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Do Gender Differences Exist in the Academic Identification of African-American Elementary-School Aged Children?

M. Monique McMillian-Robinson,
The University of North Carolina at Chapel Hill

Henry T. Frierson, and
University of Florida

Frances A. Campbell
The University of North Carolina at Chapel Hill

Abstract

The disidentification hypothesis predicts that African-American boys achieve less in school than African-American girls do because boys have less personal investment in doing well academically (i.e., they are disidentified). When do such gender differences emerge? Using self-perception and achievement data from longitudinal studies of children (N = 113) at high-risk for academic problems because they come from low-income families, the authors examined whether elementary school-aged and early adolescent African-American boys are more prone to low achievement and disidentification than African-American girls. Multiple regression analyses indicated no gender differences in reading or mathematics achievement between boys and girls at age 8 or at age 12. At 12, African-American boys' self-esteem was predicted by academic performance in ways similar to that of African-American girls. Thus, no gender differences emerged in elementary school achievement and no gender-specific disengagement patterns were confirmed among at-risk African-American students.

Substantial evidence suggests that African-American girls outperform their male counterparts in academic achievement (Downer-Assaf, 1995; Dulaney & Bethune, 1995; Garibaldi, 1997; Garibaldi, 2007; Grant, 1992; National Center for Educational Statistics, 2009; North Carolina State Department of Public Instruction, 2000). In second grade, African-American boys and girls have similar reading and mathematics achievement test scores (Mickelson & Greene, 2006); however, by eighth grade, African-American boys have lower reading and math achievement test scores as well as grade point averages (Davis, 2003; Mickelson & Greene, 2006) and are more likely to be enrolled in mental retardation and developmental delay programs (Thomas & Stevenson, 2009). This gender gap widens as students make the transition from middle school to high school (Roderick, 2003).

A decline in academic motivation might partially explain these achievement patterns (Davis, 2003). Osborne (1999) found a temporal shift in the relationship between self-perception and achievement measures among male and female high school students born in the 1950s and those born in the 1970s. He learned that African-American males born in the early- to mid-1970s were less academically motivated (i.e., more academically disidentified) than those born in the early- to mid-1950s. Yet the opposite trend emerged in African-American

females born in comparable time periods. Several researchers (e.g., Griffin, 2002; Morgan & Mehta, 2004; Osborne, 1995, 1997) have studied cohorts of high school students born in the 1970s, using federal and state databases (e.g., The Florida Department of Education, 1990–1991; NELS, 1988) However, the present writers could find no evidence that others have previously examined a key assumption of academic identification research—namely, that that African-American boys and girls begin school equally motivated to achieve academically, but boys differentially lose this motivational drive (Ogbu, 2003; Osborne, 1995). Thus, the question remains: When do gender differences emerge?

The present study examines gender differences in academic identification among 113 African-American children enrolled in predominantly White public schools in the southeastern United States. We compare gender differences in students' self-esteem, self-rated competence (referred to as cognitive competence at age 8 and academic competence at age 12), and actual academic accomplishment at 2 ages: 8 and 12 years old. The participants were born during the same time period as participants in many previous academic-identification studies—namely, the early- to mid-1970s (Griffin, 2002; Morgan & Mehta, 2004; Osborne, 1995, 1997). The data were collected at the end of the third and seventh year in school (i.e., at the end of second and sixth grade, except for those who repeated a grade).

Academic Achievement as a Predictor of Self-perception Measures

For students, academic performance is expected to be a major source of self-esteem, both global self-esteem and self-rated competence. Self-esteem is undeniably multi-faceted; as such, it depends upon the context and the individual's values. Global self-esteem has been defined as the evaluation of personal worth that individuals make and maintain about themselves based on what they believe they have accomplished as well as what they perceive to be others' evaluation of them (Coopersmith, 1981; Rosenberg, 1965). Following this logic, elementary school-aged African-American boys might have lower self-esteem than African-American girls because boys as a whole tend not to perform academically as well as girls.

However, research has shown that, across racial groups, males tend to have slightly higher self-esteem than females (Kling, Hyde, Showers, & Buswell, 1999). Moreover, a meta-analysis of 261 studies involving more than half a million cases, including children, adolescents, and young adults, showed higher self-esteem scores among African Americans than Whites across all ages (Gray-Little & Hafdahl, 2000). Given the continuing achievement gap between African Americans and Whites, it is paradoxical that African-American students nevertheless have higher self-esteem (Gray-Little & Hafdahl, 2000). This situation implies that self-rated competence may contribute less to overall self-esteem for African Americans than for Whites.

Academic achievement is more predictive of self-rated academic competence (i.e., one's perception of his or her academic capability) than general self-esteem (i.e., overall evaluation of self) (Marsh, 1988, 2005; Marsh & O'Mara, 2008). Recent research has shown that academic achievement predicts self-rated academic competence to a greater degree in African-American girls than in African-American boys (Chavous, Rivas-Drake, Smalls,

Griffin, & Cogburn, 2008; Saunders, Davis, Williams, & Williams, 2003). In addition, the relationship between self-rated academic competence and achievement appears to decrease in male college students, but not in female college students (Cokley, 2002). Academic identification researchers have explored possible explanations for these self-perceptions and achievement patterns. Some (Osborne, 1995; 1997; Cokley & Moore, 2007) have hypothesized that male African-American students are more susceptible to academic disidentification given the evidence that African-American boys underperform in comparison to African-American girls (e.g., National Center for Educational Statistics, 2009; North Carolina State Department of Public Instruction, 2000) while maintaining equal levels of self-esteem (Witherspoon et al., 1997).

Academic Disidentification

Being academically engaged means being highly motivated to do well in school. In other words, the individual is academically identified, and his or her positive self-esteem requires succeeding in school. In contrast, academic disidentification means that the individual's self-esteem does not depend on academic achievement. Steele (1992) suggested this disidentification as a means for protecting self-esteem among African-American students. Academic disidentification is a three-stage process that includes discounting, devaluing, and full-blown disidentification (Morgan & Mehta, 2004; Nussbaum & Steele, 2007). Discounting refers to a diminishing relationship between students' self-evaluation of academic achievement and outside evidence of that same academic achievement such as grades or test scores; devaluing is the diminishing relationship between students' global self-worth and their perceptions of their own academic ability (Morgan & Mehta, 2004; Nussbaum & Steele, 2007). Full-blown disidentification refers to the diminishing relationship between self-esteem and academic achievement (Cokley, 2002; Morgan & Mehta, 2004; Steele, 1992).

Gender Differences in Academic Identification and Subsequent Disidentification

As previously indicated, research has shown that African-American high school and college-age boys are more disidentified than African-American girls (Cokley & Moore, 2007; Osborne, 1995, 1997). Using the NELS (1988) database, Osborne used partial correlations to examine the concurrent relationship between self-esteem and achievement among students in the 8th, 10th, and 12th grades. From the 8th to 10th grades, the correlation between grade point averages and self-esteem fell significantly for African-American boys, but not for African-American girls; from 10^{th} to 12^{th} grade, the same differential decline was found between self-esteem and achievement scores and grade point averages, with boys declining but not girls. Osborne suggests that future disidentification research incorporate measures of self-perception regarding ability at different points in time.

Morgan and Mehta (2004) expanded Osborne's disidentification research using the same database (NELS 1988) by including self-perception measures of academic ability. By incorporating Marsh et al.'s (1988) self-perception of ability measures (e.g., "I learn things quickly in English class"; "I get good marks in mathematics class"), the researchers could

model not only full-blown disidentification, but also the intervening discounting and devaluing stages. To examine discounting, Morgan and Mehta examined whether academic achievement is a predictor of self-rated academic competence (i.e., discounting), whether self-rated academic competence is a predictor of global self-esteem (i.e., devaluing), and whether achievement predicts self-esteem (i.e., full-blown disidentification) among students in the 8th, 10th, and 12th grades.

Contrary to Osborne's (1995, 1997) findings that African-American boys were fully disidentified, Morgan and Mehta (2004) found no evidence of full-blown disidentification in African-Americans, although they did find limited evidence of discounting. Specifically, academic achievement was less predictive of self-rated academic competence in African Americans than in European Americans. The researchers did not find any gender differences in any of the stages of disidentification.

Aim of this Research

The present study was designed to determine if a gender gap exists in self-rated academic competence and global self-esteem measures in middle childhood among African-American boys and girls. Osborne's (1995, 1997) and Morgan and Mehta's (2004) studies focused on children who were in the eighth grade in 1988. The present study examines data collected after the third and seventh years of schooling (typically the second and sixth grades, respectively), thereby expanding the trajectory of disidentification to younger students, as Osborne suggested. In addition, this study measures actual achievement after the third and seventh years of school as well as self-rated academic competence at ages 8 and 12 and global self-esteem at 12.

Should a gender gap be found within the sample, the models of the current study will test whether the disidentification model is a plausible explanation of a gender gap in academic achievement between African-American boys and girls. The disidentification model hypothesizes that African-American boys gradually become less academically motivated, thereby demonstrating unique patterns of academic achievement, global self-esteem, and self-rated academic competence. Based on the results of the literature review, four hypotheses have been developed to determine whether the collected data will support this model.

H1: African-American girls and boys will perform equally well in mathematics and reading achievement at age 8; however, by age 12, girls will outperform boys in both mathematics and reading.

H2: Previous achievement in mathematics and reading will be less predictive of age 12 self-rated academic competence in African-American boys than in African-American girls (discounting).

H3: The relationship between self-rated academic competence and global self-esteem will be stronger in 12-year-old African-American girls than in 12-year-old African-American boys (devaluing).

H4: Achievement in mathematics and reading will be less related to global self-esteem in 12-year-old African-American boys than in 12-year-old African-American girls (full-blown disidentification).

Methodology

Sample

The data for the present analysis are drawn from two randomized trials of early childhood educational intervention for children at high risk for academic problems because of family socioeconomic circumstances (see Author, 1991). The children were born between 1972 and 1980. For the purposes of the present study, early childhood educational intervention is treated as a covariate; the present models tested the relationship among academic performance, academic self-perceptions, and global self-esteem over and above any effects of treatment-group assignment. Combining these two trials for analytic purposes has been successfully carried out in previous research: A longitudinal analysis of cognitive outcomes from infancy to age eight showed no study by treatment interactions (Author, 1997).

A total of 177 infants born into low-income families were enrolled in the two studies. The first study randomly assigned 111 infants either to a childcare-based treatment or a control group; the second, carried out consecutively with the first, enrolled 66 infants, randomly assigning them to one of two different treatment groups (either a childcare-based or a home visiting program) or to a control group. To keep the definition of early childhood treatment consistent across the two studies, the children randomly assigned to the alternate treatment condition of the second study (n = 27) were not included in the present research. Thus, early treatment in the present analysis consisted of five years of early childhood educational intervention delivered in a full-time childcare setting, from infancy to kindergarten entry at age five.

To address the present questions about academic self-perception in African-American students, the following criteria were applied to select participants from the remaining cases in the original databases: (a) African-American children, and (b) children with a complete set of self-perception and achievement scores, as needed for this study. Six children were eliminated because they were not African American; another 31 children were eliminated because, due to attrition of various kinds, they lacked complete data. This left 113 African-American participants eligible for inclusion in the present study. Of these, 60 were males and 43 were females; 59 had the early childhood educational experience and 54 did not. Secondary quantitative analyses of the longitudinal data were used to test the four research hypotheses in this study.

Measures Used

Demographic information (i.e., gender: female = 1, male = 0; treatment assignment: control = 0, experimental = 1) described the status of the infant participants when they entered the study. For purposes of the present study, the two early childhood programs were collapsed and treated as one; as noted above, previous examinations of outcomes for these studies have established this precedent where appropriate (Author, 1997; Author, 2008).

Academic skills were measured at ages 8 and 12 using age-referenced standard scores for the reading (test-retest reliability of r = .98) and mathematics (test-retest reliability of r = .92) clusters from the Woodcock-Johnson Psycho-educational Battery Part Two: Tests of Achievement (Woodcock & Johnson, 1977). These subtests were individually administered to students at both ages by research project personnel.

Measures of self-rated cognitive competence were collected at age 8 and self-rated scholastic competence and global self-worth at age 12. At age 8, either the Purdue Preschool Self-Concept Scale (PSCS; Cicirelli, 1972) or the Pictorial Scale of Perceived Competence and Social Acceptance of Young Children (PSPCYC; Harter & Pike, 1984) was administered, depending on which of the two studies (i.e., sequential early childhood programs) the child participated in. Those in the first of the two studies responded to items on the PSCS, an instrument conceived as a measure of overall self-esteem. Its 40 items were not divided into subdomains by the developers; however, for purposes of the current study, the items were sorted by independent judges to create subdomains for cognitive, peer acceptance, adult acceptance, and physical competence. Participants were asked to look at cartoon-like drawings of children while captions were read by the administrator (e.g., “This child is trying to learn how to read”; “This child is not trying to learn how to read”). Participants then indicated which picture best described themselves. If a participant selected the more positive probe, a score of 1 was assigned; otherwise, a score of 0 was assigned.

Participants in the second study responded to the PSPCYC. The items for the PSPCYC’s Cognitive Competency subscale are similar to those that defined the self-rated academic competence of the PSCS. The participants were asked to look at two pictures while the administrator read the captions (e.g., “This child is good at doing puzzles”; “This child isn’t very good at puzzles”). However, after making a dichotomous choice, participants were further asked to decide if the pictured choice was “really true” or only “sort of true” of themselves. Scores for each item could range from 1 to 4, with higher scores reflecting that the more positive probe was selected as “true.” The overall score was the mean of the six items in the subscale. The reported internal reliability coefficient for the Cognitive Competence subscale for second graders was r = .79 (Harter & Pike, 1984). The age-8 Cognitive Competence scores from the Purdue and the Harter instruments were converted to standard scores such that M = 0 and SD = 1 to make them comparable across the two study groups. To determine the feasibility for combining scores from these two instruments into a single indicator of 8-year-old self-rated academic competence, a regression model was run predicting this measure from the child’s gender, age 8 Woodcock-Johnson scores, study, and the interactions between gender x study, gender x Woodcock-Johnson scores, and Woodcock-Johnson scores x study; no significant difference emerged in self-rated academic competence at age 8 related to any of these predictors. Thus, combining scores from the two different instruments into a measure of cognitive at age 8 was deemed feasible.

At age 12, all children were administered the Self-Perception Profile for Children (Harter, 1979, 1982, 1985), which contains six 6-item subscales designed to assess scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and global self-worth. Like the version designed for younger children, the items describe a sense of strength or weakness in a given domain (e.g. “Some kids feel that they

are very good at their school work"; "Other kids worry about whether they can do the school work assigned to them"). After reading the items, participants marked which item best fit their self-perception and whether it was "really true for me" or "sort of true for me." Again, the mean of ratings within a subscale was calculated as the final score. The internal consistency reliability of the scholastic competence scale for sixth graders was reported as $r = .76$; for global self-worth, it was $r = .73$.

Results

Preliminary and exploratory analyses determined that the means and standard deviations of the variables of interest were within a reasonable range (see Table 1). Score distributions of the variables indicated that transformations were not needed. A one-sample chi-square test indicated that an equal proportion of girls and boys were assigned to the treatment group: X^2 (1, $N = 138$) = .127, $p = .721$. Scatterplots indicated no nonlinear relationships among the continuous predictor variables and outcome variables.

Table 1 provides means and standard deviations for the Woodcock-Johnson reading and math scores and the self-concept measures at age 8 and age 12. Table 2 provides the first-order correlations among these variables. As evident in Table 2, self-concept scores at age eight were not highly related to the other measures—probably due to the lack of variability in this measure. Almost all participants rated themselves positively at this age.

The early childhood treatment group was included in all predictive models as a control variable as previous work has shown that the preschool program had a positive effect on academic skills during the years that the study participants were being asked to describe their scholastic competence and self-esteem (e.g., Author, 1994). Consistent with the hypotheses for this study, the analyses were designed to determine whether gender differences existed in reading and mathematics achievement scores at age 8 and age 12, in, the extent to which early (age 8) academic achievement predicted scholastic competence at age 12 (discounting); in, the relationship between overall self-esteem (age 12) and scholastic competence at age 12 (devaluing); and in the extent to which age 12 academic achievement predicted overall self-esteem at age 12 (full-blown disidentification). The results will be presented in four sections according to the four hypotheses previously stated.

Hypothesis 1: Potential gender differences in reading and mathematics achievement scores

To determine whether girls outperformed boys at age eight, separate multiple regression analyses for mathematics and reading achievement were performed. Initially, the predictors were gender, early treatment, and gender x treatment. However, because the treatment x gender interaction was not significant, the models were reduced and re-run with gender and treatment as predictors. The overall model for reading at age 8 was significant: $F(2, 105) = 5.00$, $p = .008$. Holding treatment constant, gender effects were not found for reading at this age: ($\beta = 3.67$, p=.13; see Table 3). However, holding gender constant, treatment was significantly related to reading achievement: ($\beta = 7.00$, $p = .005$; see Table 3). The overall model for mathematics at age 8 was not significant: $F(2, 106) = .34$, $p = .33$.

The same set of analyses was conducted for reading and math scores at age 12; neither the reading model—$F(2, 109) = 1.23$, $p = .30$—nor the mathematics model—$F(2,109) = 1.23$, $p = .30$—was significant.

Hypothesis 2: Discounting

Regression models were run separately predicting scholastic competence at age 12 from mathematics and reading achievement. The full set of predictors for each model included gender, self-rated cognitive competence at age eight, early (eight-year-old) academic measures the interaction between gender and the academic measures, and the treatment group. The overall equation incorporating reading among the predictors of scholastic competence at age 12 was significant: $F(5, 94) = 2.63$, $p = .03$; $R^2 = .075$ (adjusted $R^2 = .032601$). Holding the remaining variables constant, the only significant predictors were treatment ($\beta = -.29.00$, $p = .03$) and reading score at age 8 ($\beta = .02$, $p = .002$) (see Table 3). No significant interaction between gender and early reading achievement was found ($\beta = .01$, $p = .51$). Thus, within the examined model, reading achievement explained differences in scholastic competence scores to the same degree for both girls and boys. The overall model for mathematics was not significant: $F(5, 95) = 1.69$, $p = .15$; $R^2 = .081$ (adjusted $R^2 = .033116$).

Hypothesis 3: Devaluation

A regression model was run on self-esteem at age 12 using the predictors of treatment, scholastic competence at age 12, gender, and the interaction between scholastic competence at age 12 and gender. The overall model was significant: $F(4, 103) = 8.45$, $p < .0001$; $R^2 = .247$ (adjusted $R^2 = .217944$). Holding the other predictors constant, only age 12 scholastic competence ($\beta = .41$, $p < .0001$) explained a significant portion of the variability in global self-esteem at age 12 (see Table 4). The fact that the gender x age-12 scholastic competence score was not significant indicated that, holding the other predictors constant, gender differences in scholastic competence did not explain a significant portion of the variance in age-12 self-esteem scores ($\beta = -.18$, $p = .24$) (see Table 4).

Hypothesis 4: Full-blown Disidentification

Separate regression models were run on age-12 self-esteem using the age-12 reading or mathematics Woodcock-Johnson score, gender, and the interaction between Woodcock-Johnson score and gender as predictors. The overall model that included mathematics achievement was significant: $F = (4, 104) = 3.65$, $p = .008$; $R^2 = .123$ (adjusted $R^2 = .090$).Holding the other predictors constant, mathematics achievement at age 12 was the only significant predictor of self-esteem—$\beta = .01$, $p = .001$ (see Table 5). The interaction between gender and mathematics achievement was not significantly related to self-esteem: $\beta = -.007$, $p = .31$. The overall model for reading was not significant: $F = (4, 104) = 2.12$, $p = .08$; $R^2 = .075$ (adjusted $R^2 = .039922$).

Discussion

This study examined the relationship among student self-rated academic competence (i.e., cognitive competence at age 8; scholastic competence at age 12), global self-esteem, and

academic achievement as measured by standardized achievement tests in African-American students at 8 and 12 years of age. The goal was to determine if a developmental progression in the manifestation of discounting, devaluing, and full-blown disidentification could be detected in these students, all of whom were from low-income African-American families. Although no gender differences in achievement or self-rated competence were expected among the 8-year-olds, investigators expected to see a divergence between boys and girls in this regard by age 12. Contrary to expectations, the present findings revealed no gender differences in early adolescent (i.e., age 12) achievement or motivation (i.e., discounting, devaluing, and full-blown disidentification). Moreover, no gender gap was found in participants' reading or math academic achievement at either age. The earlier achievement of boys and girls was equally predictive of their subsequent scholastic self-concept (i.e., discounting); thus, discounting was not evident among these African-American students. Furthermore, a gender difference was not found in the extent to which self-rated scholastic competence at age 12 predicted global self-esteem at age 12 (i.e., devaluing). Finally, no gender differences emerged in full-blown disidentification; in other words, achievement was equally related to global self-esteem among both the 12-year-old boys and girls in this study. Thus, in this sample, no evidence was found supporting gender differences in the relationship between academic achievement and the three stages of academic disidentification in early adolescent African-Americans; as such, this may not be an issue among all African-American boys.

Gender Differences in Achievement

The findings at age eight for this study neither support nor refute the theoretical model of disidentification as no clear assumption exists as to when it might have been expected to appear. If the theoretical model of a gradual development of disidentification were supported (see Osborne, 1995, 1997), no gender differences in achievement may exist at age 8 although they might have been expected to emerge by age 12. However, the African-American male and female students in this study performed equally well in reading and mathematics at both ages. Thus, the findings at age 12 are more clearly non-supportive of the theory.

Gender Differences in Discounting Achievement

Osborne (1995, 1997) suggested that actual achievement should be less predictive of self-described academic ability (i.e., self-rated perceptions of academic ability) in adolescent African-American boys than in their female counterparts. The current investigators sought to determine if disidentification could be detected before high school, thereby extending Osborne's hypothesis downward in age to middle childhood and early adolescent boys and girls. The investigators expected to find that previous achievement would be less predictive of scholastic self-concept in 12-year-old African-American boys than in 12-year-old African-American girls. Moreover, as the literature review indicated that boys are purportedly more prone to disidentification than girls, it was anticipated that self-rated perceptions of academic ability would be less related to achievement in African-American boys. The investigators based this assumption on the earlier evidence that middle school African-American boys are less motivated than African-American girls (e.g., Graham, Taylor, & Hudley, 1998). However, the results of the present study do not support the

hypothesis that gender differences exist in discounting; in other words, the result did not demonstrate that earlier achievement has less impact on the subsequent scholastic self-concept of boys than of girls.

The present findings do suggest that early reading achievement and early math achievement predict subsequent (age 12) scholastic competence somewhat differently. The regression model with age-8 mathematics achievement as a predictor was not significant; thus, gender differences cannot be determined. However, the regression model with reading achievement as a predictor was significant. Specifically, the previous reading achievement of both genders was significantly related to their subsequent self-rated academic competence. These linear regression results indicate that, after holding treatment group and early self-rated academic competence constant, no gender differences exist in the relation between WJ reading achievement scores at age 8 and self-rated academic competence at age 12. Thus, contrary to expectations, no gender differences emerged in discounting. The age-12 self-rated academic competence of low-income African-American girls and boys in the sample appeared to be equally influenced by their earlier reading achievement.

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Gender Differences in Devaluing

In the present study, disengagement was expected to occur earlier than tested by Osborne (1995) as evidence indicates that middle-school African-American boys are less motivated than girls (Graham et al., 1998). Specifically, the relationship between age-12 self-rated academic competence and overall self-esteem was expected to be weaker in 12-year-old African-American boys than in 12-year-old African-American girls. However, the results of this study did not support the hypothesis that self-rated academic competence would be more related to girls' overall self-esteem than to boys' overall self-esteem. Self-rated academic competence was strongly related to self-esteem in both boys and girls. The regression equation indicated no gender differences in the relationship between self-rated academic competence and self-esteem. Thus, self-rated academic competence at age 12 was significantly related to self-esteem at age 12 in both boys and girls within this sample.

Full-blown Disidentification

Finally, the disidentification hypothesis suggested that actual academic achievement would be less related to measures of self-esteem for African-American boys than for African-American girls (i.e., full-blown disidentification). According to the literature discussed herein, disidentification is purportedly a self-protective strategy by which students disassociate their self-esteem from academic domains. Disidentification is most likely to occur when students fear that their behavior will reinforce a negative stereotype about their ability. In this study, African-American boys were expected to show a greater tendency than African-American girls toward academic disidentification processes at age 12. Thus, it was anticipated that—at age 12—self-esteem would be more connected with achievement in African-American girls than in African-American boys. Osborne (1995) argued that, initially, all students are academically identified and have a strong relationship between self-

esteem and achievement. Although both African-American girls and African-American boys are susceptible to full-blown disidentification, the boys appear to be more susceptible. When students lose their motivation, the relationship between their self-esteem and their achievement diminishes.

As previously noted, based on evidence that middle school boys are less motivated than girls (e.g., Graham et al., 1998), the investigators in the current study expected to find observable gender differences in the relationship between overall self-esteem and academic achievement among 12-year-old boys. The self-esteem of African-American 12-year-old girls was expected to be more related to achievement than the self-esteem of African-American boys of the same age. However, the data provided no support for this hypothesis. The regression model for reading was not significant; thus, gender differences cannot be interpreted. Although the regression model for mathematics was significant, no gender differences emerged in the relationship between self-esteem and mathematics achievement. Boys' and girls' overall self-esteem was significantly related to their achievement in mathematics. The finding suggests that low-income African-American male and female early adolescents both respect mathematics skills.

One possibility here is that, among early adolescents, both girls and boys believe that mathematical skills are more indicative of cognitive competence than reading skills. By age 12, most students have acquired the basic skills needed to decode and comprehend written material; beyond the need for vocabulary growth and more complex understanding, these skills do not subsequently change in kind. In contrast, mathematics presents continual challenges to acquire new and totally different competencies as students move from basic counting and combining numbers to solving algebraic equations, geometry, and so on. During the school years when the present data were collected, these students were more likely to encounter new challenges in math than in reading; as a result, by age 12, their respect for mathematics skills may have increased and their actual competence in that subject have had more impact on their overall self-esteem than reading skills. However, interestingly, early reading skills were related to a sense of academic competence at age 12.

These findings, taken in concert, indicate that similar academic identification patterns existed within this sample of at-risk preadolescent boys and girls. No gender differences were evident in academic achievement, the association between self-rated academic competence and early grade achievement, the association between self-esteem and self-rated academic competence, or the association between overall self-esteem and concurrent achievement. Thus, the findings suggest the opposite of what was anticipated at the outset of the research. However, these findings concur with Osborne's (1995) contention that no gender differences exist in disengagement and achievement in preadolescents.

Conclusion

Limitations

Certain limitations in regard to this research must be taken into account. The investigators used pre-existing data designed to focus on the effects of early childhood educational intervention. Certain research questions relevant to the disidentification hypothesis could not

be addressed as appropriate measures were not originally included in the protocols (e.g., measures of perceived racism). Therefore, the investigators could not examine the role of stereotypes in affecting discounting, devaluing, and full-blown disidentification. In addition, this study focused on a small population of African-American children from low socioeconomic status families in southern states; as such, these findings have limited generalizability. Furthermore, the sample size limited investigators' power to detect relationships that may have been influential. Because several of the models failed to attain the .05 level of significance, trends in the data were not further investigated. Finally, the nature of the school system attended by most of the study participants may have contributed in unknown ways to the outcomes. The location was a small university town in which African-American students made up approximately 15% of the total student body. Most students were from intellectually oriented faculty families; thus, the academic competition within these schools was challenging and possibly more motivating than it would have been in a less advantaged system. Moreover, these students matriculated before the middle school model had been adopted. Thus, most went to the same elementary school where they were taught all subjects within their self-contained classroom for the first seven years (kindergarten through sixth grade). Teachers and students may have had many opportunities to form closer bonds during their seventh year in school each academic year than might have been possible when students changed classes throughout the day. As a result, it is possible that these students had stronger academic support from the schools they attended than is typical in large, urban systems.

Future Studies

In summary, this investigation builds upon academic disidentification research among African Americans born in the 1970s. The results indicated that gender differences in discounting, devaluing, and full-blown disidentification were not detected during preadolescence and early adolescence in the sample studied. Based on the data from the sample, boys and girls performed equally well and displayed congruent relationships among academic achievement in reading and mathematics, self-rated academic competence, and overall self-esteem at age 12. Because the sample size is small, these findings should be replicated with larger samples. Future research should focus on domain-specific measures of perceptions of academic ability, studies that incorporate cognitive ability with achievement, and specific measures of stereotype threat, which may provide more insights into the development of disengagement among African-American boys and girls.

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Table 1

Descriptive Statistics for Study Sample

	Girls				Boys			
	Treated		Control		Treated		Control	
Variable	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
WJ Reading - 8	97.88	11.21	88.08	13.33	91.70	12.58	87.16	12.46
WJ Math - 8	97.72	12.27	93.85	14.11	97.91	11.85	94.36	14.77
WJ Reading - 12	92.35	12.78	86.37	12.70	88.26	11.66	87.33	11.74
WJ Math - 12	93.50	12.99	86.67	15.24	91.06	10.50	89.63	15.34
Academic Self Concept -8	21.00	3.16	21.90	2.71	21.06	2.78	22.28	1.79
Cognitive Self-Concept -12	2.97	0.52	2.89	0.60	2.97	0.49	3.19	0.59
Self-Esteem - 12	2.57	0.60	2.81	0.62	2.62	0.55	2.81	0.75

Note. Ns for this table: Treated females = 26, Control females = 27; Treated males = 33, Control males = 27

Table 2

Intercorrelations Between Academic Achievement and Self-Concept Scores at Ages 8 and 12 Years

Variable	1	2	3	4	5	6	7
1. WJ Reading -8	—						
2. WJ Math - 8	.66***	—					
3. WJ Reading - 12	.80***	.56***	—				
4. W-J Math - 12	.56***	.68***	.61***	—			
5. Academic SC -8	.02	.05	.07	.01	—		
6. Scholastic Concept -12	.25**	.22*	.18*	.26**	.14	—	
7. Self Esteem - 12	.24**	.21*	.24**	.32***	.16	.50***	—

Note. Ns for this table range between 120 and 147 per cell.

Table 3

Summary of GLM Predicting Age 12 Scholastic Competence from Age 8 Academic Achievement, Age 8

Self-Rated Academic Competence, *and Gender*

Source	β	*SE*	*t*	*p*
		Math		
Early treatment	−0.238	0.128	−1.86	.066
Age 8 math score	0.011	0.005	2.25	.027*
Age 8 Academic Competence	0.034	0.064	0.53	.595
Gender	−.032	0.124	−0.26	.798
Gender x math score	0.004	0.009	0.47	.642
		Reading		
Early treatment	−0.288	0.127	−2.26	.03*
Age 8 reading score	0.015	0.004	3.18	.002**
Age 8 Academic Comp.	0.034	0.062	0.55	.581
Gender	−0.069	0.122	−0.57	.572
Gender x reading score	0.006	0.009	0.66	.513

Table 4

GLM Predicting Age-12 Overall Self Esteem from Age-12 Scholastic Competence and Gender

Source	β	*SE*	*t*	*p*
Early treatment	−0.005	0.095	−0.06	.955
Age 12 scholastic competence	0.405	0.077	5.26	<.001***
Gender	−0122	0.0948	−1.29	.200
Gender x scholastic competence	−0.180	0.152	−1.18	.241

Table 5

Summary of GLM Analysis for Predicting Overall Self-Esteem in 12-year-old African-Americans from 12-year-old Academic Achievement and Gender

Source	β	*SE*	*t*	*p*
		Math		
Early treatment	−0.121	0.103	−1.18	.240
Age-12 math score	0.0127	0.004	3.33	.0012**
Gender	−0.144	0.101	−1.43	.157
Gender x math score	−0.0077	0.008	−1.02	.312
		Reading		
Early treatment	−0.120	0.105	−1.14	.256
Age-12 reading score	0.009	0.004	2.30	.023*
Gender	−0.167	0.104	−1.60	.112
Gender x reading score	0.006	0.008	0.66	.513