



Published in final edited form as:

Self Identity. 2011 April ; 10(2): 263–277. doi:10.1080/15298868.2010.485358.

Academic Self-Concept in Black Adolescents: Do Race and Gender Stereotypes Matter?

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Abstract

We examined the relation between race- and gender-group competence ratings and academic self-concept in 252 Black seventh- and eighth-graders. On average, youth reported traditional race stereotypes, whereas gender stereotypes were traditional about verbal abilities and were nontraditional regarding math/science abilities. Among boys, in-group gender and in-group race-based competence ratings (i.e. ratings of boys and Blacks) were related to math/science and verbal self-concepts. However, only gender-based ratings (i.e. ratings of girls' abilities for reading/writing) were related to girls' self-concepts. These findings suggest that the influence of race stereotypes on Black adolescents' academic self-concepts is different for girls than boys. Whereas self-relevant gender groups were associated with both Black girls' and boys' academic self-concept, race-based competence ratings were only relevant for the academic self-views of Black boys.

Adolescence is a period of identity development and exploration, and for many adolescents, social group memberships become more important as they seek to define themselves (Erikson, 1968; Marcia, 1980). In U. S. society, race and gender are particularly salient social categories. During adolescence, racial-ethnic identity exploration increases (French, Seidman, Allen, & Aber, 2006; Pahl & Way, 2006), and many youth experience gender intensification – an increased sensitivity and adherence to gender stereotypes (Hill & Lynch, 1983; Lobel, Nov-Krispin, Schiller, Lobel, & Feldman, 2004). Not only do social group memberships become more important during adolescence, but youth also become more aware of the traditional stereotypes associated with the social groups to which they belong (Rowley, Kurtz-Costes, Mistry, & Feagans, 2007).

Awareness of self-relevant stereotypes about academic achievement or aptitude has consequences for academic self-concept and performance (Keifer & Shih, 2006; Kellow & Jones, 2008; Kurtz-Costes, Rowley, Harris-Britt, & Woods, 2008). However, most of the research on academic stereotypes has focused on stereotypes associated with a single social group membership rather than considering two or more social identities in tandem (Ashmore, Deaux & McLaughlin-Volpe, 2004). In addition, most previous research on academic stereotypes has examined stereotypes within a single academic domain, most often mathematics. In the current study, we examined the relationship between race and gender academic stereotypes and academic self-concept within a sample of Black adolescents. A central goal of the study was to determine how youth negotiate the sometimes conflicting stereotypes associated with membership in different social groups. For example, a Black boy might benefit from positive stereotypes regarding boys' performance in mathematics, but be harmed by negative racial stereotypes about the abilities of Blacks in the same subject. In addition, we examined whether beliefs about relevant in-groups (Blacks and boys in the above example) are more strongly associated with views about the self than beliefs about out-groups (Whites and girls).

Academic Stereotypes: Content, Availability, and Endorsement

Despite advances across the last century in equity in educational opportunity and outcomes between the races and sexes, stereotypes about academic differences persist. Traditional stereotypes are that Black people have poorer abilities in all academic subjects relative to their White and Asian American counterparts (Bobo, 2001; Rowley et al., 2007; Steele, 1997; Steele & Aronson, 1995), that boys are better than girls in mathematics and science (Beyer, 1999; Blanton, Christie, & Dye, 2002; Kurtz-Costes et al., 2008; Nosek, Banaji, & Greenwald, 2002), and that girls are more capable than boys in reading and writing (Lupart, Cannon, & Telfer, 2004).

Relatively little research has addressed children's explicit awareness and endorsement of race and gender stereotypes in academic abilities. Indirect evidence of endorsement of gender stereotypes comes from a large body of literature regarding girls' and boys' self-perceptions of academic skills. That is, girls report greater self-competence in verbal domains, whereas boys report greater self-competence in mathematics and science (Kurtz-Costes et al., 2008; Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005; Meece, Glienke, & Burg, 2006; Stetsenko, Little, Gordeeva, Grasshof, & Oettingen, 2000).

Although children's self-perceptions reflect traditional gender stereotypes, actual performance during middle school and early adolescence does not always support those stereotypes. In line with traditional stereotypes, girls do tend to outperform boys in literacy areas (Denton & West, 2002; Herbert & Stipek, 2005; National Assessment of Educational Progress, 2003), but girls also tend to do as well or better than boys in math until high school (Lee, Grigg, & Dion, 2007). The few studies that have used direct measures of children's gender stereotypes about academic abilities show that whereas awareness of adult stereotypes as well as personal endorsement of gender stereotypes regarding verbal abilities appears in early adolescence, youth do not consistently report an advantage for boys in mathematics and science (Kurtz-Costes et al., 2008; Rowley et al., 2007).

Direct assessments of children's awareness and endorsement of race academic stereotypes has shown that early adolescence is a time when youth become aware of and begin to endorse traditional race stereotypes (Hudley & Graham, 2001; Okeke, Howard, Kurtz-Costes, & Rowley, 2009; Rowley et al., 2007). By middle school, Black and White youth report that White students are better in academic domains than Black students, although Blacks report relatively small race differences (Rowley et al., 2007).

The current study is predicated on the assumption that widely-held stereotypes about social groups influence children's and adolescents' views of themselves. This assumption is supported by basic tenets of social identity theory (Tajfel & Turner, 1986) and on experimental studies that show that priming relevant social group stereotypes leads to differences in self-concept (Kiefer & Shih, 2006) and performance (Steele & Aronson, 1995). Note that by focusing on the influence of stereotypes on the self-concept, we do not mean to rule out the possibility that self-concept also influences stereotype endorsement (Ames, 2004a, 2004b). We will return to this "direction of causality" issue in the General Discussion.

Multiple Identities and Beliefs about Social Groups

Scholars have begun to recognize that considering the functions of social identities in isolation is inadequate. Although everyone holds memberships in multiple social groups (e.g., religious, gender, racial, and national groups), most psychological research tends to focus on examination of a single social category at a time (Ashmore et al., 2004; Cole, 2009; Settles, 2006). Social identity theory suggests that identities can be hierarchically ordered, with some identities being more central to the self-concept, and therefore more influential on

outcomes, than others (Sellers, Chavous, & Cooke, 1998). Moreover, in any given context individuals may reference any of the several social group memberships in making social comparisons and self-judgments (Ashmore et al., 2004). Scholars of intersectionality concur that the effects of social identities are best understood jointly, rather than in an additive way (Cole, 2009; Settles, 2006). That is, being a Black girl is something different than the simple sum of being Black and being a girl (Blanton, Crocker, & Miller, 2000).

In the current study we consider the relations between Black boys' and girls' academic self-concepts and their beliefs about the competencies of the social groups to which they belong as well as the associated out-groups. Moreover, we ask whether youth appear to draw from different group assessments (i.e., social identities) according to academic domain. An intersectional approach to these questions is especially important given traditional stereotypes about Black boys. Some research suggests that societal views of the academic abilities of Black boys are particularly negative when compared with views of other gender and ethnic groups (Chavous, Harris, Rivas, Helaire, & Green, 2004; Cunningham, 1999; Hudley & Graham, 2001). In contrast, Black girls tend to be viewed favorably by their peers and tend to rate their own group similarly to White girls in terms of academic ability (Hudley & Graham, 2001). Thus, traditional race academic stereotypes might have stronger repercussions for the academic self-concepts of Black boys than of Black girls.

Study Aims

In the present study we examined the race and gender academic stereotypes of seventh- and eighth-grade Black children. Two questions guided this work. First, we examined the extent to which these students endorsed traditional stereotypes about race and gender differences in academic domains. In line with previous research (Kurtz-Costes et al., 2008; Rowley et al., 2007), we expected that stereotype endorsement would reflect both race and gender statuses. We expected boys in this Black sample to report that boys are better than girls in mathematics and science. Girls, on the other hand, were expected to report no differences between boys and girls in mathematics, but notable gender differences in verbal domains. We expected both boys and girls to report a small academic advantage to White students over Black students in both domains.

Second, we examined the relationships between students' views of race and gender in-group and out-group performance and their academic self-concepts. Based on previous research findings related to the importance of in-group comparisons (e.g. Robbins & Krueger, 2005), we predicted that in-group competence ratings would be more strongly related to self-concept than out-group ratings. For example, boys' ratings of boys would be more strongly related to their own self-concepts than would boys' ratings of girls. Finally, we were interested in whether gender or race would be more salient as a social identity as indicated by the relationship between group competence ratings and individual self-concept.

Method

Participants

Participants were 254 seventh ($n=46$) and eighth ($n=208$) grade Black students (M age = 13.8 years; $SD = 0.69$; 144 girls, 110 boys), recruited from 5 public middle schools located in the southeastern region of the United States. The participating schools were located in one urban and one rural school district, and each school had about 1000 students across Grades 6, 7, and 8. Student populations in the 5 schools ranged from 62% to 80% Black. These students were part of a larger study with a total of 362 seventh and eighth graders. The larger sample included 108 children of other racial/ethnic groups who were not included in the current report.

Procedure

Informed parental consent was obtained for all participants. Consent forms were distributed to children in their classrooms. Approximately 80% of children returned the forms, with the majority (95%) of those agreeing to participate. Data were collected during the 2003-2004 and 2004-2005 school years. Each student received a \$5 gift certificate.

Measures

Perceptions of Group Competence/Stereotypes—Visual analogue scales (VAS) featuring a 100-millimeter line for each item with descriptive anchors at each end were created to capture how children believed boys, girls, Blacks, Whites, rich, and poor children perform in a variety of academic and non-academic domains (e.g., sports, reading, math). Children were asked to make a mark on each line to show the competence of each social group in each academic domain. For example, the item “I think that in science boys do this well” was followed by a scale with “not good at all” on the far left (0 millimeters) and “very good” on the right (100 millimeters). Separate items were used to assess perceived competence in math, science, reading, writing, music, sports, school grades, and general “smartness.” Children rated each social group (e.g., girls) on all eight items before proceeding to the next social group. The social groups were arranged in three different sequences in order to control for response bias. In addition, the two members of each social category were never adjacent to one another in the protocol (e.g., “boys” was not adjacent to “girls”). Perceived group competence scores represented how far in millimeters along the 100-millimeter line a child marked each group for that item, with lower scores representing lower competence ratings. Only the competence ratings for boys, girls, Blacks, and Whites in reading, writing, math, and science were used in the present study. The scores for math and science competence were averaged, yielding math/science competence scores for boys, girls, Blacks, and Whites. A similar composite score was made for reading and writing competence ratings. Table 1 shows the relevant correlations (math with science, reading with writing) both for group and self-competence ratings.

Academic Self-Concept—Self-competence (i.e., self-concept) was assessed for several domains: math, science, reading, writing, sports, grades, music, and smartness. Children’s self-concepts in these domains were assessed with histograms that each had a column of 25 faces (Nicholls, 1978). “Best in the class” was printed at the top, and “worst in the class” at the bottom of each item. Children were asked to circle the face in the column that best represented their own standing in comparison to classmates. For this paper, ratings on math and science items and reading and writing items were averaged to create two composite scores with a possible range of 1 to 25 (see Table 1).

End of Grade Achievement Scores—Reports of children’s math and language arts performance were obtained from state End-of-Grade test scores in order to control for prior math, reading, and writing achievement in all analyses. In the state in which the research was conducted, children are tested at the end of each academic year in the areas of math and language arts. Unfortunately, test scores for science were not available. The scores used here were math and language arts percentile scores that represented children’s relative standing within their grade at the state level. The average language arts percentile score for our sample was 42.02 ($SD = 25.41$); for mathematics $M = 45.41$ ($SD = 26.95$).

Results

The results are presented in two sections. First, repeated measures analyses of variance (ANOVAs) were used to compare participants’ competence ratings for race (i.e., Black and White) and gender (i.e., boys and girls) groups within each academic domain. Second,

hierarchical regression analyses were used to examine the primary research questions regarding the relations between race and gender group competence ratings and academic self-concept. An alpha level of .05 was used throughout.

Endorsement of Gender and Race Stereotypes

We gauged the extent to which Black adolescents' stereotype endorsement mirrored traditional views using the group competence ratings from the visual analog scales previously described. For the analysis on gender stereotypes, a 2(Participant Sex) \times 2(Gender Group) \times 2(Academic Domain) repeated measures ANOVA was conducted with Participant Sex (boys, girls) as a between-subject factor and Gender Group (girls' competence; boys' competence) and Academic Domain (math/science; reading/writing) as within-subject factors. To analyze race stereotypes, a 2(Participant Sex) \times 2(Racial Group) \times 2(Academic Domain) repeated measures ANOVA was used with Participant Sex as a between-subjects factor and Racial Group and Academic Domain as within-subject factors. Tables 2 and 3 show the mean differences in participants' race and gender group competence ratings. A 2(Participant Sex) \times 2(Domain) repeated measures ANOVA was performed on academic self-concept scores with Participant Sex as a between-subjects factor and Domain (math/science; read/write) as a within-subjects factor.

Gender Group Comparisons—For the repeated measures ANOVA on scores of boys' and girls' competence, the main effects of Participant Sex and Gender Group were significant, as were the Participant Sex \times Gender Group and Domain \times Gender Group interactions, $F(1, 249) = 24.8, 450.2, 37.0,$ and $121.5,$ respectively. Overall, girls were viewed as more competent than boys, and girls' ratings were higher than those of boys. These main effects, however, were qualified by the interactions. The Participant Sex \times Gender Group interaction revealed that whereas boys' ratings of girls did not differ from girls' ratings of girls ($M_B = 75.5; M_G = 74.7; F(1, 250) = .12, ns$), boys rated themselves as more competent than girls rated them ($M_B = 57.7; M_G = 42.6; F(1, 249) = 58.75, p < .001$). Of greater interest was the Domain \times Gender Group interaction, which showed that whereas boys were viewed as more competent in math/science than in reading/writing ($M_{M/S} = 54.7; M_{R/W} = 45.6; t(251) = 7.88, p < .001$), the reverse was true for girls ($M_{M/S} = 70.1; M_{R/W} = 80.0; t(252) = -9.64, p < .001$). Moreover, consistent with traditional stereotypes, girls were viewed as more competent than boys in verbal domains $t(251) = 21.56, p < .001$. However, they were also rated as more competent than boys in math/science, $t(251) = 11.91, p < .001$. The main effect of Domain, the Participant Sex \times Domain interaction, and the Participant Sex \times Gender Group \times Domain interaction were nonsignificant.

Race Group Comparisons—For the repeated measures ANOVA on race group competence scores, the main effects of Race Group and Domain were significant, as was the Race Group \times Domain interaction, $F(1, 247) = 63.8, 15.9,$ and $6.8,$ respectively. Overall, Whites were rated as more capable than Blacks ($M_W = 74.9; M_B = 63.3$), and math/science ability was rated higher than reading and writing ($M_{M/S} = 70.3; M_{R/W} = 67.9$). The Race Group \times Domain interaction showed that whereas Whites were viewed as more capable in math/science than in reading and writing ($M_{M/S} = 76.88; M_{R/W} = 72.43; t(251) = 5.11, p < .001$), there were no domain differences among Blacks ($M_{M/S} = 63.19; M_{R/W} = 62.84; t(250) = .38, ns$). The effect of Race Group was significant in both academic domains. White students were rated as more competent than Black students in reading/writing ($M_W = 72.51; M_B = 62.97; t(249) = 6.01, p < .001$) as well as math/science ability ($M_W = 76.84; M_B = 63.24; t(249) = 8.50, p < .001$). Neither the main effect of Participant Sex nor either of the interactions involving Participant Sex was significant.

Self-concept ratings—The repeated measures analysis of variance on self-concept scores yielded a significant Participant Sex \times Domain interaction, $F(1, 250) = 7.63$. Boys had higher self-concepts in math/science than girls ($M_B = 17.9$; $M_G = 15.8$; $t(250) = 3.60$, $p < .001$), but there was no gender difference in reading/writing self-concept ($M_B = 17.3$; $M_G = 17.1$; $t(250) = 0.31$, *ns*). Girls' self-concepts in reading/writing were significantly higher than their self-concepts in math/science, $t(141) = -2.87$, $p < .01$, while boys showed no difference in their self-concept ratings across academic domains, $t(109) = 1.15$, *ns*.

The Relation between Competence Ratings and Academic Self-Concept

We used regression analyses to determine which social group category (i.e. race or gender) was more strongly related to self-concept in each domain. These analyses were conducted separately for the two academic domains (i.e., reading/writing; math/science) and for each gender. Thus, four regression analyses were conducted; dependent variables for the four were girls' reading/writing self-concept, girls' math/science self-concept, boys' reading/writing self-concept, and boys' math/science self-concept. In each regression analysis, out-group and in-group competence ratings were entered along with domain-relevant achievement scores. Thus, for example, for the analysis predicting girls' reading/writing self-concept, the independent variables entered were girls' ratings of boys' competence in reading/writing, ratings of Whites' competence in reading/writing, ratings of girls' competence in reading/writing, ratings of Blacks' competence in reading/writing, and language arts achievement scores. Tables 4 and 5 show the results of the regression analysis.

Girls—The results of the regression analyses on reading/writing showed that, for girls, in-group gender competence ratings explained the most variance in academic self-concept in reading/writing, $F(1, 234) = 5.78$ (see Table 4). The better girls viewed girls' performance in reading/writing, the better they felt about their own performance in reading/writing ($\beta = .29$). Neither in-group nor out-group race competency ratings were related to self-concept in reading/writing, nor was out-group gender competence (i.e., girls' ratings of boys' competence). Only academic achievement was related to girls' math/science self-concept ($\beta = .40$).

Boys—In the analyses on boys' scores, out-group competence scores did not significantly predict either reading/writing or math/science self-concept. However, for each equation, in-group ratings (both for gender and race) explained a significant amount of variance. In particular, both boys' rating of boys and boys' ratings of Blacks were significant predictors of individual self-concept ($\beta = .35$ and $.26$ for reading/writing, and $\beta = .20$ and $.27$ for math/science, respectively). Achievement scores were also significantly related to self-concept.

Summary

These young adolescents rated girls as better than boys in both academic domains. Mean differences reflected traditional stereotypes that boys are better in math/science than reading/writing, whereas the reverse was true for girls. Race stereotypes were also traditional with Whites rated as better than Blacks in both reading/writing and math/science.

Regression analyses indicated that girls were more attuned to gender, whereas boys' beliefs about both race and gender in-groups were related to their own self-concepts. In the literacy domain, girls' self-concepts were influenced by their perceptions of girls' abilities, but in math/science, their self-concepts were unrelated to any group competence ratings. In contrast, boys' in-group competence ratings based on both race and gender (i.e., Blacks and boys) were significant predictors of self-concept. Out-group competence ratings did not predict individual self-concept in any of the analyses.

Discussion

The primary aim of this study was to examine the relationship between Black adolescents' assessments of the academic abilities of self-relevant social groups (as well as associated out-groups) and their academic self-concepts. The design of the study allowed us to consider these relationships from three different angles. First, we examined the extent to which self-views were more closely associated with students' beliefs about the competence of in-groups as opposed to out-groups. Second, the study examined separately academic domains in which girls are positively stereotyped (i.e., verbal and writing domains) and domains where boys are positively stereotyped (i.e., mathematics and science) to consider whether the valence of societal stereotypes influences the relationship between stereotypes and self-concept. Finally, we examined whether beliefs about race or gender were more strongly related to the academic self-concepts of these Black boys and girls. The following discussion will consider the results of this study in relation to literature on stereotype endorsement and theories about the relevance of multiple social identities.

Stereotype Endorsement

Our findings regarding stereotype endorsement largely replicated those of previous research. As expected, girls were rated more highly than boys in literacy and in math/science (Kurtz-Costes et al., 2008; Rowley et al., 2007). Moreover, girls rated boys much lower in literacy than boys rated boys. That girls were rated by girls and boys as better than boys in math/science is not in line with prevalent societal stereotypes, but replicates findings from other recent studies using similar methods with both White and Black youth (e.g., Kurtz-Costes et al., 2008) and may reflect the reality that girls at this age tend to show better performance than boys in these domains (Felson & Trudeau, 1991; Lee, Grigg, & Dion, 2007).

Participant sex differences in math/science self-concept tended to follow societal stereotypes rather than the stereotypes reported by participants. Although girls were rated as better than boys in mathematics and science, boys tended to have higher math/science self-concepts than girls. On the other hand, girls' literacy self-views did not reflect the strong advantage that they gave girls relative to boys in that domain; girls and boys had similar literacy self-ratings. Thus, there is some suggestion that girls are not internalizing their views of the in-group. Alternatively, these results may indicate that boys are over-confident in their abilities relative to their views of other boys.

Race stereotype patterns also supported results from other similar research. Participants rated Whites as better, on average, than Blacks in academic domains. However, these differences were again quite small (e.g., Rowley et al., 2007). Although there was a significant main effect of Race Group, the interaction between Race Group and Domain indicates that the effect of race was stronger in the Math/Science domain: Perceived difference between Blacks and Whites in math/science were larger in magnitude than the Race Group difference in literacy. To our knowledge, no other published studies have assessed race stereotypes related to different academic domains.

Social Identities

Classic theory and research has richly and robustly illustrated the impact of social identity on individual identity (Cross, 1991). Although individuals may identify with any number of social groups, race and gender are two of the most salient social identities in American society (Ashmore et al., 2004). Moreover, theorists have increasingly voiced the importance of using an intersectional approach – one where social group memberships are considered jointly. In this study, the connection between relevant social identities and personal identity

(i.e., self-concept) was complicated by the academic domain under study and perhaps the intersectional nature of stereotypes.

It is remarkable to note that the ways in which the girls in this sample viewed their racial in-group's academic performance was not significantly related to their ratings of their own academic performance and that their in-group gender ratings were only related to self-concept in the domain in which society tends to give them an advantage (i.e., literacy). Social identity theory might suggest that these girls are protecting their academic self-concepts from relevant negative race stereotypes and self-enhancing by drawing on positive gender stereotypes. This interpretation would also be in line with another study utilizing a racially mixed sample showing that girls' awareness and endorsement of mathematics and science stereotypes were not related to their mathematics and science self-concepts (Kurtz-Costes et al., 2008). However, our findings are at odds with experimental data from Kiefer and Shih (2006) suggesting that negative stereotypes are more consequential for self-concept than are positive stereotypes.

In a study examining gender and domain differences in the impact of stereotypes in a college-age sample, Kiefer and Shih (2006) showed that participants' beliefs about their own ability were more sensitive to negative feedback in domains where their gender group was negatively stereotyped than in domains where their group was positively stereotyped. Women were more likely to attribute their test failure to a lack of ability when given a mathematics test and men were more likely to attribute poor test performance to lack of ability when the test was described as assessing verbal ability. The effect was not seen for positive feedback in any domain or negative feedback in positively stereotyped domains. The discrepancy between these results and the present findings may reflect the fact that Kiefer and Shih (2006) did not directly assess stereotypes, but rather inferred that stereotypes were driving individuals' reactions to feedback in domains associated with certain stereotypes.

The pattern for boys suggests that another mechanism might be at play. For boys, the relationship between social group competence ratings and self-concepts did not differ markedly by academic domain. In addition, boys' self-concepts were related to both gender and race group competence ratings, whereas girls' self-concepts were only related to gender group competence ratings. This may reflect the gender asymmetry in race stereotypes; negative race academic stereotypes appear to be more strongly associated with Black males than Black females (Chavous et al., 2004; Hudley & Graham, 2001). Moreover, if it is the case that youth stereotypes no longer favor boys in mathematics and science, as this and other research suggests (e.g., Kurtz-Costes et al., 2008), Black boys may not have a positive stereotype from which to draw in this case. Concern has been raised about Black girls being victims of "double jeopardy" wherein they are disadvantaged because of negative race stereotypes and negative gender stereotypes. However, the current results seem to point to greater vulnerability of Black boys.

Caution should be used when considering the implications of these findings for future research on social identities. One unambiguous conclusion is that there is great benefit to studying multiple identities simultaneously and to considering how social groupings intersect. The possibility that racial stereotypes are more strongly tied to Black males than Black females is an important area for future inquiry. A more ambiguous set of findings, though, relates to the relative importance of race to Black girls. It is not clear that race is any less important to Black girls than it is to Black boys in other domains. For example, some studies show that Black girls have stronger levels of racial identity than Black boys (e.g., Romero & Roberts, 1998). Thus, these results should only be considered in terms of the influence of social group stereotypes, rather than broader aspects of identification.

Similarly, the results showing that adolescents in this study rate girls as better than boys in mathematics and science should not be taken to mean that traditional societal stereotypes favoring boys over girls in these domains are not detrimental. The participants in this study still rated boys as better in mathematics and science than in literacy domains, and boys rated their own performance in math/science better than girls rated their performance. In addition, studies of older youth show that by high school, girls are electing to take advanced mathematics and science courses less often than boys, and they are less likely to choose these areas for potential careers and college majors (Fredricks & Eccles, 2002; NAEP, 2008). Thus, adolescents' positive stereotypes of girls in mathematics and science in the current results do not appear to translate into improved self-views or motivation to engage in these domains in the long term.

Limitations and Directions for Future Research

Most research in gender stereotypes focuses on math and science. By including ratings of group competence in reading and writing, we were able to assess the endorsement of other academic stereotypes that may be influential to students' self-concepts. Additionally, we were able to more adequately address the potential influence of stereotypes on achievement by specifically examining the influence of group evaluations on beliefs about the self. These evaluations were also important because we were able to simultaneously assess beliefs about race and gender.

The results of this study can best be generalized to Black youth attending predominantly Black middle schools in the southeastern United States. The salience and meaning of race may vary by region of the country and other contextual factors such as school racial composition. It is unclear whether these results would differ for youth in more racially diverse settings. For example, race stereotypes might be more salient in racially integrated schools where social comparison between Black and White students or others might be more likely (Rosenberg & Simmons, 1971). Thus, in racially diverse schools, connections between race stereotypes and self-concept may have been stronger for Black girls, and beliefs about Whites' abilities may have been more relevant to self-concept. As such, replication of these results in samples from other contexts is in order.

In addition, it is likely that there are important developmental processes underlying the results. Other research points to dramatic changes during early adolescence in stereotype awareness and endorsement, academic self-concept, and other facets of identity development (French et al., 2006; Rowley et al., 2007). Thus, future research must investigate these processes in other age groups and longitudinally.

The cross-sectional design of the study also precluded our ability to investigate the directionality of effects in the study. We argue that stereotypes influence self-concept, but it is likely that the reverse is also true. For example, boys who have positive views of themselves as mathematics and science students may also tend to see members of the social groups to which they belong (i.e., Blacks and boys) as talented in those domains. Most models of how individuals formulate perceptions of groups assume that individuals use social projection in assuming that members of their own social groups resemble themselves (Ames, 2004a). Such social projection has stronger influences on evaluations of the in-group than of out-groups (see Robbins and Krueger (2005) for a review). Ames (2004b) has theorized that individuals are more likely to employ self-projection in their assumptions about others when those individuals are perceived as similar to themselves (regardless of group membership such as race or gender). Other research has shown that positive perceptions of oneself are associated with more positive in-group evaluations only when the in-group holds a high status (Andreopoulou & Houston, 2002). Thus, it is likely that the relationship between group perceptions and self-concept is bi-directional, and that it is

moderated by factors such as group status, importance to the individual of group membership, perceived similarity to other groups members, and contextual factors (Ames, 2004b, Andreopoulou & Houston, 2002; Okeke et al., 2009). Additional research, particularly studies using longitudinal designs, will help to elucidate these complex relationships.

Conclusion

The results of our study have highlighted the complex relationship between context and social and personal identity for minority youth. Exploration of contextual factors remains an important aspect of understanding identity development. Black adolescents' achievement-related stereotype beliefs were generally reflective of traditional stereotypes about race and gender groups and were specific to particular academic domains, indicating that academic as well as larger social contexts play a role in how Black adolescents view the social groups to which they belong. Additionally, we demonstrated that these social group stereotype beliefs are relevant for Black students' views about their own academic competence. Examining the role of gender in this relationship revealed that evaluations of self-relevant race and gender identity groups may have different meaning for Black boys than Black girls. These findings point to the importance of multiple identities as influences on academic achievement. Future studies on the academic self-concepts of Black adolescents would benefit from perspectives that continue to examine not only the independent influence of race and gender, but also the simultaneous influences of these intersecting identities on development.

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Table 1

Correlations Among Math and Science Competence Ratings and Reading and Writing Competence Ratings by Social Group

	Math and Science Ratings	Reading and Writing Ratings
Boys (<i>n</i> = 181)	0.64	0.77
Girls (<i>n</i> = 182)	0.69	0.86
Black (<i>n</i> = 183)	0.77	0.83
White (<i>n</i> = 181)	0.83	0.88
Self-Concept (<i>n</i> = 252)	0.25	0.57

Note: All correlations are significant at $p < .001$.

Table 2

Means and Standard Deviations for Gender Group Competence Scores, by Participant Sex and Domain.

	Girls' Ratings		Boys' Ratings	
	Girls	Boys	Girls	Boys
Math/Science	69.60 (17.07)	48.42 (17.26)	70.58 (19.93)	61.02 (15.60)
Reading/Writing	79.71 (17.07)	36.73 (18.88)	80.10 (16.62)	54.37 (20.59)
	n = 142	n = 142	n = 110	n = 109

Table 3

Means and Standard Deviations for Racial Group Competence Scores, by Participant Sex and Domain.

	Girls' Ratings		Boys' Ratings	
	Blacks	Whites	Blacks	Whites
Math/Science	60.82 (18.06)	76.33 (18.27)	66.31 (19.58)	77.69 (17.96)
Reading/Writing	62.55 (20.74)	70.07 (19.60)	63.13 (20.25)	75.43 (19.43)
	<i>n</i> = 141	(<i>n</i> = 141)	<i>n</i> = 109	<i>n</i> = 110

Table 5

Regression Analyses Predicting Academic Self-Concept for Boys (n = 109)

	Self-Concept in Read/Write		Self-Concept in Math/Science	
	F	R ²	F	R ²
	7.82***	.33***	6.57***	.29***
Grade in School				0.10
Achievement				.32***
Competence - Girls				-.07
Competence - White				.08
Competence - Boys				.20*
Competence - Black				.27*

* $p < .05$.

** $p < .01$.

*** $p < .001$