.75)	-.05 (.78)
15. Academic self-conc. (T3)*	.07 (.76)	-.11 (.79)
17. Prior achievement*	.24 (.85)	.24 (.85)
18. Annual hhld. income [†]	9.94 (4.28)	9.15 (4.23)
19. Parent education*	2.60 (.97)	2.46 (1.06)

*Significant between-group difference, $p < .05$

[†] $p < .10$

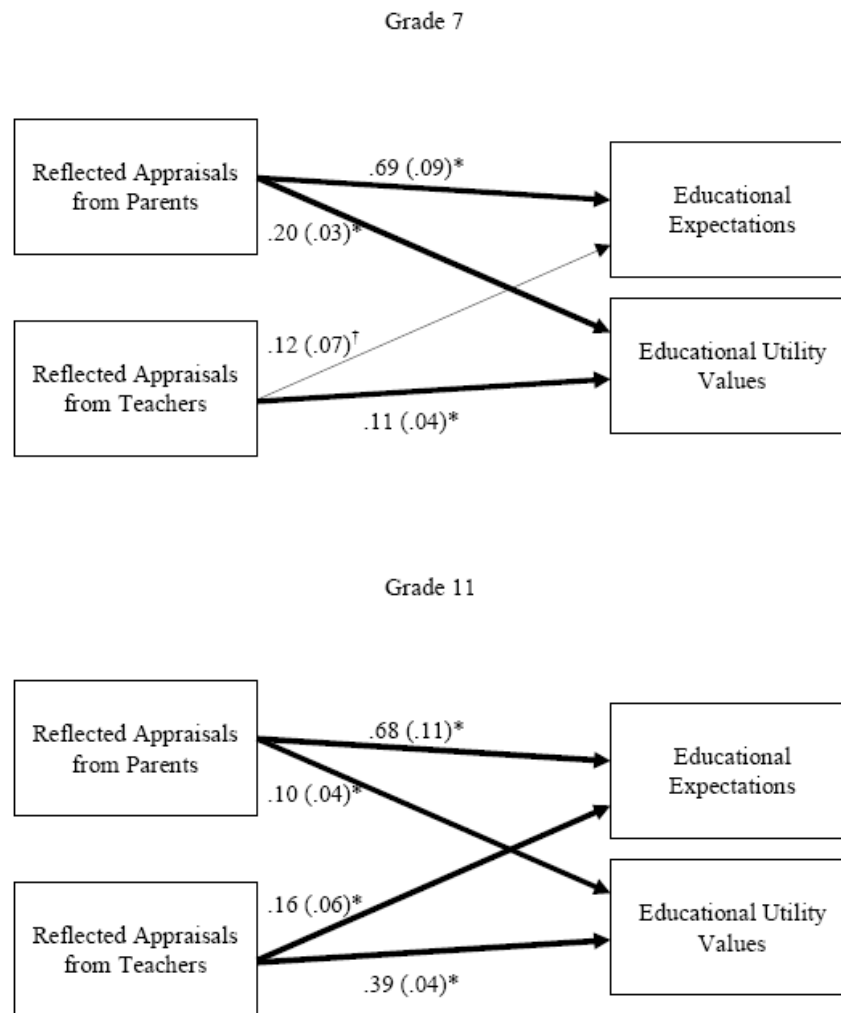
Table 2.19

Logistic and Multiple Regression Models Used to Test Expectations and Educational Utility Values as Mediators of the Relation Between Grade 11 Reflected Appraisals from Parents and High School Graduation Status (N = 352)

	<u>Expectations and Values</u>		<u>Expectations</u>		<u>Values</u>	
	<u>Step 1</u>	<u>Step 2</u>	<u>Step 3 /4</u>	<u>Step 2</u>	<u>Step 3/4</u>	
	DV = HS grad.	DV = Exp.	DV = HS grad.	DV = Val.	DV = HS grad.	
	<i>OR (SE)</i>	<i>B (SE)</i>	<i>OR (SE)</i>	<i>B (SE)</i>	<i>OR (SE)</i>	
Annual hhld income	1.22 (.08)*	.00 (.01)	1.23 (.08)*	.00 (.01)	1.22 (.08)*	
Parent education	.82 (.39)	.17 (.06)*	.74 (.36)	.02 (.05)	.82 (.38)	
Achievement	4.23 (1.43)*	.35 (.07)*	3.63 (1.28)*	.10 (.04)*	4.08 (1.40)*	
Self-concept (T3)	1.03 (.30)	.09 (.07)	.98 (.31)	.03 (.05)	1.03 (.31)	
RA Parents (T3)	1.81 (.56)[†]	.69 (.12)*	1.32 (.45)	.10 (.04)*	1.80 (.57)[†]	
RA Teachers (T3)	1.52 (.34)[†]	.12 (.08)	1.47 (.36)	.39 (.05)*	1.42 (.45)	
Expectations (T3)			1.54 (.30)*			
Values (T3)					1.18 (.44)	

* $p < .05$, [†] $p < .10$

Figure 2.1. Path models depicting associations of reflected appraisals with expectations and values during Grade 7 and Grade 11 ($N = 613$).



* $p < .05$; [†] $p < .10$

Note: Significant paths are indicated in bold. Path coefficients are for models that include annual household income, parent education level, academic achievement, and academic self-concept as control variables.

Figure 2.2. The relation between reflected appraisals from parents and adolescents' expectations as a function of affiliation with achievement-oriented peers (Grade 7) ($N = 613$).

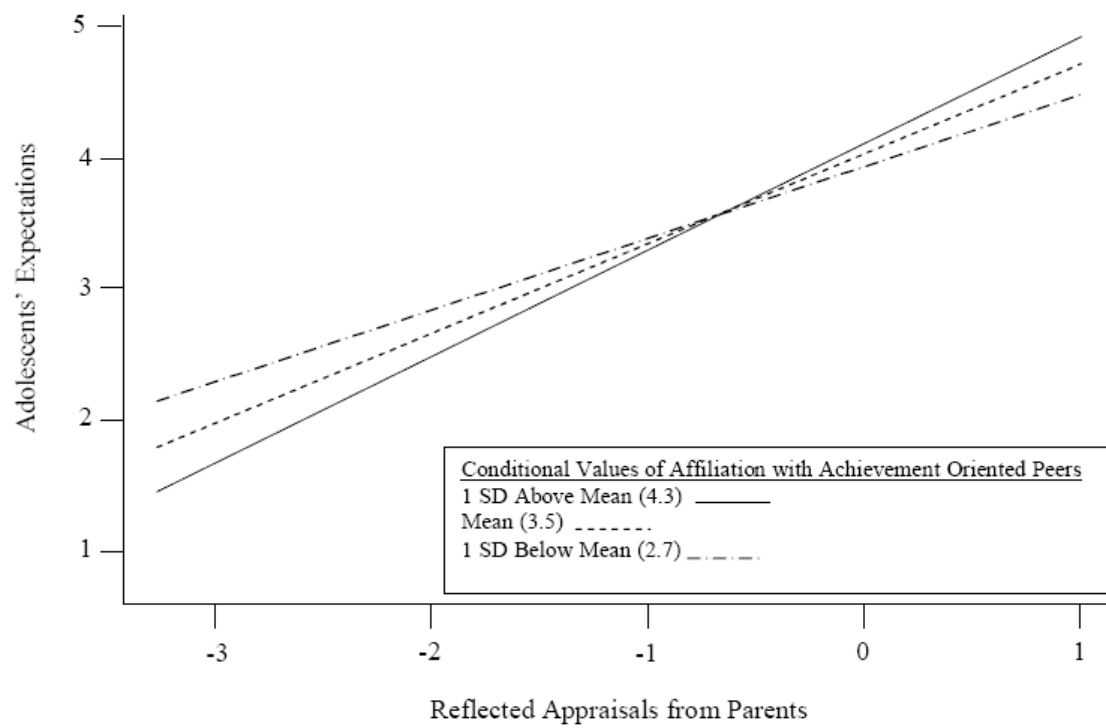


Figure 2.3. The relation between reflected appraisals from teachers and adolescents' educational utility values as a function of achievement-oriented peers (Grade 7) ($N = 613$).

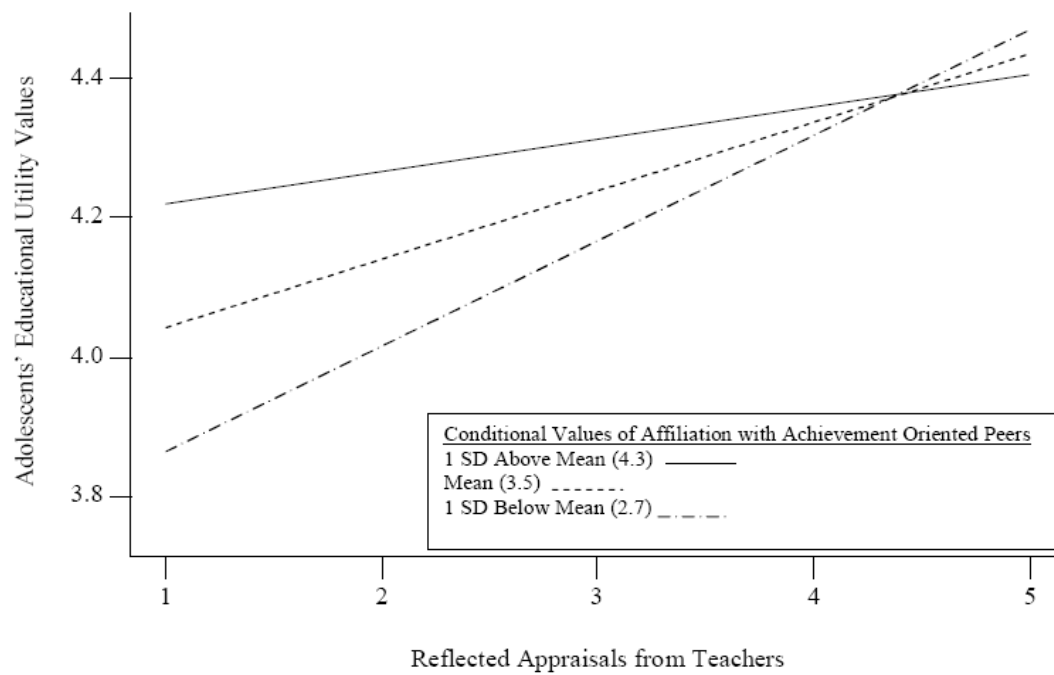


Figure 2.4. The relation between reflected appraisals from parents and adolescents' educational utility values as a function of affiliation with achievement-oriented peers and youth gender (Grade 7) ($N = 613$).

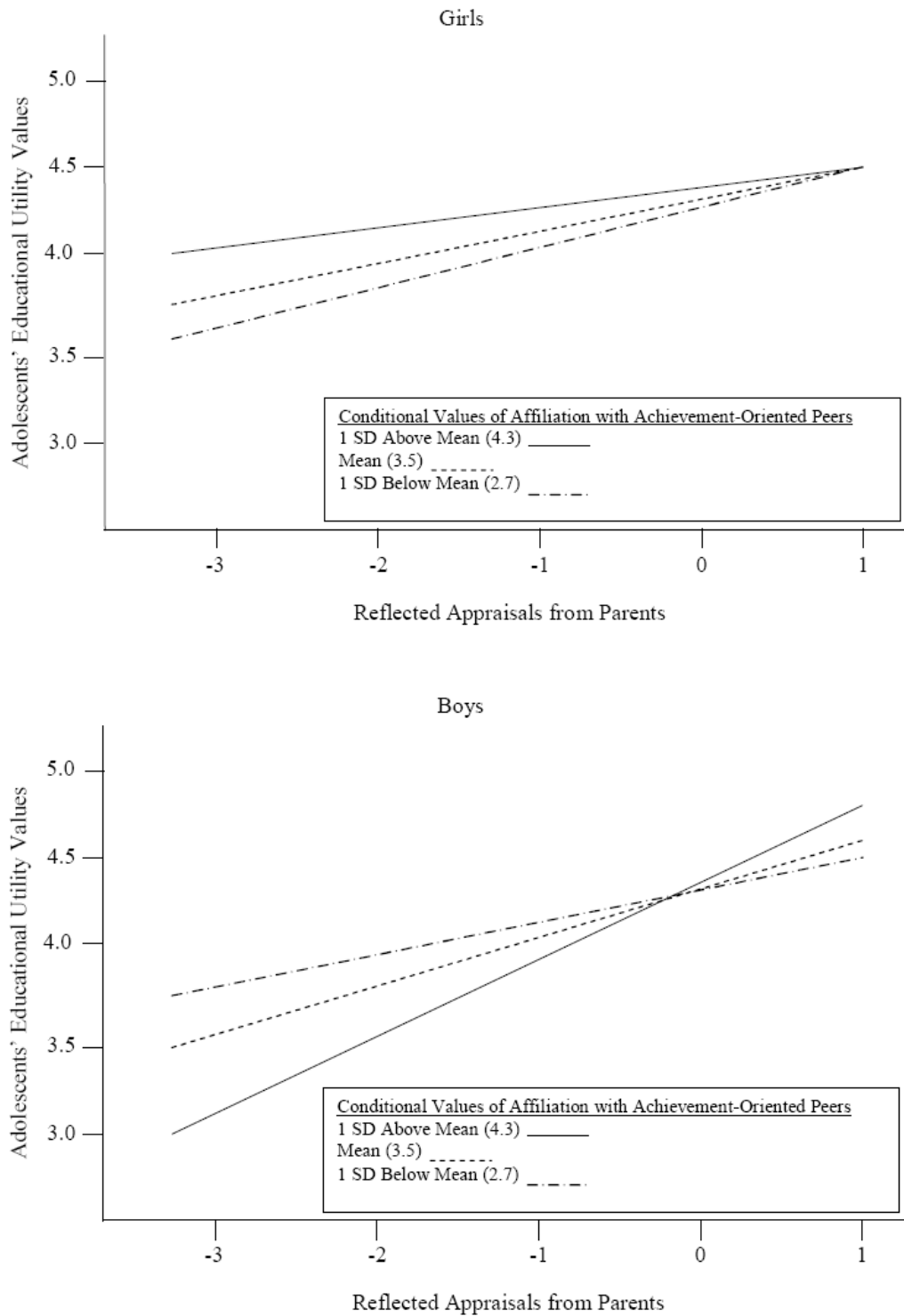


Figure 2.5. The relation between reflected appraisals from parents and adolescents' educational utility values as a function of reflected appraisals from teachers (Grade 11) ($N = 613$).

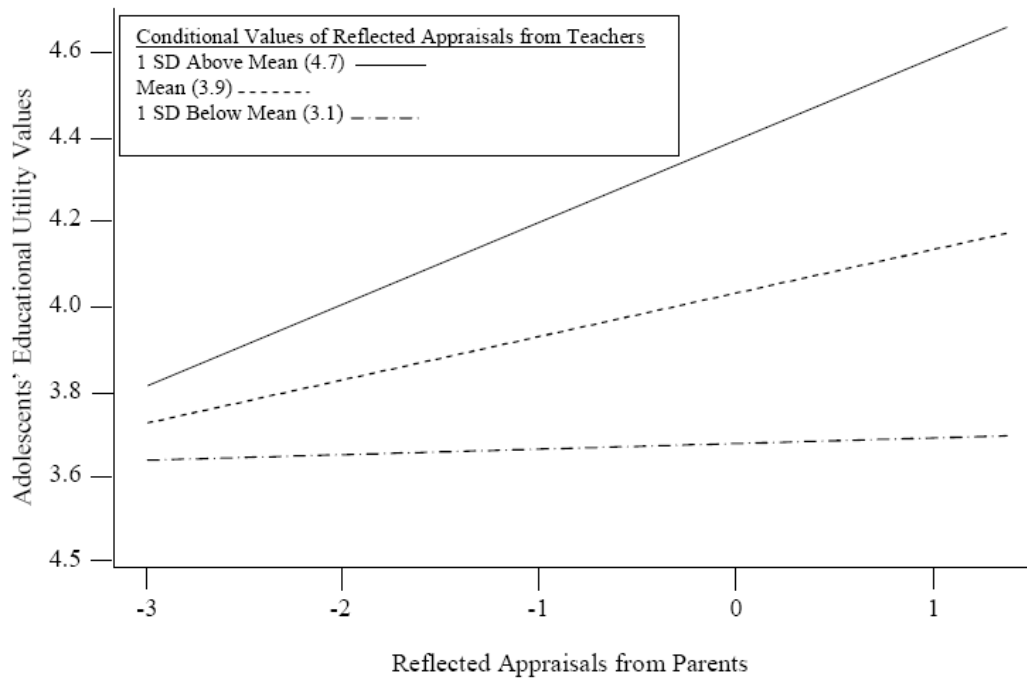


Figure 2.6. The relation between reflected appraisals from teachers and adolescents' educational utility values as a function of reflected appraisals from parents (Grade 11) ($N = 613$).

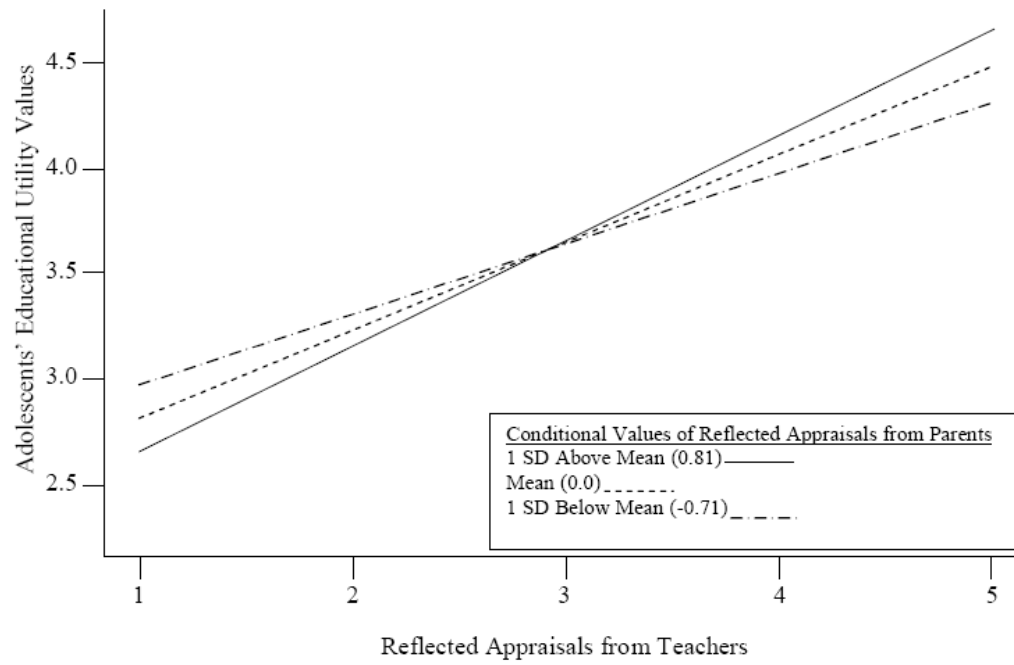


Figure 2.7. The relation between reflected appraisals from parents and adolescents' educational utility values as a function of affiliation with achievement-oriented peers and youth gender (Grade 11) ($N = 613$).

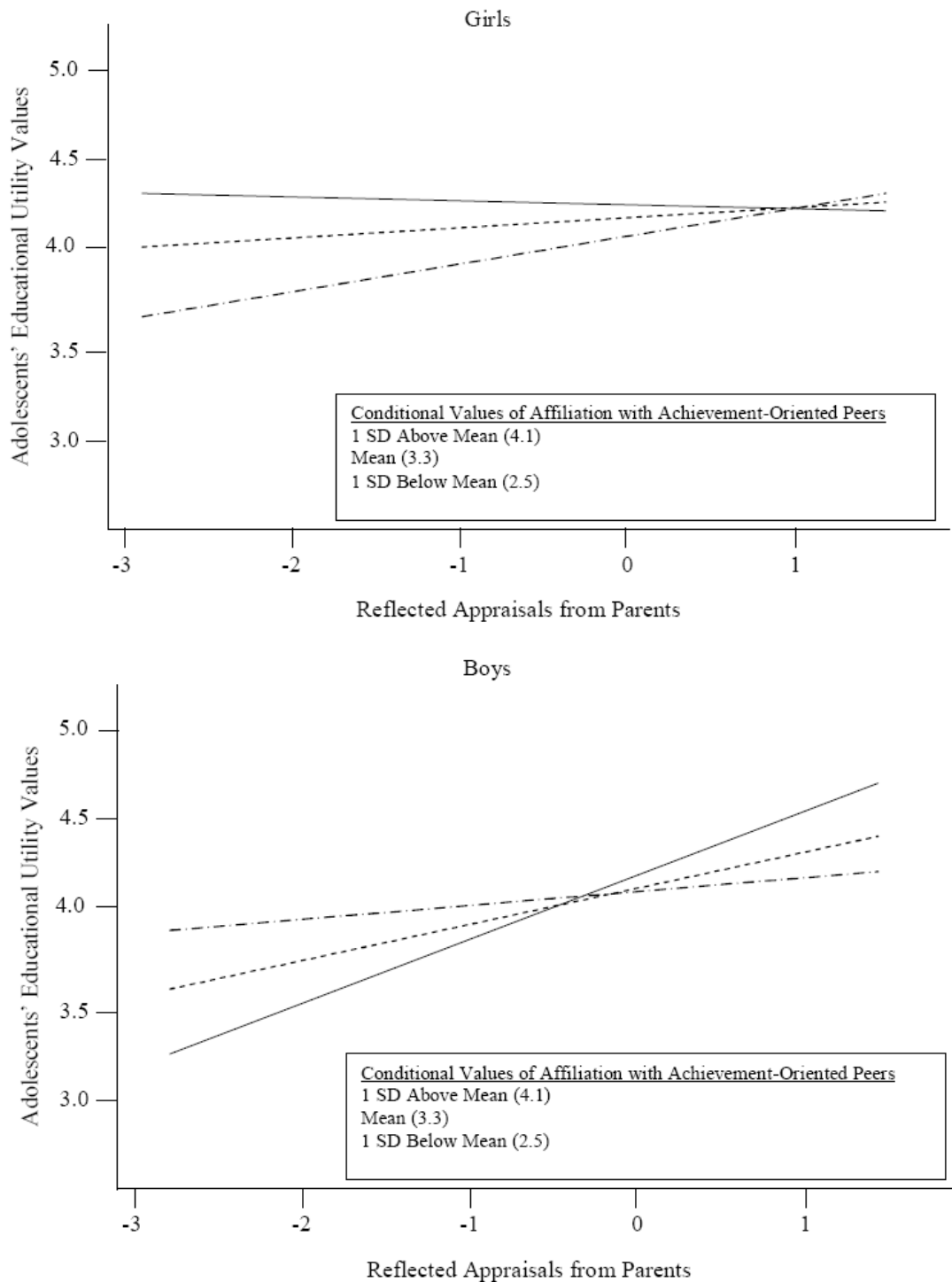
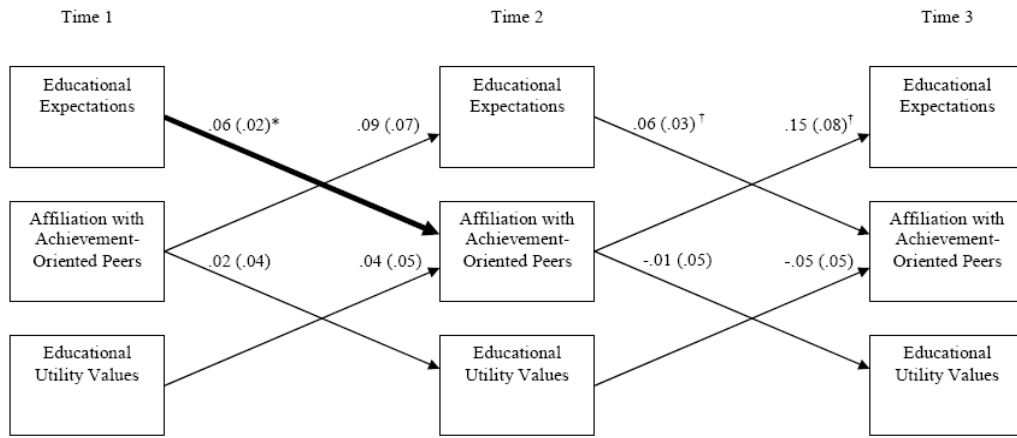
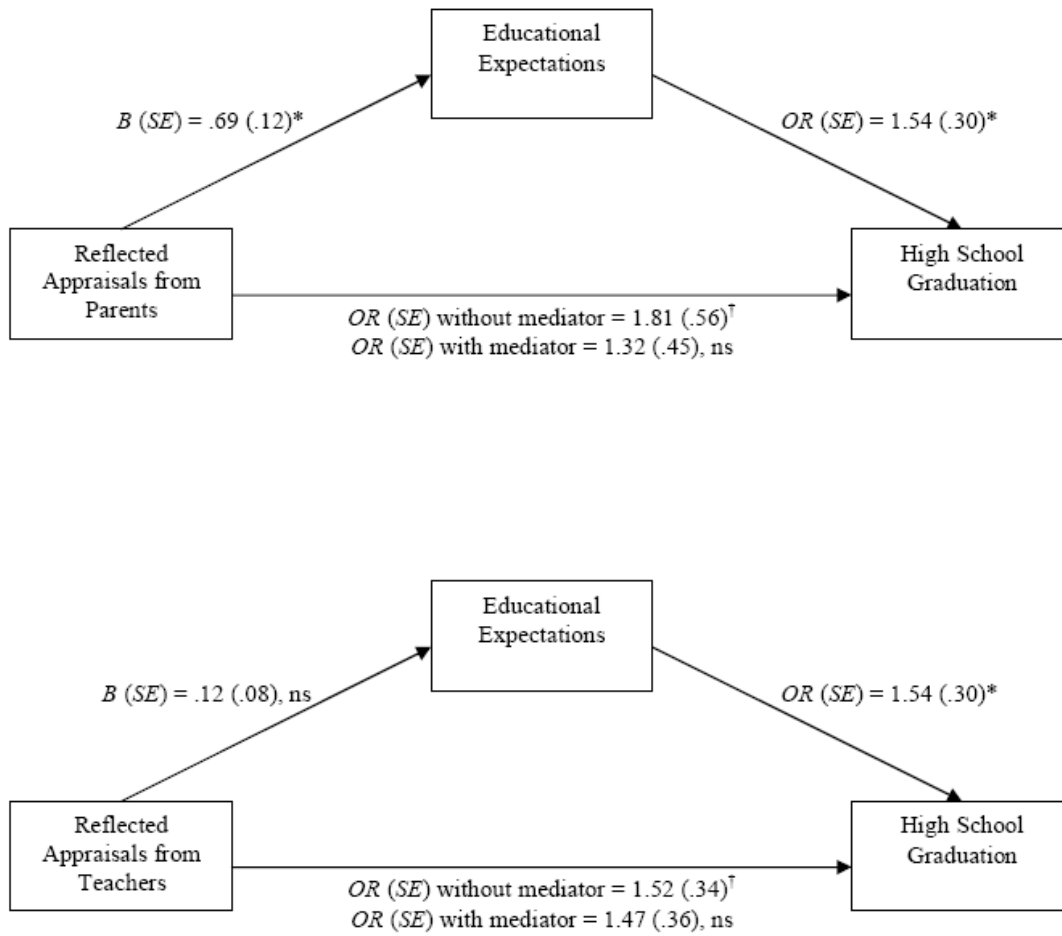


Figure 2.8. Longitudinal relations between educational expectations, educational utility values, and affiliation with achievement-oriented peers ($N = 613$).



* $p < .05$; [†] $p < .10$

Figure 2.9. Models testing Grade 11 educational expectations as a mediator of the relations between reflected appraisals and high school graduation status ($N = 352$).



CHAPTER 3

GENDER DIFFERENCES IN THE EDUCATIONAL EXPECTATIONS AND VALUES OF AFRICAN AMERICAN ADOLESCENTS (STUDY 2)

It is widely documented that African American adolescent boys fare worse than girls on most indicators of academic achievement and attainment (Kaba, 2005). By middle school, African American boys obtain lower grades and standardized test scores than their female counterparts, a trend that continues throughout adolescence (e.g., Mickelson & Greene, 2006). In 2004, the national high school completion rate for 18- to 24-year-old African American men was 73%, as compared to 82% for African American women (Cook & Córdova, 2006). Although men in all racial/ethnic categories earned 43% of bachelor's degrees awarded in 2003-2004, African American men earned only 33% of bachelor's degrees awarded to African American undergraduates (Cook & Córdova, 2006). Recent trends suggest that females from most ethnic/racial backgrounds currently outperform their male counterparts (Buchmann, DiPrete, & McDaniel, 2008); however, the gender gap in African American educational achievement and attainment is more acute than that observed for other groups and therefore has been recognized as a significant social issue (Tucker & Mitchell-Kernan, 1995; Wilson, 1996).

Research suggests that gender differences in the academic achievement and attainment of African Americans are mirrored by gendered trends in achievement motivation among members of this group. For example, work by Osborne (1997) suggests that African American boys become increasingly disidentified from the core academic domains across the high school years,

whereas girls remain identified. Using a peer nomination procedure, Taylor and Graham (2007) found evidence that African American early adolescent boys (Grade 7) place less value on high academic achievement than elementary-aged boys and African American girls. Specifically, when asked to nominate students whom they admired, respected, and most wanted to be like, early adolescent boys selected fewer high achievers and more low achievers than did their younger and female counterparts. Wood et al. (2007) found that African American boys, ages 9-16, held lower expectations for their future educational attainment than African American girls. Overall, the pattern of results reported by these and other scholars (e.g., Mickelson & Greene, 2006; Saunders, Davis, Williams, & Williams, 2004) suggests that African American boys are more vulnerable to motivational difficulties than African American girls.

A primary goal of Study 2 was to use latent growth models (LGMs) to examine how African American adolescents' educational expectations and educational utility values change across the adolescent years (Grades 7-11), with a particular focus on difference between boys and girls. In keeping with past research on motivational trajectories across adolescence, I hypothesized that educational expectations and values would decline over time for both boys and girls. These prior studies suggest that adolescents experience a decline across a broad array of motivational indicators as they traverse this developmental period. Self-views, including expectancies for success in postsecondary education, may be particularly vulnerable to decrement during this time because of the cognitive advancements that mark adolescence. Specifically, adolescents' increased capacity for processing evaluative feedback may result in more realistic (and therefore less positive) perceptions of the self (Wigfield & Eccles, 1994). School-related values may also decrease as adolescents' identities differentiate, and non-school related dimensions of life (e.g., the peer group) become more central to their sense of self. In

addition to having theoretical underpinnings, the finding that African Americans boys' and girls' expectations decline across adolescence would be consistent with past research conducted with a cross-sectional sample (Wood et al., 2007). In addition to hypothesizing a decline in motivation for both boys and girls, and consistent with findings of past research (Taylor & Graham, 2007; Wood et al., 2007), I hypothesized that African American boys would report lower expectations for future educational attainment and weaker educational utility values than girls during Grade 7 and throughout the high school years.

The second hypothesis of Study 2 was that the magnitude of the difference between boys' and girls' educational expectations and values would increase as a function of youth age. The idea that these gender differences will increase over time is consistent with limited evidence suggesting that gender differences in African Americans' academic achievement increase across the adolescent years (Coley, 2001; White, 2007). Prior academic achievement is a known predictor of achievement motivation constructs, including educational expectations and values (e.g., Trusty, 2002); thus, boys' increasingly lower achievement may propel their expectations and values downward across the high school years.

Advances in cognitive development may also account for a sharper decline in achievement motivation among African American adolescent boys as compared to adolescent girls. Like all adolescents, as African American boys mature, they become increasingly adept at perceiving and processing evaluative feedback about themselves and their social group (Harter, 1999, 2006; McKown, 2004), and may incorporate such feedback into their beliefs about the self (Harter 1999, 2006; Nicholls, 1979; Rosenholtz & Simpson, 1984). Parents', teachers', and adolescents' evaluations of African American youths' academic competence tend to favor girls at both the individual level (Ross & Jackson, 1991; Washington, 1982; Wood, et al., 2007) and the

group level (Hudley & Graham, 2001; Wood, Kurtz-Costes, Rowley, & Okeke, under review).

African American boys' motivation to do well in school may decrease in concert with increases in their ability to perceive others' perceptions of them and their racial/gender group, and in their subsequent understanding of the consequences that others' perceptions have for their real-life chances for accessing the opportunity structure.

Changes in social contexts may also be related to declines in the achievement motivation of African American boys. If the school performance and achievement motivation of African American boys as a group decline over time, so may individual boys' opportunities to affiliate with peers who value high academic achievement and attainment. Although the African American peer group has often been conceptualized as a negative socializing influence on adolescents' education-related beliefs and values (e.g., Fordham & Ogbu, 1986), empirical evidence indicates that relationships with peers who exhibit a positive achievement orientation may foster a commitment to academics among African American adolescents (e.g., Horvat & Lewis, 2003). Thus, the third goal of Study 2 was to examine whether declines in boys' affiliations with peers who exhibit education-related values and behaviors are associated with changes in their own expectations and values over time.

As described in Study 1 (pp. 18-19), it is difficult to interpret the direction of effects between adolescents' characteristics and those of their peer group when conducting non-experimental research on this topic. If the data revealed that African American boys' educational expectations and values decline alongside their affiliations with achievement-oriented peers, it would have been impossible to make any judgment regarding whether peer group affiliations actually *caused* this decline in motivation, or whether boys were simply electing to associate with individuals similar to themselves. As in Study 1, I attempted to

unravel the temporal relations between peer group affiliations and boys' expectations and values by testing longitudinal relations between these variables. Again, although longitudinal associations between boys' peer-group affiliations and educational expectations/values are merely correlational and thus cannot provide definitive answers regarding causality, testing this model may help to elucidate the possible causal ordering of these variables.

The final goal of Study 2 was to test the possible mediating role of 11th grade expectations and values in the relation between gender and participation in college during the years immediately following graduation from high school. Based on prior research detailed above, I expected that sample males would enroll in college during early adulthood at significantly lower rates than women. The idea that African American boys' lower levels of motivation account for their lower rates of college participation as compared to females appears to be implicit in much of the literature and discourse on this topic; however, to my knowledge, this notion has yet to be tested empirically.

There is reason to suspect that expectations and values during adolescence do, in fact, predict subsequent college participation. Using a nationally representative sample, Mello (2008) found that, even with prior achievement controlled, expectations for future attainment at age 14 predicted actual attainment by age 26. Although no published studies report a link between educational utility values and subsequent participation in higher education, expectancy-value theory implies that such a link exists. According to the theory, individuals are more likely to choose to engage in activities that are deemed important for the accomplishment of future goals. In line with this idea, I hypothesize that adolescents who believe that education will help them to accomplish their future goals will be more likely than others to pursue education beyond high school. Whether or not gender differences in educational expectations and values during

adolescence explain gender differences in college participation is a proposition that remains to be tested.

Overview of Study 2 Hypotheses

Hypothesis 1 of the present study was that adolescents' educational expectations and educational utility values would decline between Grade 7 and Grade 11. This prediction is consistent with prior empirical findings regarding motivational trajectories across adolescence, and with the cognitive-motivational principle that youths' self-perceptions decline in parallel with increases in the ability to process evaluative feedback from others and with increases in realistic thinking.

In keeping with past work suggesting that African American boys are more vulnerable to motivational difficulties than girls, Hypothesis 2 was that boys would hold weaker educational expectations and values than girls during Grade 7. Hypothesis 3 was that the disparity between boys' and girls' expectations/values would increase over the course of the high school years, in concert with boys' increasing awareness of barriers to upward mobility faced by African American males in society and with the changes in boys' social context that may occur between the beginning of middle school and the end of high school.

The second set of hypotheses for Study 2 pertained to the role of peers in African American boys' increased motivational difficulties across adolescence. Because the average achievement level of African American boys on the whole declines across adolescence, it seems likely that individual boys' opportunities for affiliating with achievement-oriented peers also decline. In light of the demonstrated relations between affiliation with achievement-oriented peers and motivational outcomes in African American youth, Hypothesis 4 was that boys' expectations and values would decline in concert with their affiliation with achievement-oriented

peers. In line with hypotheses presented in Study 1, Hypothesis 5 was that, with early achievement controlled, boys' affiliation with achievement-oriented peers would predict their expectations and values across time.

Hypothesis 5 was that expectations and values would mediate the relation between adolescents' gender and their college participation status shortly after high school graduation. Although it is assumed that boys' motivational difficulties during high school play a role in their lower rates of college enrollment as compared to girls, this finding has not been explicitly reported in the extant literature on this topic.

Study 2 Method

Data Source and Sample

The full African American subsample of MADICS (462 boys, 414 girls) was used to test Study 2 hypotheses. See p. 24-26 of this text for a complete description of the study sample. Analyses for Study 2 utilized data collected during Grade 7 (Time 1), the summer between Grades 8 and 9 (Time 2), Grade 11 (Time 3), and one year after most youth had graduated from high school (Time 4).

Measures

Educational expectations and educational utility values. Analyses for Study 2 utilized repeated measures (i.e., Times 1, 2, and 3) of adolescents' educational expectations and educational utility values. Measures of expectations and values were the same as those used in Study 1. See pp. 26-28 of this text for a description of these measures.

College enrollment status. College enrollment status one year post-high school graduation (Time 4) was assessed with a single item asking youth to report the highest level of education they had completed. Response options were as follows: 1 = 10th grade, 2 = 11th grade,

3 = 12th grade, 4 = GED, 5 = one year of post-high school vocational training, 6 = two years of post-high school vocational training, 7 = one year of college, 8 = two years of college, 9 = two-year college graduate, and 10 = other. Responses were recoded so that youth who had completed one or two years of college (response options 7 and 8) received a score of 1, whereas youth in all other categories received a score of 0. (No sample youth reported being a two-year college graduate.)

Study 2 Results

Latent Growth Models for Adolescents' Educational Expectations and Educational Utility Values

Conditional multiple domain latent growth models (LGMs) were estimated using FIML in Mplus. Conditional (as opposed to unconditional) models were selected because they permit the inclusion of variables that are theorized to affect the intercept and slope factors of the constructs being modeled (Bollen & Curran, 2006). Conditioning variables for the models presented here included annual household income, mean parent education level, and academic achievement. For models involving the full sample, gender (0 = girls; 1 = boys) was entered as a focal predictor.

Explanation of values in Tables 3.1 and 3.2. Results of conditional multiple domain LGMs are presented in Table 3.1. Column 3 of the table contains values for the mean participant intercept (IC) for the specified domain (i.e., participants' average score for that domain at Time 1). Column 4 contains values for the residual variance (RV) of each intercept. A significant value for IC RV indicates that the intercept of the variable in question differs across individual sample members, whereas a nonsignificant value for IC RV suggests very little variation in intercepts across sample members. Column 5 of Table 3.1 contains values for participants' mean

slope for the specified domain (i.e., participants' average slope for that domain between Grade 7 and Grade 11). Column 6 contains values for the RV of each slope. A significant value for Slope RV indicates the presence of variability in individuals' slopes for the variable in question, whereas a nonsignificant value for Slope RV suggests very little variation in slopes across sample members. In the present study, there was significant variability in the intercept of each variable (i.e., expectations, values, and peer affiliation). However, there was no significant variability for the slope of any Study 2 variable.

Explanatory factors for (i.e., predictors of) intercepts and slopes of all models are presented in Table 3.2. Values in this table can be interpreted much like beta weights in multiple regression models. Column 1 of this table contains values representing the relations between covariates and the intercepts of participants' expectations (i.e., Grade 7 expectations). Results for the model involving the full sample (top panel) indicate that parent education level and adolescents' academic achievement were significantly related to intercepts for educational expectations, whereas annual household income and youths' gender were not related to this variable. Column 2 of Table 3.2 contains values representing the relations between covariates and the slope of participants' expectations. Results for the full sample show that achievement was significantly and positively related to slopes for expectations (i.e., individuals with higher academic achievement also had more positive slopes for expectations), whereas gender was significantly and negatively related to the slope for expectations (i.e., the slope for boys was less positive than the slope for girls). Annual household income and parent education level were unrelated to participants' slopes for expectations.

Results for full-sample model. Results for the multiple-domain latent growth model of expectations and values are presented in the top panels of Table 3.1 and 3.2. Fit indices for the

model indicate a good fit between the hypothesized model and the observed data (RMSEA = .04, CFI = .97).

The first goal of the full-sample model was to test the hypotheses that adolescents' expectations and values would decrease over time (Hypothesis 1). These hypotheses were tested by assessing participants' average slope for each of these variables (see Column 5 of Table 3.1). The slope for educational expectations was .11 ($SE = .10$, $p = .28$), and is depicted in Figure 3.1. This result is contrary to the hypothesis that expectations would decline between Grades 7 and 11. The slope for educational utility values was $-.13$ ($SE = .05$, $p < .05$), and is depicted in Figure 3.2. This latter finding supports the study hypothesis that adolescents' values would decline over time.

The second goal of the full-sample model was to test Hypothesis 2, which stated that boys would display weaker expectations and values than girls during Grade 7 (i.e., at the intercepts for the model). This hypothesis was tested by entering gender as a predictor of the intercept for each variable. As shown in Column 1 of Table 3.2, gender was not significantly related to the intercept for expectations, $B = -.10$, $SE B = .09$, $p = .29$. In addition, as shown in Column 3, the association of gender with the intercept for values was $-.06$ ($SE = .04$, $p = .19$). In sum, there was no support for the hypotheses that boys would hold lower expectations and utility values during Grade 7.

The third goal of the full model was to test Hypothesis 3, which stated that boys would display less positive trajectories than girls for expectations and values. This hypothesis was tested by entering gender as a predictor of the slope for each variable. Slopes for boys' and girls' educational expectations are displayed in Figure 3.3, and slopes for educational utility values as a function of youths' gender are displayed in Figure 3.4. As shown in Column 2 of Table 3.1,

gender was significantly and negatively related to the slope for educational expectations, $B = -.16$, $SE = .06$, $p < .05$. This result indicates that, consistent with hypotheses, the slope for boys' expectations was significantly less positive than the slope for girls' expectations. Contrary to hypotheses, coefficients shown in Column 4 of Table 3.2 reveal that gender was not significantly associated with the slope for educational utility values, $B = -.04$, $SE = .03$, $p = .21$.

Results for boys-only model. Parameters for the conditional, multiple-domain LGM for boys' expectations, values, and affiliation with achievement-oriented peers is shown in the bottom panel of Table 3.1. Fit indices suggest a reasonably good fit between the model and observed data (RMSEA = .04; CFI = .93).

I simultaneously estimated boys' educational expectations, educational utility values, and affiliation with achievement-oriented peers in order to test Hypothesis 4, which stated that the slope for peers would be significantly related to slopes for expectations and values. Results of the model suggest that these slopes are not related in the hypothesized manner. As shown in Column 6 of Table 3.1, the residual variances of all three slopes were not significantly different from zero. This means that there was essentially no individual variability in slopes across participants. This lack of variability in the slopes precluded the possibility that they were related to one other in a systematic manner, thereby providing no support for Hypothesis 4.

Longitudinal Relations between Boys' Expectations, Values, and Affiliation with Achievement-Oriented Peers

Figure 3.5 shows the results for tests of Hypothesis 5, which stated that affiliation with achievement-oriented peers would be predictive of boys' expectations and values across time. Paths were estimated using the same methodology and control variables that were used for the analogous model in Study 1.

Regression coefficients for the full model are shown in Table 3.3. The overall pattern for model fit indices suggests a poor fit between the model and data (RMSEA = .14, CFI = .92). Results for this boys-only model largely replicated results for the Study 1 sample, and provided little evidence for the hypothesized cross-lagged associations from affiliation with achievement-oriented peers to educational expectations and educational utility values. The only significant hypothesis-relevant paths were from Time 1 expectations to Time 2 peers ($B = .06$, $SE B = .03$, $p < .05$), and from Time 2 expectations to Time 3 peers ($B = .10$, $SE B = .05$, $p < .05$); contrary to Hypothesis 5, there was no evidence that affiliation with achievement-oriented peers predicted later expectations. Like the Study 1 model, the model for Study 2 boys provided no evidence for longitudinal relations in either direction between peers and educational utility values, all p 's $> .10$.

Grade 11 Expectations and Values as Mediators of the Relation between Youths' Gender and College Participation Status

In the final set of analyses for Study 2, I tested Hypothesis 6, which stated that the relation between youths' gender and their college enrollment status would be mediated by expectations and values. Only youth whose college participation data were collected at Time 4 were included in these analyses. This resulted in a final sample size of 414 adolescents (156 boys, 258 girls). ANOVAs and chi-square difference tests revealed significant mean differences on all study variables for Study 2 sample members who were and were not included in the mediational analyses (see Table 3.4). Specifically, adolescents who participated at Time 4 had more favorable mean scores on motivation- and SES-related variables than those who did not participate at that time. Adolescents who participated at Time 4 were also more likely to have a primary caregiver who reported being married at Time 1 than adolescents who did not participate

$\chi^2 = 8.23$, (1, $N = 876$), $p < .05$. Among youth who participated at Time 4, 58% of primary caregivers reported being married; the same was true for 53% of youth who did not participate at Time 4. In addition, adolescents who did not participate at Time 4 were significantly more likely to be male than female $\chi^2 = 71.42$, (1, $N = 876$), $p < .05$. About 62% of Study 2 boys did not participate in Time 4 data collection, as compared to 34% of Study 2 girls.

Mediational analyses. Because college participation status was a binary categorical variable (0 = did not complete 1 or more years of college; 1 = did complete 1 or more years of college), it was necessary to use a combination of multiple regression and logistic regression models to test the hypothesized mediation effects. As in Study 1, MI procedures were used to handle missing data values on the independent variables, thereby preventing loss of statistical power and bias in parameter estimates. Also as in Study 1, the criteria described by Baron and Kenny (1986) were used in tests of mediation (see p. 44 of this text for a description of these criteria). Results of these tests are presented in Table 3.5.

The purpose of Step 1 was to establish that there was, in fact, a relation between gender and college enrollment status. Contrary to hypotheses, youths' gender was not significantly related to whether or not they had completed at least one year of college (OR = 1.02, SE = .25, $p = .95$). The model-based predicted probability (i.e., taking covariates into account) of college participation was .61 for girls and .69 for boys, a difference which, as already noted, was not significant. (In the actual Time 4 sample, 63% of girls and 55% of boys reported favorable outcomes on college participation.) According to the criteria for mediation set forth by Baron and Kenny (1986), because no significant gender difference in college participation was observed, it was not possible for expectations/values to mediate the relation between gender and college participation status.

Although completion of the remaining 3 steps prescribed by Baron and Kenny could not establish a mediating role for expectations or values, their results were still of interest (see Table 3.5). In particular, in Step 3 of the mediational analyses for expectations, Grade 11 expectations emerged as a significant predictor of future participation in college ($OR = 2.00, SE = .27, p < .05$). Step 3 of the mediational analyses for values revealed that this variable was also a significant predictor of college outcomes ($OR = .1.89, SE = .37, p < .05$).

Given that expectations and values significantly predicted college participation when entered into separate models, a new question emerged: Do expectations and values each make a unique contribution to college outcomes? The results of the model presented in Table 3.6 suggest that they do. When both predictors were in the model, expectations and values each significantly predicted participation in college ($OR = 1.95, SE = .27, p < .05$; $OR = 1.74, SE = .37, p < .05$; respectively). Predicted probabilities for expectations and values were calculated in Stata to facilitate interpretation of the model. These calculations revealed that, when expectations were at their lowest possible value (less than high school graduation) and all other variables in the model were at their mean, the predicted probability of college participation was .11. For youth who expected to complete only high school, the predicted probability of college participation was .18. Among those who expected to graduate from a 4-year college, the predicted probability of a positive outcome on college participation was .60. Finally, youth who expected to complete a doctoral degree had a predicted probability of .84 for college participation.

The main effect of values on college participation status was qualified by a marginally significant ($p < .10$) gender x values interaction. In order to interpret this interaction, separate models were run for boys and girls (see last two columns of Table 3.6). Results revealed that the

association of educational utility values with college participation was significant only for boys. Predicted probabilities for boys' values showed that, when values were at their lowest possible value (1), the predicted probability of college participation was about .27. At the mean for values (4.3), the predicted probability of college participation was .66. At the highest possible score for values, the predicted probability of a positive outcome on college participation was .74.

Summary of Study 2 Results

Overall, support for Study 2 hypotheses was inconsistent. Results from the full-sample multiple-domain latent growth model showed that youths' expectations for future educational attainment did not evidence significant change between Grade 7 and Grade 11. Boys' and girls' expectations were not significantly different from each other during Grade 7, although the change in boys' expectations was significantly less positive than the change in girls' expectations. Despite this significant gender difference in the slope of expectations, neither the slope for boys nor the slope for girls was significantly different from zero. A different pattern of findings emerged for educational utility values. The sample as a whole displayed a significant decrement in values between Grades 7 and 11. Contrary to hypotheses, there was no significant gender difference in either the intercept or the slope of values.

For boys, the slopes for educational expectations and educational utility values were unrelated to the slope for affiliation with achievement-oriented peers. The lack of significant variability in these slopes (i.e., for all three slopes, the residual variance was not statistically different from zero) essentially precluded the possibility that they were related to each other (or to other variables) in any systematic way. Also for boys, there was no evidence that affiliation with achievement-oriented peers predicted future expectations and values. If anything, the opposite causal pathway appeared to be supported: Educational expectations seemed to predict

future affiliation with achievement-oriented peers. Educational utility values bore no longitudinal relations in either direction with achievement-oriented peers.

Finally, there appeared to be no gender difference in the rate of college participation at Time 4. This lack of direct effect between gender and college participation. However, expectations and values each uniquely predicted college participation status. Finally, the marginally significant gender x values interaction in predicting college participation indicated that the association of values and college participation was significant for sample boys but not for sample girls.

Study 2 Discussion

Development of Educational Expectations and Utility Values

Adolescents in the present study reported educational expectations that were optimistic and stable across time. At all three time points, the average educational expectation was completion of a 4-year college degree; at all three time points, greater than 70% of the sample expected to attain a 4-year postsecondary degree or higher. The findings that the average expectation score corresponded with completion of a bachelor's degree and that expectations did not decline between Grades 7 and 11 are consistent with results of work by Mello (in press), who reported virtually identical findings using a nationally representative, longitudinal sample of African Americans (i.e., NELS:88).

The absence of change in expectations as a function of youths' age represents a departure from results reported by Wood et al. (2007). Using a cross-sectional sample of very low-income 9- to 15-year-olds, these authors found that older youth reported less optimistic expectations than younger ones. In addition to different sampling strategies between these studies (i.e., longitudinal vs. cross-sectional) and different age range of sample members, one potential

explanation for these divergent findings concerns the stark socioeconomic differences between study samples; MADICS youth and youth in Mello's study came from a wide range of socioeconomic backgrounds, whereas youth in the Wood et al. study were selected into the sample specifically on the basis of their low-income status. It could be reasoned that very low-income youths' expectations for future educational attainment would be more likely to decline with age, as individuals become increasingly cognizant of barriers that hinder the pursuit of higher education (e.g., lack of financial resources, lack of proximity to postsecondary educational institutions, competition between work schedules and coursework). However, data from the present study and from Mello's study do not support this line of thinking; specifically, in both studies, socioeconomic variables (i.e., annual household income and parent education level) were unrelated to the slope of educational expectations, suggesting that low-income MADICS youth did not show decrements in educational expectations across time.

Why are expectations apparently resistant to downward trends across adolescence, whereas other indicators of motivation tend to grow weaker over the course of this developmental period? One possible explanation may be messages from families, schools, and other social forces, which leave youth with the impression that obtaining a college degree is the normative and most socially acceptable route to economic and occupational success in life (Goyette, 2008). Prior research suggests that a majority of African American parents would like for their children to attend college (Hill, 1999). In addition, social policies and school-based intervention programs targeted at improving individuals' life chances tend to tout matriculation into 4-year colleges and universities as the optimal outcome for all youth, rather than focusing on the broad array of other paths to success in life. (In reality, recent statistics suggest that slightly less than 30% of American adults hold a bachelor's degree or higher (US Census Bureau, 2004),

suggesting that degree-attainment is not the only route to success in life. The social stigma attached to not going to college, as well as to attending a community college or technical school, may also dissuade youth from considering other options, even when barriers to obtaining a 4-year college degree are real.

Another possible explanation for why expectations for future educational attainment do not decline over adolescence concerns limitations in the measurement of this construct. Educational expectations are supposed to represent the integration of an individual's desire to complete a particular level of education with his or her appraisal of factors that will impede and/or promote attainment of that goal (Eccles et al., 1983). However, it is not certain that all study participants interpret the typical single-item expectations measure in this way. As Morgan (2005) has pointed out, the extent to which respondents incorporate factors like the cost of tuition, the probability of receiving financial aid, and the probability of admittance to college into their answers to single-item questions like, "What is the highest level of education you expect to attain?" is unclear. Adolescents who are immersed in a "college for all" culture, and who may be experiencing the sense of optimism/invulnerability often associated with this developmental period (Elkind, 1994), may be particularly unlikely to integrate practical realities into their thinking about the future.

Overall, youth in the present study appeared to endorse the belief that education would be of use to them in accomplishing their future goals, as indicated by their responses on scales for educational utility values. Educational utility values declined slightly (but significantly) between Grade 7 and Grade 11. During Grade 7, the mean score for educational utility values was about 4.3 (on a 5-point scale); during Grade 11, the model-predicted mean for educational utility values was about 4.1. There was little difference in the predicted probabilities of college participation

associated with each of these scores, which suggests that the decline in values may have few practical consequences in the lives of adolescents.

To my knowledge, no prior research has examined developmental change in the *general* educational utility values of African Americans (or of any other ethnic group) across the middle and high school years. However, the few investigators who have focused on the development of *academic domain-specific* values during this developmental period have also noted declines (e.g., Chouinard and Roy, 2008; Simpkins, Davis-Kean, & Eccles, 2004). Although the present study yielded little evidence for an alarming decline in *general* educational utility values, future researchers may wish to examine the development of domain-specific utility values in African Americans across the course of adolescence. For example, socially meaningful declines in African Americans' math/science values may partially explain why members of this group are less likely than European Americans to pursue advanced high school coursework in mathematics and science (Oakes, 1990), to major in math- and science-related fields (Berryman, 1983; Tate, 2004), and to pursue doctoral work and future careers in these areas (Hoffman, Llagas, & Snyder, 2003).

Both normative developmental processes and contextual factors may contribute to declines in achievement motivation across adolescence (Wigfield & Eccles, 1994). Declines in self-views across childhood and adolescence may reflect an increased ability to process evaluative feedback, which may result in more realistic perceptions of the self. Differentiation processes in identity formation may also play a role in motivational declines; specifically, as the importance of other dimensions of the self (e.g., peer group affiliations, participation in sports and other extracurricular activities, religious activities) increases across this developmental period, adolescents may come to place less emphasis on academic aspects of identity. Regarding

social-contextual explanations, Eccles and her colleagues (Eccles et al., 1993; Eccles & Midgley, 1990) have suggested that a poor fit between adolescents' developmental needs and the school context may contribute to decrements in motivation. Their work has noted a number of possible motivation-undermining features of middle schools, including lower levels of autonomy granting, less positive student-teacher relationships, more classroom structures that are associated with increased social comparison, more activities that require lower-level cognitive skills, and stricter grading standards than are warranted by adolescents' developmental needs. For African Americans, certain race-specific factors like experiences with racial discrimination (e.g., Wong, Eccles, & Sameroff, 2003; Eccles, Wong, & Peck, 2006) and awareness of racial barriers to upward mobility (e.g., Taylor & Graham, 2007) may contribute to declines in adolescents' motivation to succeed academically. Unfortunately, few direct tests have been conducted to assess the role of normative-developmental processes and social context features in the formation of adolescents' academic values.

Gender Differences in Expectations and Values

Virtually none of the hypothesized gender differences were supported by the results of Study 2 analyses. The absence of gender differences in adolescents' expectations does not conform to results obtained by Wood et al. (2007), and the absence of gender differences in values is inconsistent with the results of Taylor and Graham (2007). One plausible explanation for these inconsistencies concerns the socioeconomic status of samples used in each study. The sample used in the present study was, on average, middle class (median family income = \$40,000-\$44,999). In contrast, studies showing gender differences in African American adolescents' motivation have typically used lower-income samples. (For instance, Wood et al.'s sample members were selected on the basis of their low-income status, Taylor and Graham's

sample members were drawn from schools located in “economically depressed neighborhoods” (p. 54), and slightly more than half of the sample used by Saunders et al. (2004) received a lunch subsidy.) This pattern suggests that the gender gap in African American adolescents’ motivation may be moderated by socioeconomic status. Furthermore, a cursory examination of the MADICS data indicates that the hypothesized gender differences are more evident within the lower-income half of the African American sample than within the higher-income half. In the future, I plan to use MADICS to formally test whether socioeconomic status moderates the relation between adolescents’ gender and their motivational outcomes.

The finding that a gender gap in African Americans’ motivation exists predominately among lower-income youth would fit well with national data suggesting that the gender gap in achievement and attainment is also more pronounced within this socioeconomic bracket. For example, King (2001) reported that, among lower-income individuals in 1992, 10% more African American females than males had completed the more rigorous “New Basics” high school curriculum; however, among higher-income individuals, 6% more *males* than *females* had completed this curriculum. More recently, using data from 2003-2004, King (2006) found that, among African Americans in the lowest income quartile, 42% of dependent undergraduates were male; in contrast, among individuals within the highest income quartile, 54% of dependent undergraduates were male. (For *independent* undergraduates during the same period, 32% from the lowest income quartile were male, as compared to 40% from the highest income quartile.) If gender differences in motivation precede gender differences in attainment, then it seems likely that socioeconomic status may moderate the gender gap in African Americans’ expectations and values.

Expectations, Values, and College Participation

Perhaps the most striking set of findings from Study 2 was that adolescents' Grade 11 educational expectations and educational utility values uniquely predicted their future college participation, even when controlling for prior academic achievement and family socioeconomic variables. Although prior research has reported a link between African American boys' high school expectations and future educational outcomes (Mello, 2007), results reported in the present study suggest that this relation exists for both boys and girls. To my knowledge, this is the first research to report an association between general educational utility values during high school and participation in postsecondary education. Interestingly, this link was qualified by a marginally significant interaction with gender, which revealed that values played a statistically significant role in boys' but not girls' college outcomes. Perhaps this particular dimension of motivation is more important for African American boys' outcomes because it serves to negate the harmful impact of developmental risks that are more likely to be experienced by boys than by girls. On the other hand, the extent to which this finding is a replicable piece of evidence in support of developmental theory, or merely a peculiarity of this particular dataset, is questionable; other studies have shown some aspects of motivation to be more important for the educational outcomes of African American girls (e.g., Saunders et al., 2004). Additionally, severe problems with sample attrition between high school and early adulthood, which disproportionately affected boys and lower-income sample members, calls into question the external validity of Study 2 analyses of college participation. Future investigators may wish to examine whether the impact of values on African Americans' achievement/attainment outcomes really does vary by gender (and, if discovered, whether this gender difference varies by socioeconomic status and is attributable to gender differences in developmental risk factors).

In addition to their practical significance, the findings that educational expectations and educational utility values each make a unique contribution to African American adolescents' future college outcomes has relevance for motivational theory. As implied by Eccles' and Wigfield's expectancy-value theory of motivation (Eccles et al., 1983; Wigfield & Eccles, 2002) these constructs appear to be associated with adolescents' attainment-related choices. Although the temporal ordering of the variables in the model shown in Table 3.5 (Grade 11 expectations/values predicting college participation during early adulthood) is suggestive of a causal pathway from motivation to attainment outcomes, it is plausible that these relations could be explained by "third variables." For example, adolescents' Grade 11 expectations might have been based on preparation and planning for college that had (or had not) already occurred in collaboration with parents; planning and preparation, in turn, might increase the likelihood of positive outcomes for college participation. Future research efforts should be directed toward disentangling the effects of educational expectations and values from the effects of their correlates.

Study 2 Limitations and Future Directions

In addition to those already described, there are other limitations of this study that warrant mention. The most glaring limitation of Study 2 concerns the sample attrition that occurred between high school and early adulthood. Only 47% of the original 876 sample members were retained across the transition between high school and early adulthood. Furthermore, sample males were significantly less likely to be retained than sample girls. This gendered pattern in sample attrition could explain why no gender difference in college outcomes was observed in the present study. Although impossible to know with certainty, it is highly likely that lower-attaining boys (i.e., those who did not enroll in college) were less likely than

higher attaining ones to participate in Time 4 data collection. Time 4 data collection was conducted via mail survey, a data collection strategy that tends to yield low response rates than telephone and face-to-face interviews (Cauce, Ryan, & Grove, 1998).

Although not necessarily a study limitation per se, the absence of variation across MADICS participants in the slopes for expectations and values represents a roadblock for researchers seeking to identify factors that shape youths' motivational trajectories across time. Study 2 results suggest that the form of these trajectories does not differ across youth, a finding that leaves no room for individual differences in slopes to be explained. On the other hand, Study 2 results *do* provide evidence for individual variability in the *intercepts* for expectations and values. Therefore, instead of focusing on motivational patterns across time, researchers might profit from examining factors that explain individual variability in motivation during early adolescence. For example, difficulty in adjusting to middle school might contribute to the formation of maladaptive motivational beliefs during Grade 7. Given the lack of variability in patterns of change in expectations/values across time, it seems that maladaptive expectations/values during Grade 7 could essentially set the stage for continued motivational difficulties across the high school years.

Table 3.1

Conditional Latent Growth Models for Educational Expectations, Educational Utility Values, and Affiliation with Achievement-Oriented Peers (N = 876)

	1	2	3	4	5	6
	RMSEA	CFI	IC M (SE)	IC RV (SE)	Slope M (SE)	Slope RV (SE)
<u>Full Sample</u> (N = 876)	.04	.97				
Expectations			4.31 (.15)*	.55 (.06)*	.11 (.10)	.00 (.00) [∞]
Values			4.38 (.07)*	.12 (.04)*	-.13 (.05)*	.01 (.02)
<u>Boys Only</u> (N = 462)	.04	.93				
Expectations			4.27 (.20)*	.63 (.18)*	-.16 (.14)	.06 (.09)
Values			4.33 (.10)*	.15 (.02)*	-.16 (.08)*	.00 (.00) [∞]
Peers			3.32 (.12)*	.14 (.02)*	-.25 (.09)*	.00 (.00) [∞]

Note: Models conditioned on annual household income, mean parent education level, academic achievement, and youths' gender. M = Mean; IC = Intercept; RV = Residual variance; * $p < .05$; [∞] Residual variances for some slopes were manually set to zero because the corresponding value provided by Mplus was negative. In each case, the negative value provided by Mplus was not significantly different from zero. It is not unusual for statistical software packages to produce negative values for a given variance when the actual value of that variance is nonsignificant.

Table 3.2

Explanatory Factors in the Development of Educational Expectations, Educational Utility Values, and Affiliation with Achievement-Oriented Peers

	1	2	3	4	5	6
	<u>Exp. IC</u>	<u>Exp.Slope</u>	<u>Values IC</u>	<u>Values Slope</u>	<u>Peers IC</u>	<u>Peers Slope</u>
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
<u>Full Sample</u>						
<i>(N = 876)</i>						
Annual hhld. income	.02 (.01)	-.01 (.01)	-.01 (.01)	.00 (.01)		
Parent education	.22 (.05)*	.01 (.04)	-.01 (.03)	.02 (.02)		
Achievement	.33 (.06)*	.11 (.04)*	.17 (.03)*	.03 (.02)		
Gender	-.10 (.09)	-.16 (.06)*	-.06 (.04)	-.04 (.03)		
<u>Boys Only</u> (<i>N = 462</i>)						
Annual hhld. income	.01 (.02)*	.02 (.01)	-.01 (.01) [†]	.01 (.01)	.00 (.01)	.01 (.01)
Parent education	.23 (.07)*	-.02 (.05)	.04 (.04)	-.01 (.03)	.00 (.04)	.02 (.03)
Achievement	.25 (.08)*	.13 (.05)*	.20 (.04)*	.04 (.03)	-.04 (.05)	.07 (.03) [†]

* $p < .05$, [†] $p < .10$

Table 3.3

Maximum Likelihood Regression Models Testing Auto-Regressive and Cross-Lagged Relations between Expectations, Values, and Affiliation with Achievement-Oriented Peers (Boys Only) (N = 462)

	Expectations (T2)	Peers (T2)	Values (T2)	Expectations (T3)	Peers (T3)	Values (T3)
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Annual hhld income	.02 (.02)	-.01 (.01)	-.02 (.01)	.04 (.02)*	.03 (.01)*	.02 (.01)
Parent education	.15 (.07)*	.00 (.05)	.08 (.05)	.13 (.08)	.04 (.05)	.00 (.06)
Achievement	.33 (.08)*	.03 (.05)	.19 (.06)*	.34 (.09)*	.06 (.06)	.17 (.06)*
Expectations (T1)	.28 (.05)*	.05 (.03)*	-.04 (.03)	.13 (.06)*	-.02 (.04)	-.07 (.04) [†]
Expectations (T2)				.23 (.07)*	.10 (.05)*	-.01 (.05)
Values (T1)	.19 (.09)*	.07 (.06)	.34 (.06)*	.12 (.11)	.00 (.07)	.32 (.07)*
Values (T2)				-.10 (.11)	-.08 (.07)	.18 (.07)*
Peers (T1)	-.02 (.08)	.25 (.05)*	-.02 (.05)	.10 (.09)	.20 (.06)*	.00 (.06)
Peers (T2)				.10 (.12)	.20 (.08)*	.05 (.08)
<i>R</i> ²	.27*	.11*	.16*	.33*	.18*	.23*

* $p < .05$, [†] $p < .10$

Table 3.4

Study 2 Sample Members' Means and Standard Deviations on Continuous Study Variables as Function of Participation in Time 4 Data Collection

	<u>Participated in Time 4</u>	<u>Did not participate in Time 4</u>
	(<i>N</i> = 414)	(<i>N</i> = 462)
	M (SD)	M (SD)
1. Expectations (T1)*	5.07 (1.40)	4.81 (1.44)
2. Expectations (T2)*	5.23 (1.32)	4.85 (1.34)
3. Expectations (T3)*	5.26 (1.30)	4.55 (1.36)
4. Values (T1)*	4.32 (.62)	4.20 (.69)
5. Values (T2)*	4.26 (.68)	3.99 (.82)
6. Values (T3)*	4.21 (.72)	3.93 (.74)
7. Peers (T1)*	3.55 (.76)	3.33 (.79)
8. Peers (T2)*	3.40 (.68)	3.22 (.70)
9. Peers (T3)*	3.44 (.81)	3.04 (.78)
17. Prior achievement*	.24 (.86)	-.42 (.80)
18. Annual hhld. income*	10.01 (4.28)	8.78 (4.29)
19. Parent education*	2.59 (.97)	2.40 (.95)

*Significant between-group difference, $p < .05$

[†] $p < .10$

Table 3.5

Logistic and Multiple Regression Models Used to Test Expectations and Educational Utility Values as Mediators of the Relation Between Gender and College Participation Status (N = 414)

	<u>Expectations and Values</u>		<u>Expectations</u>		<u>Values</u>	
	<u>Step 1</u>		<u>Step 2</u>		<u>Step 2</u>	<u>Step 3/4</u>
	DV = College		DV = Exp.		DV = Val.	DV = College
	<i>OR (SE)</i>		<i>B (SE)</i>		<i>B (SE)</i>	<i>OR (SE)</i>
Annual hhld income	1.16 (.03)*		.02 (.01)		.00 (.01)	1.17 (.04)*
Parent education	.93 (.13)		.20 (.06)*		.06 (.05)	.89 (.13)
Achievement	3.98 (.75)*		.56 (.06)*		.22 (.04)*	3.69 (.70)
Gender	1.02 (.26)		-.52 (.08)*		-.09 (.07)	1.04 (.27)
Expectations (T3)						2.00 (.27)*
Values (T3)						1.89 (.37)*

* $p < .05$, [†] $p < .10$

Table 3.6

Logistic Regression Models Predicting College Participation Status from Grade 11 Educational Expectations, Educational Utility Values, and Their Interactions with Adolescent Gender (N = 414)

	<u>Full Sample</u>		<u>Boys Only</u>	<u>Girls Only</u>
	(N = 414)		(N = 156)	(N = 258)
	<i>OR (SE)</i>	<i>OR (SE)</i>	<i>OR (SE)</i>	<i>OR (SE)</i>
Annual hhld income	1.19 (.02)*	1.19 (.04)	1.16 (.06)*	1.20 (.05)*
Parent education	.77 (.10)*	.77 (.11) [†]	.70 (.15)	.81 (.15)
Achievement	2.82 (.32)*	2.93 (.63)*	2.39 (.65)*	3.42 (.95)*
Expectations (T3)	1.88 (.29)*	2.03 (.33)*	1.98 (.48)*	2.00 (.34)*
Values (T3)	1.74 (.17)*	1.29 (.28)	2.24 (.63)*	1.27 (.30)
Gender		.18 (.36)		
Gender x Exp.		.93 (.25)		
Gender x Val.		1.79 (.62) [†]		

* $p < .05$; [†] $p < .10$

Figure 3.1. *Model-estimated latent growth trajectory for educational expectations between Grade 7 and Grade 11 (N = 876).*

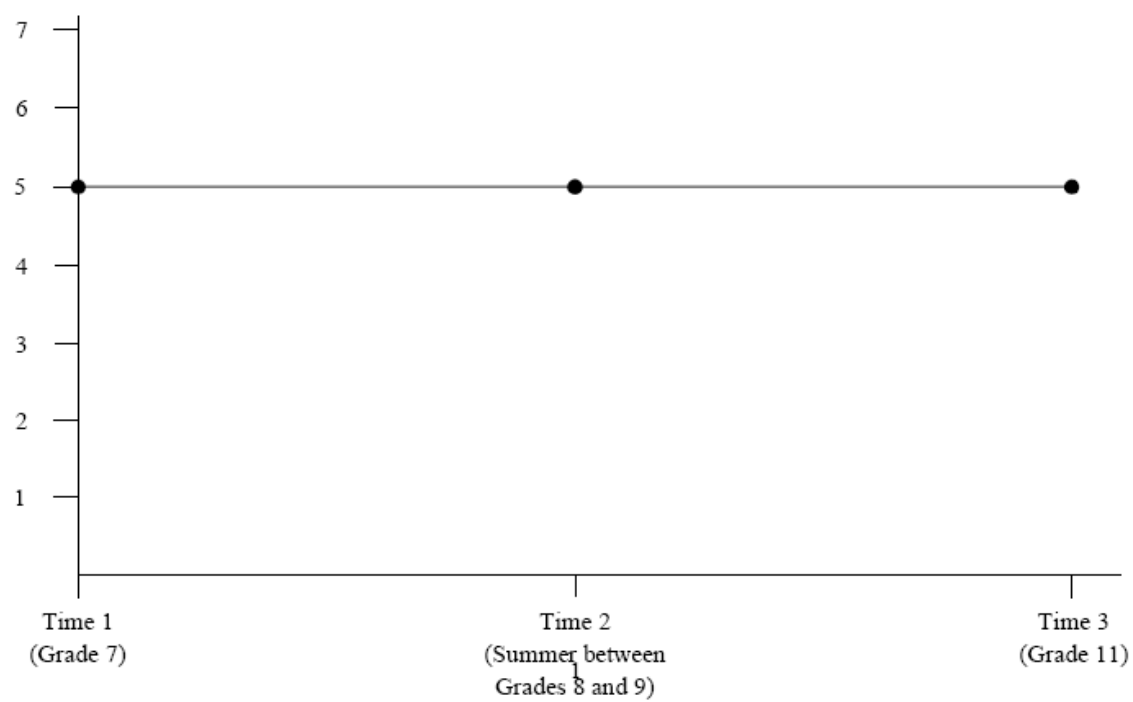


Figure 3.2. Model-estimated latent growth trajectory for educational utility values between Grade 7 and Grade 11 ($N = 876$).

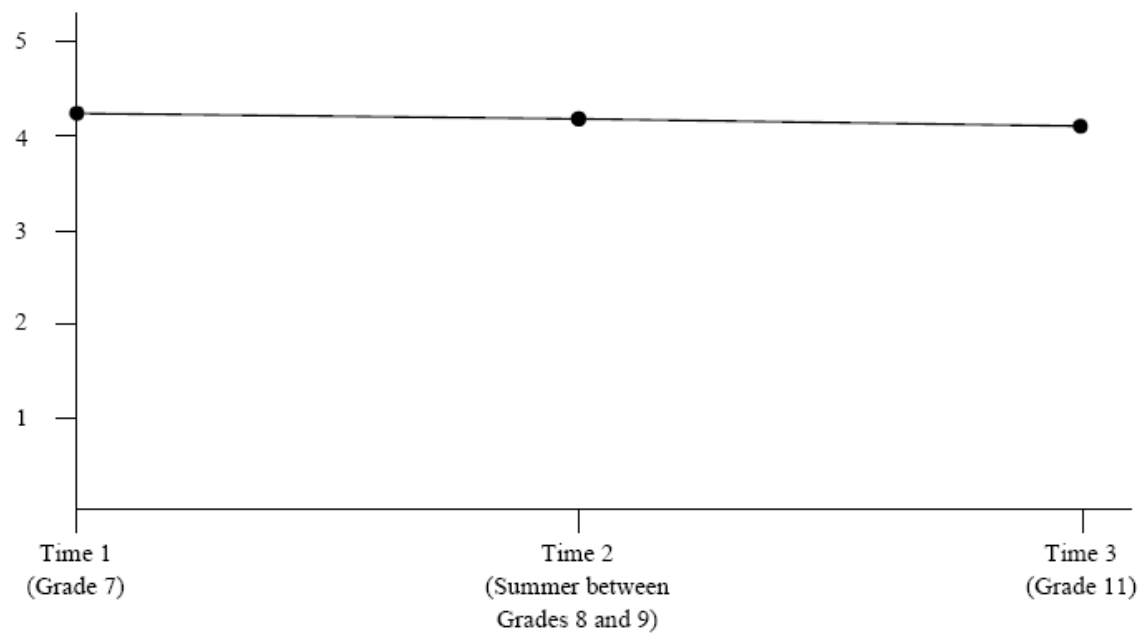
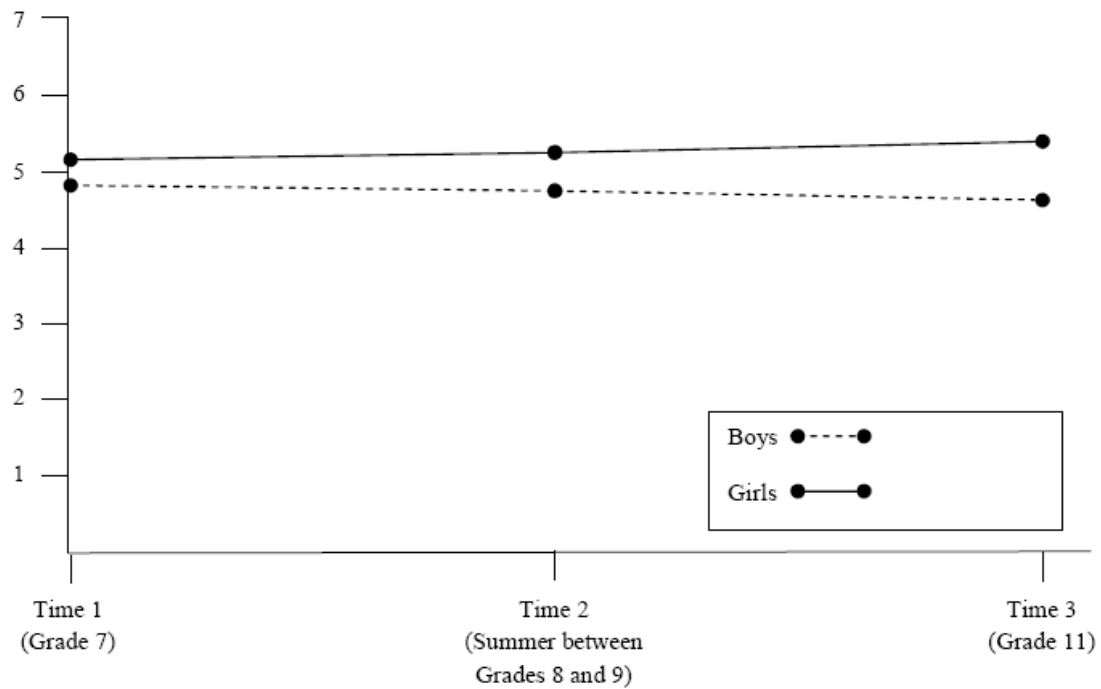


Figure 3.3. Model-estimated latent growth trajectories for educational expectations between Grade 7 and Grade 11 as a function of youth gender ($N = 876$).



Note: The slope for boys was significantly less positive than the slope for girls ($p < .05$). However, neither slope was significantly different from zero.

Figure 3.4. Model-estimated latent growth trajectories for educational utility values between Grade 7 and Grade 11 as a function of youth gender ($N = 876$).

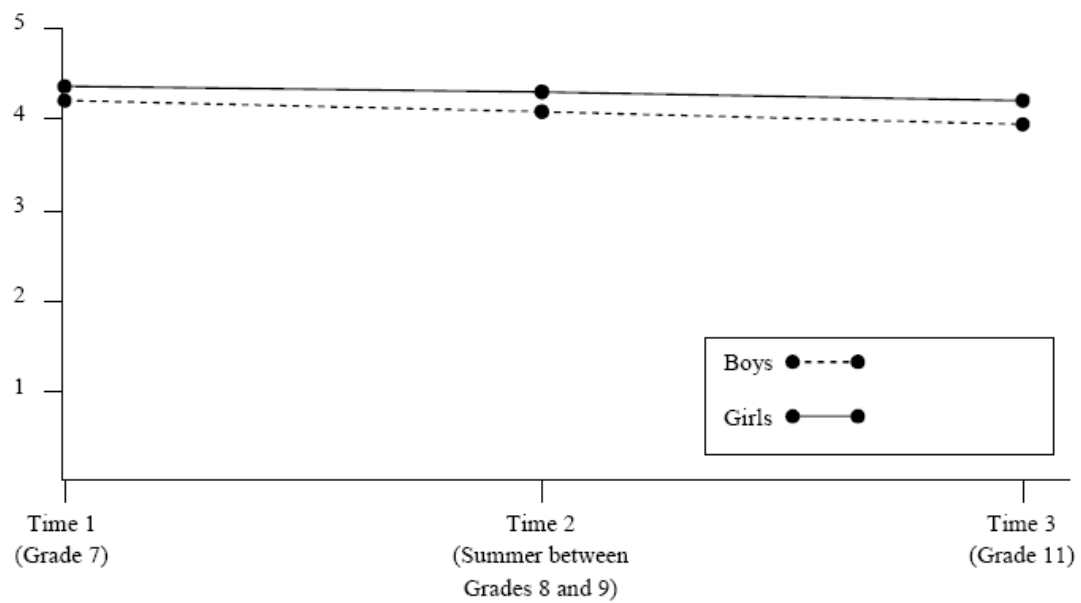
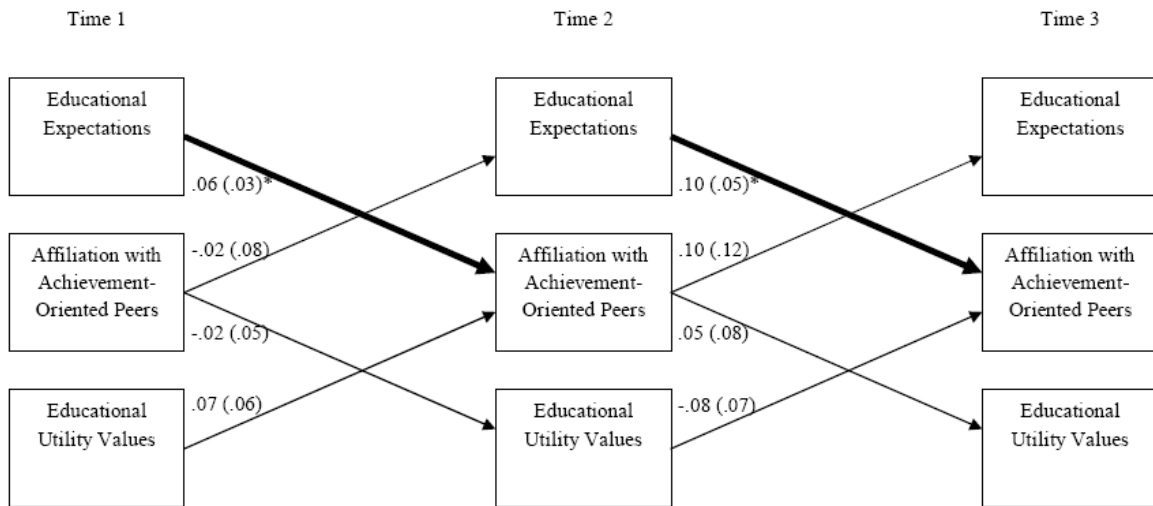


Figure 3.5. Longitudinal relations between boys' educational expectations, educational utility values, and affiliation with achievement-oriented peers ($N = 462$).



CHAPTER 4

GENERAL CONCLUSION

Contributions to the Literature on Achievement Motivation in African Americans

The research presented here contributes meaningfully to the growing body of literature on the development of achievement motivation in African Americans. Past research on motivation in African Americans has tended to focus on motivational differences between African Americans and members of other ethnic groups. Although there may be legitimate theoretical reasons for comparing racial groups, such research provides little information about the processes by which motivational outcomes in African Americans arise (Steinberg & Fletcher, 1998). The research presented here used a within-racial group design to examine correlates of African American adolescents' educational expectations and educational utility values. Thus, the results shed light on mechanisms that may underlie the development of adaptive motivational patterns in African American youth.

In an assessment of the state of the research on ethnic minority children, Garcia-Coll and her colleagues (1996) decried the fact that longitudinal work on the normative development of ethnic minority children has been ignored. Ten years later, Graham and Hudley (2005) reported that they were unable to identify a single published longitudinal study the primary focus of which was development of achievement motivation in African American children. Both Study 1 and Study 2 used longitudinal designs to examine the development of motivation-related

constructs and their correlates in African American adolescents. Study 1 examined the role that adolescents' perceptions of certain social-context factors (i.e., adults' beliefs about their academic abilities and the achievement orientation of peers) play in shaping their educational expectations and educational utility values. This study also examined how the magnitude of these influences changes over time. In contrast, Study 2 examined changes in mean levels of expectations and values over time, with a particular emphasis on gender differences. Both studies provided evidence that motivational factors during high school may predict actual attainment outcomes during early adulthood.

Over a decade ago, Graham (1997) called on researchers of achievement motivation in African Americans to draw upon theory to guide their work. Although some of the research conducted since that time has been grounded in motivational theory, other studies on achievement-related processes in African Americans appear to have few theoretical underpinnings. The research presented here addressed this issue by explicitly drawing upon expectancy-value theory as its guiding framework. In the past, support for this theory has been drawn from research conducted with predominantly European American samples. Results of Studies 1 and 2 suggest that the expectancy-value framework may be useful in explaining the motivational outcomes of African Americans. This finding is important in light of Sue's (1999) argument that researchers should not assume that models can be generalized from one population to another, and that generality is something that should be tested empirically.

Limitations and Future Directions

Although the studies presented here made use of the expectancy-value framework as a guiding theory, models tested did not fully capitalize on the potential benefits that the theory has to offer researchers of African Americans. One reason that expectancy-value theory is

particularly suited for the study of motivation in African Americans is that it allows researchers to take into account certain aspects of the contexts in which motivation develops, including those contexts characterized by racially oppressive features. Within psychology, much of the research on motivation in African Americans has failed to take into consideration external forces that influence African Americans' education-related attitudes and beliefs. By turning attention to how social context factors external to the child may have a harmful impact on motivational processes, researchers can avoid a "blame the victim" approach to dealing with the widely-documented underachievement of African American youth. By the same token, attending to external influences that promote motivation can also help researchers identify factors that lead to optimal outcomes for members of this group. Although the knowledge that *perceptions* of the social context (in the form of reflected appraisals of adults and the achievement orientation of peers) are associated with expectations and values bolsters developmental and motivational theory, these findings may be of limited practical use; specifically, interventionists may find it less effective to change *perceptions* of the social context than to change the social context itself. Using more objective measures of social context features (e.g., third-party reports of adolescents' social networks, third-party reports of social-context factors that shape youths' reflected appraisals of parents and teachers) may have provided better information regarding how changes in the actual social context might lead to changes in adolescents' motivation.

The research presented here, although conducted using an African American sample, does little to inform our understanding of how being African American contributes to motivational outcomes. Although this research was useful in elucidating the normative developmental processes for members of this group, models tested adhere to what Phinney and Landin (1998) refer to as the *inferred ethnic correlates* approach to research with minority

populations. In contrast, these scholars recommend a *measured ethnic correlates* approach, wherein factors known to be correlated with race/ethnicity are explicitly included in models of development. The measured ethnic correlates approach is consistent with Garcia-Coll et al.'s (1996) integrative model for the study of developmental competencies in ethnic minority children. Garcia Coll and her colleagues argue that, in order to attain a realistic understanding of the pathways by which ethnic minority youth achieve developmental competence, researchers must place variables linked to social stratification at the center of theoretical models designed to explain minority children's development. Although expectancy-value theory does not explicitly elaborate on race-specific variables, such variables can be easily mapped onto existing components of the model. For instance, the "socializer's beliefs and behaviors" component could include variables such as race-based social exclusion by peers and teachers' stereotypes about African Americans' academic competence. The "previous achievement-related experiences" component could include ethnic correlates such as transitioning from racially homogenous into racially heterogeneous schools, and placement in lower academic tracks. In sum, future research could benefit by sharpening the focus on how contexts unique to the lives African Americans shape children's development.

APPENDIX

¹ Measure included in Study 1; ² Measure included in Study 2

Expectations for Future Educational Attainment^{1,2}

<u>Item</u>	<u>Response Options</u>
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 technical or vocational training/some college 4 = graduate from a business college or a two year college with associates degree 5 = graduate from a 4 year college 6 = get a masters degree or a teaching credential 7 = get a law degree, a Ph. D., or a medical doctor's degree

Educational Utility Values^{1,2}

<u>Items</u>	<u>Response Options</u>
I have to do well in school if I want to get ahead in life.	1 = Strongly Disagree; 2 = Disagree; 3 = Neither Disagree Nor Agree; 4 = Agree; 5 = Strongly Agree
Schooling is not so important for kids like me.	
Getting a good education is the best way to get ahead in life for kids in my neighborhood.	

Perceptions of Parents' Beliefs About Academic Competence^{1*}

<u>Items</u>	<u>Response Options</u>
How far do you think your parents believe you will go in school?	1 = less than high school 2 = graduate from high school 3 = post high school technical or vocational training/some college 4 = graduate from a business college or a two year college with associates degree 5 = graduate from a 4 year college 6 = get a masters degree or a teaching credential 7 = get a law degree, a Ph. D., or a medical doctor's degree
How good of a student do your parents expect you to be in school?	One of the best students = 1; One of the worst students = 5
Would your parents say that you can do schoolwork better than, the same as, or not as good as other kids in your school?	Better than all = 1; Poorer than all = 5

*Items in this measure will be modeled as a latent construct.

Perceptions of Teachers' Beliefs About Academic Competence¹

<u>Item</u>	<u>Response Options</u>
At the school I go to now, my teachers think I'm a good student.	1 = Strongly agree; 5 = Strongly disagree

Affiliation with Achievement-Oriented Peers^{1,2}

<u>Items</u>	<u>Response Options</u>
How many of the friends that you spend most of your time with...	1 = None of them; 5 = All of them
Do well in school?	
Plan to go to college?	
Like to discuss schoolwork or other intellectual things with you?	
Think it's important to work hard on school work?	

College Enrollment Status²

<u>Item</u>	<u>Response Options</u>
Are you in college?	1 = No 2 = Yes, part time 3 = Yes, full time

Covariates: Prior Achievement^{1,2}

Achievement test scores were obtained from school records and will be calculated as the mean of students' standardized scores on the reading and mathematics subtests of the California Achievement Test (CAT), which was administered during Grade 5.

Grade 7 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).

Covariates: Primary Caregiver-Reported Socioeconomic Status^{1,2}

<u>Items</u>	<u>Response Options</u>
Total family income before taxes from all sources in 1990	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
Highest level of education obtained (mean for primary caregiver and secondary caregiver)	1 = did not complete high school 2 = GED 3 = high school diploma 4 = associates degree 5 = bachelors degree 6 = masters degree 7 = doctoral degree

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