

The Effects of Perceived Racial Discrimination
on African American Students' Motivation
and School Achievement

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Abstract

The present study investigates the different effects that different sources (students' perception of a glass ceiling, their reports of discrimination at school by their peers, their reports of discrimination by their teachers, their reports of discrimination at work, and their parents' reports of discrimination in the community) of discrimination may have on African American adolescents' achievement socialization. We hypothesized that these different sources of discrimination negatively affect adolescents' value of school, their self-concepts of ability, and their performance in school. We also predicted that students' value of school and their self-concepts of ability mediated the relationship between adolescents' experiences of discrimination and their achievement in school. The sample includes 623 (335 males and 288 females) and their primary caregivers. The data comes from a part of a larger, ongoing study. The results suggest that different sources of discrimination impacted students' value, self-concepts of ability, and achievement differently. Students' experiences of discrimination at school and in the community had a negative effect on their value and their self-concepts of ability. Students' perceptions of a glass ceiling and their parents' experiences of discrimination were positively related to their value of school and their self-concepts of ability. In addition, some evidence suggests that students' value of school and their self-concepts of ability may be mediating the relationships between different sources of discrimination and students' school achievement.

In the last decade, much criticism has been raised about the prevailing perspective of studying adolescents of different ethnic groups (Slaughter-Defoe, Nakagawa, Takanishi, Johnson, 1990; Graham, 1992; Spencer & Dornbusch, 1990; McLoyd, 1991). A recurring concern is that the prevailing avenue of conducting research with adolescents of different ethnicities has operated on the assumption that adolescents have similar experiences that impact their development in parallel trajectories.

However, people in different ethnic groups may have different circumstances, situations, or characteristics pertaining to their ethnic group membership that need to be taken into account when studying the psychological development of adolescents of different ethnicities (McLoyd, 1991; Spencer & Dornbusch, 1990). For example, people of different minority groups have to contend with different contents of the stereotypes about their ethnic group. In the U.S., historically and contemporaneously African Americans have had to contend with the racist belief that African Americans are not as intelligent as people of other racial groups. In contrast, Asian Americans have to grapple with stereotypes with different content. For example, one popular stereotype about Asian Americans is that they are the "model minority." The societal stereotypes about members in different ethnic group are a function of the "context" of a particular ethnic group. There are other circumstances, situations, and characteristics that also may vary from one ethnic group to another ethnic group.

As a function of and in response to the different ecological realities, the competencies, the patterns of normative development, and the transactions between different ecological niches may vary for individuals from different ethnic groups (McLoyd, 1991; Bronfenbrenner, 1979). In other words, the psychological mechanisms, processes and developmental issues for individuals may differ based on the specific situations, features, or qualities of their ethnicities. For example, until recently few mainstream researchers in the United States have examined European American adolescents' ethnic identity as a crucial developmental issue. In contrast, for several decades black psychologists have debated and conceptualized a multitude of models for understanding the

construction and development of black identity (Parham, 1989; Aries & Moorehead, L. 1989).

The prevalence of the research on ethnic identity for European Americans versus that for African Americans may reflect the salience and importance of ethnic identity in understanding normative development for adolescents of each of those ethnic groups. It appears that in the past and currently ethnic identity is a crucial developmental issue for African American adolescents but ethnic identity, historically, has not held the same salience in the lives of European American adolescents.

Given that the history, culture, and experiences of people of each ethnic group may be unique to that group, and given that the psychological competencies and development may reflect the different contexts of one's ethnicity, there is a need to conduct research that investigates normative development within the ecology of the adolescent's ethnic group. Before we proceed with a description of how the present study fits this need, there are two other points we would like to make. First, the foregoing ecological approach to studying normative development for adolescents of different ethnic groups does not preclude that there are not similarities in psychological functioning and development for individuals across different groups. But in order to make generalizations across ethnic groups, it is important first to understand individual psychological functioning and development within the specific "culture" of the person's ethnic group. Furthermore, just because we are saying that ethnic group differences should be taken into account in research with ethnic minorities, this is not implying that all adolescents in one ethnic group have the same experience, are psychologically the same, or have similar developmental trajectories. What is meant is that the unique context of each ethnicity may have an influential force on shaping individual development and in turn there may be psychological processes or developmental issues arising from the features of one's ethnicity, which are not necessarily salient to the development of all adolescents. Instead of looking at only group differences or investigating only individual differences, examining individual differences within the "meaning" or "context" of each individual's ethnic group may provide a more comprehensive understanding of what it means

to be an African American, Asian American, American Indian, or Latino adolescent growing up in the present U.S. culture.

With those points in mind, in the next section of the paper we will outline the rationale for the present study, which looks at African American adolescents' experiences with discrimination as one set of situations pertinent to the context of studying African American adolescents' normative achievement socialization.

Research on Discrimination with African American Adults

One set of experiences that may have a substantial influence on African American adolescents' development and psychological functioning is their experiences with racial discrimination. We know from previous research with African American adults that experiences with racial discrimination negatively affected their psychological and physical functioning (Harburg, Erfurt, Hauenstein, Chape, Schull, & Schork, 1973; James, LaCroix, Keinbaum, & Strogatz, 1984; Krieger, 1990; Williams & Chung, in press; Jackson, Brown, Williams, Torres, Sellers, & Brown, 1994). Racial discrimination has been shown to be linked to hypertension, chronic health problems, disability, and other health indicators (Harburg, Erfurt, Hauenstein, Chape, Schull, & Schork, 1973; James, LaCroix, Keinbaum, & Strogatz, 1984; Krieger, 1990; Williams & Chung, in press). In addition, other researchers have found that African Americans' mental health were adversely affected by racial discrimination (Jackson, Brown, Williams, Torres, Sellers, & Brown, 1994)

More recently, greater attention is being paid to the different ways that a person's mental health and physical health may be indirectly affected by experiences of discrimination. There is support that the relationship between discrimination and a person's mental and physical well-being may be mediated by how a person's copes with discrimination and how those experiences of discrimination impact a person's self-concept. For example, the negative impact of racial discrimination on African American adults' health outcomes have been found to be mediated by psychological mechanisms, such as negative coping strategies (Krieger, 1990) or internalization of racist beliefs (Taylor & Jackson, 1990).

Research on the Effects of Discrimination with African-American Adolescents

Unfortunately and surprisingly, less is known about the impact of discrimination on African American adolescents' development. Intuitively, experiences of discrimination seem salient to the lives of African American adolescents, but very little research has examined the role of discrimination in African American adolescents' lives (Ogbu, 1978, 1986; Taylor, Casten, Flickinger, Roberts, & Fulmore, 1994; Mickelson, 1990). Because research consistently has shown that African American students have lower academic achievement than European Americans, and because of the implications of school performance for future life outcomes, most of the research conducted on the impact of discrimination in African American adolescents' lives have looked at how discrimination impact their academic development (Coleman, 1966; Ogbu, 1978, 1986, 1987, Portes & Wilson, 1976; Humphreys, 1988; Norman, 1988; Ogbu, 1978, 1986; Taylor, Casten, Flickinger, Roberts, & Fulmore, 1994; Mickelson, 1990).

Considerable evidence suggest that one category of discrimination that has significant impact on African American students' achievement success is their perception of a glass ceiling, which is based on their families and peers' discrimination experiences. For example, Ogbu and his colleagues (Ogbu, 1978, 1986) have found that African American high-school adolescents' perception of a glass ceiling lead to their devaluation of school, lower levels of engagement in school, and subsequently poorer school performance. Mickelson (1990) provided additional support that African American high school students' performance in school was related to the link between adolescents' beliefs about the usefulness of school and their experiences with job-related discrimination rather than just being affected by their abstract value of the importance of school. Furthermore, Taylor, Casten, Flickinger, Roberts, and Fulmore's (1994) showed that the negative relationship between perceptions of a job ceiling and value of school held for both public high school and private high school African American students.

Limitations of Prior Research on the Impact of Discrimination

Although the above studies have illuminated insight into a much needed research area, there are a few limitations. First, the previous research have included primarily socioeconomically disadvantaged adolescents. Given all the concerns about the confounding effects of race/ethnicity and SES, we need to examine whether these findings also hold for middle-class African American adolescents (Slaughter-Defoe, Nakagawa, Takanishi, Johnson, 1990; Graham, 1992). Certainly, insufficient research has been conducted on African American children and adolescents who are not from economically impoverished environments. In the present study, the African American youths are predominantly from middle-class environments, thus allowing us to better look at the effects of racial discrimination separate from discrimination due to issues of socioeconomic class.

The next limitation is that it is unclear from previous researchers' measures of students' perceptions of a job ceiling whether the effects on students' values and on their school performance are due to their beliefs that there is a glass ceiling effect or whether the effects are accounted for by their parents' or their own actual experiences with discrimination. Of course, the two are probably highly correlated but for the purpose of determining the contribution of each on students' motivation and achievement, in the present study we separated out the effect that actual experiences of discrimination has from the influence due to a person's perception of a job ceiling.

Moreover, the focus of the prior research has thus far been on job-related discrimination. African Americans adolescents experiences of discrimination are not limited to their families' experiences of job discrimination related. Discrimination is ubiquitous and it permeates a multitude of contexts that adolescents are in contact with. In fact, the place that adolescents spend most of their time in is one environment where there is some evidence that discrimination does exist--- schools. For example, Pine and Hillard's (1990) national survey of high school biology teachers revealed that 25% of the respondents felt that some races of people are more intelligent than others. In schools, adolescents also come into contact with racial discrimination from their peers. In a qualitative study about the pressures high-school adolescents perceived from their peers, families,

schools, Phelan, Yu and Davidson (1994) reported that approximately 19 of the 37 students of color in their sample (total sample=55) reported repeated incidents of discrimination, which included racist comments, physical assaults, exclusion from resources, and other implicit messages and acts of discrimination; these acts of racial discrimination had a negative impact for both high-achieving and low-achieving students. Although these studies provide empirical support that African American students may face discrimination from teachers and other students in school, few studies have looked at the effects of school-based experiences of discrimination on African American students' academic success.

In addition to their family's experiences of job-related discrimination, their experiences of discrimination at school, their perceptions of a glass ceiling, one other contextual source of discrimination should be considered---the community in which African American adolescents reside. Prior research has shown that the residential context in which adolescents live influences adolescent adjustment (Dornbusch, Ritter, & Steinberg, 1991). Dornbusch, Ritter & Steinberg (1991) found that the communities in which European American and African American adolescents live influenced the relationship between family status and students' grades. Communities are influential contexts to consider when studying adolescent development, and for African American adolescents, the communities in which they reside may also be a source of prejudice and discrimination.

Goals of Present Study

Thus far, we have demonstrated that there is a need to examine the effects of African American's multiple experiences of discrimination on their achievement socialization. One goal of the present study is to examine the impact of each of these various contexts of discrimination on students' utility value of school, their self-concept of ability, and their academic achievement. As mentioned previously, the paucity of research on African American students' experiences of discrimination has shown that perceptions of a job ceiling, based upon family exposure to job-

related discrimination, negatively affected adolescents' perceived utility of school (Ogbu, 1978; Mickelson, 1990; Taylor, Casten, Flickinger, Roberts & Fulmore, 1994). Thus, based on the research on students' perceptions of job ceiling, we also hypothesized that students' experiences of discrimination are negatively related to their value of school.

Furthermore, Taylor, Casten, Flickinger, Roberts, & Fulmore (1994) suggested that discriminatory practices also lead individuals to have lower self-concepts about their ability because racial discrimination gives adolescents mixed messages about their competence. Taylor et al. (1994) did not find support for this hypothesis but the source of discrimination that they examined was students' perceptions of a job ceiling. There does not appear to be any research that has examined the relationship between African American adolescents' experiences of discrimination in other contexts and their beliefs about their competence. It seems particularly important to examine the impact of African American adolescents' experiences of discrimination at school on their self-competence beliefs because students' beliefs about their ability are based on information they receive from schools (Eccles, 1983). We believe that African American students' experiences of discrimination, especially their school experiences, are negatively related to their self-competence beliefs.

Furthermore, previous research has established that discrimination impacts students' achievement in school via their devaluation of school but few studies have shown whether there is a direct effect of discrimination on students' academic outcomes (Ogbu, 1978; Mickelson, 1990; Taylor, Casten, Flickinger, Roberts & Fulmore, 1994). Based on previous research on African American adults' experiences of discrimination on health and mental health outcomes, we are suggesting that adolescents' experiences of discrimination are negatively related to their school outcome.

Our second goal is to look at the relationship between discrimination and students' academic achievement, as mediated through students' value of school and their beliefs about their

ability. Just as in the research with African American adults, the effects of discrimination on health status were mediated through psychological mechanisms, we believe that the effects of discrimination on students' academic outcomes are mediated through psychological mechanisms, such as their value of school and their beliefs about their self-competence. We examined these two mediators because substantial previous research has demonstrated that students' utility value and beliefs about their self-competence were significantly related to their academic attainment (Eccles, 1983).

Method

Sample

The present sample includes 623 African American (335 males and 288 females) eighth-grade students and their primary caregivers. The median income for the African American families is \$40,000-\$44,999. Forty percent of the primary caregivers graduated from college; another fifty-four percent of the primary caregivers' highest level of education is a high school degree. The students are from 23 middle schools in one county of Maryland.

Procedure

The present study is part of a larger, ongoing study (Maryland Adolescent Growth in Context Study; Principal Investigators-Jacquelynne Eccles & Arnold Sameroff). In the larger study, the first wave of data was collected from the families in the beginning of the seventh-grade. The target youth and their primary caregivers were interviewed (approximately 1 hour each) in their homes and each completed a 45-minute self-administered questionnaire. If there were a consenting secondary caregiver and an older sibling in the household, they also completed a 45-minute questionnaire. The second wave of data was collected at the end of eighth-grade. Similar data collection instruments were used in the second wave of data collection.

In addition to self-report data, record data were collected from the schools. We obtained information on the adolescents' grades from their middle schools and their standardized

achievement scores (which included their third-grade California Achievement Test scores and their fifth-grade California Achievement Test scores).

Measures

All measures used in the present study are described in Table 1.

Plan of Analysis

To answer the question of whether discrimination is related to students' value of school, their self-concept of ability, and their achievement (all of which were assessed at the end of eighth-grade), we first conducted hierarchical regression that included two steps. In the first step of all hierarchical regression, we included only the demographic variables (gender, SES, and ability). We performed separate analyses for each of the different sources of discrimination (students' perceptions of a job ceiling, parents' reports of job discrimination, students' reports of discrimination at school by their peers, students' report of discrimination at school by their teachers, and their parents' report of discrimination in the community). We did this for each of the dependent variables (students' value of school, their self-concept of ability, and their achievement). Then we ran a hierarchical regression where in the second step we included all of the discrimination variables.

In addition, we conducted another set of two-step hierarchical regression analyses where we examined the influence of discrimination on adolescents' changes in their value of school, their changes in self-concept, and their changes in achievement. To measure students' changes in their value of school, we created residual-gain scores that are the residuals of the regression of students' value of school at the end of eighth-grade on their value of school at the beginning of seventh-grade. Using the same technique, we created residual-gain scores for students' changes in self-concept of ability and their changes in achievement. Using these residual-gain scores as the dependent variables, we then performed separate two-step hierarchical regression for each of the different sources of discrimination. We did this for each residual-gain dependent variable. We also conducted a hierarchical regression where in the second step we included all of the discrimination variables.

The second goal of the study was to determine the extent that discrimination may indirectly affect students' achievement in school via their value of school and their self-concept of ability. We assessed these indirect effects using the results from the second step of the hierarchical regression with all of the discrimination variables and running simultaneous regression analysis of achievement on students' value of school, self-concept of ability, the discrimination variables, and the demographic variables. To assess these indirect effects, we also conducted 2 separate sets of analyses. First, we examined the relationships using the cross-sectional endogenous variables and then we looked at the relationships using the residual-gain scores of each of those endogenous variables.

Results

The zero-order correlations are presented in Table 2.

The Effects of Discrimination on Students' Value of School

Using students' value of school at the end of eighth-grade as the dependent variable, we examined the hierarchical regression analysis for each of the discrimination variables: (1) youth's perceptions of a glass ceiling, (2) youth's reports of experience of discrimination at school by peers, (3) youth's reports of experience of discrimination at school by teachers, (4) primary caregivers' reports of job discrimination, and (5) primary caregivers' reports of discrimination in the community.

The results for the hierarchical regression in which we looked at the relationship between youth's perceptions of a glass ceiling and their value of school in the eighth-grade are presented in Table 3. In step 1, we entered the demographic variables, which accounted for 6% of the variance in students' values of school in the eighth-grade ($R^2 = .06$, $p < .001$). Youth's perceptions of a glass ceiling did not add to explaining the variance of students' value of school after controlling for students' gender, SES, and ability. Contrary to previous findings and to our hypothesis, youth's perceptions of a glass ceiling were not significantly related to their value of school.

When we examined the relationship between students' reports of discrimination at school by their peers and their value of school (See Table 4), we found that discrimination by their peers

explained 20% of the variance in students' value of school ($\Delta R^2 = .20, p < .001$). As predicted, it had a significant impact on students' value of school ($\beta = -.46, p < .001$).

Table 5 reveals that after controlling for youth's gender, SES, and ability, youth's reports of discrimination by their teachers added another 17% to explaining the variance of students' value of school ($\Delta R^2 = .17, p < .001$). As hypothesized, youth's experiences of discrimination by their teachers were negatively related to their value of school in the eighth-grade ($\beta = -.43, p < .001$).

When parents' reports of job discrimination was entered into the second step of the following hierarchical regression, after controlling for the effects of gender, SES, and ability, it was not related to students' value of school (See Table 6). This was contrary to our hypothesis.

In Table 7, we see evidence that experiences of discrimination in the community was related to adolescents' value of school ($\beta = -.10, p < .05$). After taking into account the demographic variables, primary caregivers' reports of discrimination in the community contributed another 1% of the variance in students' value ($\Delta R^2 = .01, p < .05$).

In order to look at the effects of each discrimination contexts independent from other sources of discrimination, we did a hierarchical regression where we entered all of the discrimination variables in the second step (See Table 8). All of these sources of discrimination together accounted for 25% of the variance in students' value of school ($\Delta R^2 = .25, p < .001$). Students' experiences of discrimination by their peers ($\beta = -.31, p < .001$) and teachers ($\beta = -.25, p < .001$) and their experiences of discrimination in the community ($\beta = -.13, p < .01$) were negatively related to their value of school, which is in accordance to our hypothesis. Contrary to our hypothesis and to previous research findings, after controlling for gender, SES, ability, and other sources of discrimination, youth's perceptions of a glass ceiling ($\beta = .10, p < .01$) and their parents' experiences of job discrimination ($\beta = .09, p < .10$) were positively related to their value of school.

These data provide us information about the relationship between discrimination and students' value of school in the eighth-grade. Because of the correlational nature of the data, it is difficult to make conclusions about the direction of the relationship. To further delve into the issue

of the nature of the relationship between discrimination and students' value of school, using the same set of hierarchical analyses, we looked at the impact of discrimination on students' change in their value of school.

The results for the hierarchical regression in which we looked at the relationship between youth's perceptions of a glass ceiling and students' changes in their value of school from the seventh- to the eighth-grade are presented in Table 9. In step 1, we entered the demographic variables, which accounted for 3% of the variance in students' changes in their value of school ($R^2 = .03$, $p < .001$). Youth's perceptions of a glass ceiling did not add to explaining the variance of students' changes in their value of school, after controlling for students' gender, SES, and ability. Contrary to previous findings and to our hypothesis, youth's perceptions were not significantly related to students' changes in their value of school.

When we examined the relationship between students' reports of discrimination at school by their peers (See Table 10) and their changes in their value of school, we found that discrimination by their peers explained 18% of the variance in students' changes in their value of school ($\Delta R^2 = .18$, $p < .001$). As predicted, it had a significant impact on students' changes in their value of school ($\beta = -.44$, $p < .001$).

Table 11 reveals that after controlling for youth's gender, SES, and ability, youth's reports of discrimination by their teachers added another 15% to explaining the variance of students' changes in their value of school ($\Delta R^2 = .15$, $p < .001$). As hypothesized, youth's experiences of discrimination by their teachers were negatively related to their changes in their value of school ($\beta = -.39$, $p < .001$).

When parents' reports of job discrimination was entered into the second step of the following hierarchical regression, after controlling for the effects of gender, SES, and ability, their experiences of job discrimination were not related to students' changes in their value of school (See Table 12). This was contrary to our hypothesis.

In Table 13, we see evidence that experiences of discrimination in the community were related to adolescents' changes in their value of school ($\beta = -.11$, $p < .05$). After taking into

account the demographic variables, primary caregivers' report of discrimination in the community contributed another 1% of the variance in students' changes in their value of school ($\Delta R^2 = .01$, $p < .01$).

Table 14 shows the results of the hierarchical regression where we regressed students' changes in their value of school on all of the discrimination variables in the second step. All of these sources of discrimination together accounted for 25% of the variance in students' changes in their value of school ($\Delta R^2 = .23$, $p < .001$). Students' experiences of discrimination by their peers ($\beta = -.32$, $p < .001$) and teachers ($\beta = -.21$, $p < .001$) and their experiences of discrimination in the community ($\beta = -.14$, $p < .01$) were negatively related to their changes in value of school, which is in accordance to our hypothesis. Contrary to our hypothesis, after controlling for gender, SES, ability, and other sources of discrimination, youth's perceptions of glass ceiling ($\beta = .09$, $p < .01$) and their parents' experiences of job discrimination ($\beta = .12$, $p < .05$) were positively related to their changes in their value of school.

The Direct Effects of Discrimination on Students' Self-Concept of Ability

The same set analyses were also conducted for the dependent variable of students' self-concepts of ability in the eighth-grade. Table 15 shows that 5% of the variance in students' self-concepts of ability were accounted for by students' gender, SES, and ability ($R^2 = .05$, $p < .001$). Adding youth's perceptions of a glass ceiling did not explain for any additional variance. Contrary to the hypothesis, student's perceptions of a glass ceiling were not significantly related to students' self-concepts of ability after the demographic variables were controlled for.

We focused on the relationship between students' experiences of discrimination by peers at school and students' self-concepts of ability in the next hierarchical analysis (See Table 16). As hypothesized we discovered that youth's reports of discrimination by peers and students' self-concepts of ability had a significant relationship ($\beta = -.18$, $p < .001$). After controlling for the demographic variables, this context of discrimination explained 3% more of the variance in students' self-concept ($\Delta R^2 = .03$, $p < .001$).

Table 17 indicates that students' perceptions of discrimination by their teachers accounted for 5% of the variance in students' beliefs about their abilities ($\Delta R^2 = .05, p < .001$). As hypothesized, youth's reports of discrimination by their teacher was negatively associated with their beliefs about their abilities ($\beta = -.24, p < .001$)

As revealed in Tables 18 and 19, primary caregivers' reports of job discrimination and their reports of discrimination in the community were not related to adolescents' self-concepts of ability.

After looking at each source of discrimination independently, we then conducted a hierarchical regression where we entered all of the five discrimination variables. The results of this regression are shown in Table 20. Contrary to our hypothesis, being discriminated by peers' was not a significant predictor of adolescents' beliefs about their abilities. As predicted, experiences of discrimination by adolescents' teachers ($\beta = -.25, p < .001$) and experiences of discrimination in the community ($\beta = -.11, p < .05$) were negatively related to students' beliefs about their academic abilities after other sources of discrimination and demographic variables were controlled for. Contrary to what we had expected, students' perceptions of a glass ceiling ($\beta = .11, p < .05$) and their parents' experiences of job discrimination ($\beta = .11, p < .05$) were positively associated with their beliefs about their competence. All of these discrimination variables explained 7% of the variance in students' beliefs about their abilities ($\Delta R^2 = .07, p < .001$).

Parallel to the analyses for examining the relationship between discrimination and students' value of school, we then proceeded to conduct regression analyses on the residual-gain scores of students' self-concepts of ability. Table 21 shows the results for the hierarchical regression in which we looked at the relationship between youth's perceptions of a glass ceiling and students' changes in self-concept of ability. In step 1, we entered the demographic variables, which accounted for 3% of the variance in students' changes in their beliefs about their abilities ($R^2 = .03, p < .05$). Youth's perception of a glass ceiling did not add to explaining the variance of students' changes in their beliefs about their academic competencies, after controlling for students' gender, SES, and ability.

When we examined the relationship between students' reports of discrimination at school by their peers (See Table 22) and their changes in their self-concepts of ability, we found that discrimination by their peers explained 1% of the variance in students' changes in their self-concepts of ability ($\Delta R^2 = .01$, $p < .01$). As predicted, it had a significant impact on students' changes in their self-concepts of ability ($\beta = -.10$, $p < .01$).

Table 23 reveals that after controlling for youth's gender, SES, and ability, youth's reports of discrimination by their teachers added another 15% to explaining the variance of students' changes in their beliefs about their abilities ($\Delta R^2 = .14$, $p < .01$). As hypothesized, youth's experiences of discrimination by their teachers were negatively related to their changes in their value of school ($\beta = -.14$, $p < .01$).

When we entered parents' reports of job discrimination in the second step of the following hierarchical regression, we found that after controlling for the effects of gender, SES, and ability, they was not related to students' changes in their beliefs about their ability (See Table 24). This was contrary to our hypothesis.

In Table 25, we see evidence that experiences of discrimination in the community were not related to adolescents' changes in their beliefs about their abilities.

Table 26 shows the results of the hierarchical regression where we regressed students' changes in their self-concepts of ability on all of the discrimination variables in the second step. All of these sources of discrimination together accounted for 2% of the variance in students' changes in their beliefs about their competencies ($\Delta R^2 = .02$, $p < .05$). After controlling for the effects of the other discrimination variables in the equation, adolescents' perceptions of a glass ceiling, and their experiences of discrimination in the community ($\beta = -.14$, $p < .01$) were not related to their changes in self-concepts of ability. As hypothesized, experiencing discrimination by their teachers was negatively related to their changes in their beliefs about their abilities. Contrary to our hypothesis, after controlling for gender, SES, ability, and other sources of discrimination, the adolescents' parents' experiences of job discrimination ($\beta = .12$, $p < .05$) were positively related to the adolescents' changes in their self-concepts of ability.

The Direct Effects of Discrimination on Students' Achievement

The results for the hierarchical regression in which we looked at the relationship between youth's perceptions of a glass ceiling and their achievement in the eighth-grade are presented in Table 27. In step 1, we entered the demographic variables, which accounted for 26% of the variance in students' achievement in the eighth-grade ($R^2 = .206$, $p < .001$). Youth's perceptions of a glass ceiling did not add to explaining the variance of students' academic performance, after controlling for students' gender, SES, and ability. Contrary to our hypothesis, youth's perceptions were not significantly related to their achievement.

When we examined the relationship between students' reports of discrimination at school by their peers and their school achievement (See Table 28), we found that discrimination by their peers explained 2% of the variance in students' achievement ($\Delta R^2 = .02$, $p < .01$). As predicted, it had a significant impact on students' achievement ($\beta = -.14$, $p < .01$).

After controlling for youth's gender, SES, and ability, youth's reports of discrimination by their teachers explained 3% of the variance of students' G.P.A., as shown in Table 29 ($\Delta R^2 = .03$, $p < .001$). As hypothesized, youth's experiences of discrimination by their teachers were negatively related to their achievement ($\beta = -.19$, $p < .001$).

Contrary to our hypothesis, parents' reports of job discrimination and experiences of discrimination in the community were not related to students' achievement (See Tables 30 and 31).

In order to look at the effects of each discrimination contexts independent from other sources of discrimination, we did a hierarchical regression where we entered all of the discrimination variables in the second step (See Table 32). All of these sources of discrimination together accounted for 4% of the variance in students' value of school ($\Delta R^2 = .04$, $p < .01$). After controlling for other contexts of discrimination, only experiences of discrimination by their teachers ($\beta = -.17$, $p < .01$) remained a significant predictor of students' achievement.

The results of the hierarchical regression analyses on the dependent variable, students' change in achievement are presented in Tables 33 to 37. The data indicated that discrimination in all contexts were not related to students' changes in their school performance.

The Indirect Effects of Students' Value of School and Self-Concept of Ability on the Relationship between Discrimination and Students' Achievement

First, we examined the impact of student's value of school in the eighth-grade and self-concept of ability in the eighth-grade on the relationship between student's discrimination experiences and eighth-grade G.P.A. To do this, we conducted a simultaneous regression where we regressed G.P.A. on the demographic variables, student's value of school, and self-concepts of ability. The simultaneous regression results for regressing student's value of school on the demographic and discrimination variables are the same as the step 2 results of the hierarchical regression (See Table 8). The same also holds for student's self-concepts of ability (See Table 20). Figure 1 presents a summary of the results. Figure 1 shows that effects of students' experiences of discrimination are mediated by their value of school and their self-concepts of ability.

The results from the simultaneous regression analysis with students' eighth-grade grades regressed on their experiences of discrimination, value of school, self-concepts of ability, and the demographic variables are presented in Table 39. Students' self-concepts of ability, their value of school, and the demographic variables accounted for 36% of the variance in students' academic achievement ($R^2 = .36$, $p < .001$). Adolescents' value of school ($\beta = .09$, $p < .01$) and their self-concepts of ability ($\beta = .22$, $p < .001$) were positively related to their achievement in school.

Then we examined the results using the residual-gain scores of students' value of school, their self-concepts of ability, and their achievement (See Table 40 and Figure 2). We found that the demographic variables, the discrimination variables, adolescents' changes in their value of school and their changes in their self-concepts of ability accounted for 8% of the variance in students' change in their G.P.A. ($R^2 = .07$, $p < .001$). Students' changes in their value of school were not significantly related to their changes in achievement but their changes in self-concept of ability was related to their changes in school performance ($\beta = .22$, $p < .001$).

Figure 2 is a summary of the results based upon the previous hierarchical regression of students' changes in their value of school on all of the discrimination variables, the previous

hierarchical regression of students' changes in their self-concepts of ability on all of the discrimination variables, and the above analyses of students' changes in achievement on their changes in their value of school and their changes in their self-concepts of ability.

Discussion

The findings in the present study appears to substantiate the under investigated claim that racial discrimination affects African American adolescents' development. Contrary to previous research and to what people would intuitively expect, we did not find that all contexts of discrimination had a negative impact on adolescents' academic development. In fact, for the present sample, students' perceptions of a job ceiling and their parents' experiences of job discrimination were positively related to African American adolescents' value of school and their beliefs about their ability, which is contradictory to previous research (Mickelson, 1990; Ogbu, 1978, 1986; Taylor, Casten, Flickinger, Roberts, & Fulmore, 1994). Parallel to previous research which examine the effects of discrimination on African American adults' psychological and physical outcomes, it appears that effects of discrimination on African American adolescents' school achievement are mediated by psychological mechanism, such as students' value of school and their beliefs about their ability. The present study's findings also suggests that looking at one source of discrimination is insufficient for understanding the complexities of the effects of discrimination.

Findings related to the effects of discrimination on adolescents' value of education

Both in the hierarchical regression analyses where we looked at one discrimination variable at a time and in the hierarchical regression where all discrimination were entered we found converging findings about the impact of students' concrete experiences with discrimination. Discrimination experiences at school and in the community were negatively associated with students' value of school. It is interesting to note that when we examined students' perceptions of a job ceiling and their parents' experiences of job discrimination in the regression analyses with only one discrimination predictor entered, these variables were not related to students' value of school. When we controlled for students' concrete experiences with discrimination, we discovered

that both of these categories of discrimination had a positive impact on students' values. The analyses where we regressed students' change of their value of school on their experiences of discrimination show converging results.

How do we explain the fact that we found contradictory results to prior research? One explanation is that as mentioned in the introduction of the paper, most prior research focused on students from economically poor environments. In contrast, the adolescents in the present study are from middle-class environments. Perhaps the devaluation that they discuss takes place when the effects of racism are exacerbated by the effects of poverty. Another interpretation is that the most researchers have typically examined only one source of discrimination. In contrast, the present simultaneously looked at several contexts of discrimination. We statistically controlled for the effects from other sources of discrimination, so that we could look at the "pure" influence of job-related discrimination experiences on students' values. Another explanation for the positive relationship between job discrimination and positive value is that it is possible that parents and adolescents are engaging in conversations or other preventive/protective activities that are moderating this relationship. For example, these realistic stories of discrimination may make students value school even more because they may realize they need to do even better, get more education, etc. to counteract the potential negative experiences they might encounter.

Interestingly, the findings also point out that the sources of discrimination which have a negative influence on students' value are those in which adolescents have direct concrete experiences of discrimination with. Both adolescents' perceptions of a glass ceiling and their parents' experiences of discrimination are not "contexts" in which they have first-hand experience with. Mickelson (1990) posited that it is students' concrete attitudes about education that is a better predictor of students' achievement. Along the same line of thinking, it may be students' concrete first-hand experiences of discrimination that impact their motivation and achievement in school. Thus far researchers have focused on the effects of job ceilings and job discrimination on students' motivation but students' experiences of discrimination at school and in their community require greater examination.

Findings related to the effects of discrimination on adolescents' self-concept of ability

In general, the data for students' self-concepts of ability and for their changes in their self-concepts of ability also show converging findings about the impact of discrimination on students' beliefs about their abilities. Students' experiences of discrimination at school by their teachers and in the community are negatively related to their self-concepts of ability. Students' experiences of discrimination by their peers are not associated with adolescents' beliefs about their competence once other categories of discrimination are controlled for. Job discrimination is positively associated with students' self-concepts of ability.

Similar interpretations about the effects of discrimination on students' value of school may also be made about the directions of the relationships between different sources of discrimination and students' self-concepts of ability. Students' self-concepts of ability may be negatively affected by those categories of discrimination which they have first-hand concrete experience with rather than those areas in which they have abstract ideas about. In addition, there may be racial socialization about jobs and education that may explain for the positive relationship between job discrimination and students' self-concepts in middle-class environments.

One finding that is different is that after controlling for other contexts of discrimination, students' experiences of discrimination by their peers was not significantly related to their self-concepts of ability. This makes sense in that peers are probably a less reliable and less valid source of information about their academic competencies than teachers or other adults.

Findings related to the effects of discrimination on adolescents' school achievement

The data indicates that except for adolescents' experiences of discrimination at school by their teachers, there are no direct effects of discrimination on students' achievement. Although students' performance in school may not be directly related to students' performance in school, as mentioned previously, the effects of discrimination on achievement outcome may be mediated by psychological mechanisms, which is examined below. Because there is no relationship between their G.P.A. and all of the different contexts of discrimination, the present finding may suggest

that it is not just the students who are doing well in school who are experiencing discrimination in every contexts of their lives.

Findings related to the mediating effects of adolescents' value of education and self-concept of ability on the relationship between discrimination and school achievement

Figure 1 shows that the impact of discrimination on students' achievement are mediated by adolescents' value of school and their self-concepts of ability. Interestingly, Figure 2 shows that only students' change in their self-concepts of ability is mediating the relationship between discrimination and achievement. Even though adolescents' experiences of discrimination have a significant impact on their changes in their value of school, their changes in their value of school are not related to their changes in achievement. One interesting question that is raised is what is going on such that students' changes in their value of school are not related to their changes in achievement. One explanation is that perhaps our measure of achievement (students' grades) is a measure of achievement that is tainted by school effects as well. Thus, their grades may not be fully measuring their increase or decrease in their performance in school. We need to look at other indicators of achievement, such as students' standardized test scores.

Conclusions

This study has provided evidence that different categories of discrimination have different effects on the development of African American adolescents. We need to move further to look at the multi-context influence of discrimination instead of looking at discrimination pertaining to jobs. Moreover, since adolescents spend so much time in schools, we need to conduct additional studies about the racial/ethnic interactions among teachers and students of different groups and other issues related to racial climate to determine how these variables may be related to African American adolescents' achievement. The present study only examined two mediators related to adolescents' achievement socialization and we only looked at their school outcomes. Additional research on other psychological mediators are needed to determine how discrimination impacts the normative development of African American adolescents. Furthermore, although the present study has provided evidence that discrimination is significantly related to adolescents' achievement

socialization, we need to move further to understand how discrimination is dealt with and how African American adolescents and their families ameliorate the deleterious consequences of their experiences of discrimination.

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Table 1

Description of Measures

Gender

Dummy-coded variable where 0=boys, 1=girls.

Ability

Mean of students' 3rd- and 5th-grade California Achievement Test scores.

SES

Index which included family income, parent education, and parent occupational status, using the Nam and Powers (1983) approach.

Youth Perception of Glass Ceiling

Two-item scale ($\alpha = .71$) which includes the following items:

"How much do you think discrimination because of your race might keep you from getting the amount of education you want?"

"How much do you think discrimination because of your race might keep you from getting the job you want?"

Youth Report of Discrimination by Peers at School

Four-item scale ($\alpha = .81$) which includes the following items:

"How often do you feel like you are not picked for certain teams or other school activities because of your race?"

How often do you feel that you get in fights with some kids because of your race?"

How often do you feel that kids do not want to hang out with you because of your race?"

"In your eighth-grade school, how often was there racial tension between students of different racial backgrounds?"

Youth Report of Discrimination by Teachers at School

Five-item scale ($\alpha = .88$) which includes the following items:

"How often you feel that teachers call on you less often than they call on other kids because of your race?"

"How often do you feel that teachers grade you harder than they grade other kids because of your race?"

"How often do you feel that you get disciplined more harshly by teachers than other kids do because of your race?"

"How often do you feel that teachers think you less smart than you really are because of your race?"

"How have you felt that teachers/counselors discourage you from taking certain classes because of your race?"

Parent Report of Job Discrimination

Six-item scale ($\alpha = .83$) which includes the following items:

"Compared to people of other races, are you paid more or less for your job?"

"Compared to people of other races, how many opportunities for job advancement do you get at your work?"

"Because of your race, how often do people in your work place treat you as less competent than you deserve to be treated?"

"Because of your race, how often have you felt isolated or out of place at work?"

"Because of your race, how often have you felt like your co-workers don't ask you for your opinion about a work matter?"

"How many times have you NOT been selected for a job because of your race?"

Parent Report of Discrimination in the Community (proxy for adolescents' experiences of discrimination in the community)

Three-item scale ($\alpha = .80$) which includes the following items:

"When you are not at work, how often do people you interact with behave in a prejudiced manner towards you?"

"Because of your race, how often you receive poor service, for instance in stores or restaurants?"

"Because of your race how often do you feel out of place or unwelcome in public places?"

Youth's Value of School in 8th-grade

Four-item scale ($\alpha = .69$) which includes the following items:

"Schooling is not so important for kids like me" (reverse-coded).

"I learn more useful things from my friends and relatives than I learn in school" (reverse-coded).

"Suppose you don't get a good education in high school. How likely is it that you will end up with the kind of job you want?" (reverse-coded)

"I have to do well in school if I want to be a success in life."

Change in Youth's Value of School

Residual-gain score after regressing youth's value of school in the 8th-grade on their value of school in the 7th-grade.

Youth's Self-Concept of Ability in the 8th-grade

Four-item scale ($\alpha = .82$) which includes the following items:

"How good are you in math?"

"How good are you in other school subjects?"

"Compared to other kids your age, how well do you do in math?"

"Compared to other kids your age, how well do you do in other school subjects?"

Change in Youth's Self-Concept of Ability

Residual-gain score after regressing youth's self-concept of ability in the 8th-grade on their self-concept of ability in the 7th-grade.

Achievement

Students' overall grade point average at the end of eighth-grade.

Change in Achievement

Residual-gain score after regressing 8th-grade grade point average on 7th-grade grade point average

Table 2

Correlations among All Predictor and Dependent Variables

Variables	Variables													
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. Gender	--													
2. SES	-.04	--												
3. Ability	.08	.39	--											
4. Youth Perception of Glass Ceiling	.17	.09	.16	--										
5. Youth Report of Discrimination at School by Peers	-.19	-.06	-.11	.13	--									
6. Youth Report of Discrimination at School by Teachers	-.18	-.07	-.14	.20	.66	--								
7. Parent Report of Job Discrimination	.07	.04	-.05	.01	-.01	.06	--							
8. Parent Report of Discrimination in the Community	.07	.17	.06	.00	.01	.07	.53	--						
9. Youth's Value of School	.14	.00	.21	.02	-.47	-.48	.03	-.07	--					
10. Youth's Self-Concept of Ability	.07	-.03	.21	.08	-.20	-.26	.02	-.09	.42	--				
11. Youth's G.P.A.	.28	.28	.43	.11	-.22	-.28	-.04	.02	.32	.38	--			
12. Change in Youth's Value of School	.13	-.02	.15	.02	-.45	-.45	.04	-.08	.94	.36	.27	--		
13. Change in Youth's Self-Concept of Ability	.08	-.05	.16	.07	-.13	-.16	.03	-.08	.32	.96	.29	.31	--	
14. Change in Youth's G.P.A.	.16	.08	.12	.03	-.08	-.09	.05	-.02	.11	.23	.62	.09	.24	--

Table 3

Summary of Hierarchical Regression Analysis for Youth Perception of Glass Ceiling and Demographic Variables on African American Students' Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.20(.14)**	.06	.20(.14)**	.07
SES	-.04(-.05)	.04	-.04(-.05)	.04
Ability	.17(.21)***	.04	.17(.21)***	.04
Youth Perception of Glass Ceiling			.00(.00)	.04
ΔR ²	.06***		.00	
Adjusted R ²	.06***		.06***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 4

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Peers at School and Demographic Variables on African American Students' Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.20(.14)**	.06	.09(.07)	.06
SES	-.04(-.05)	.04	-.06(-.06)	.04
Ability	.17(.21)***	.04	.14(.18)***	.04
Youth Report of Discrimination by Peers at School			-.40(-.46)***	.04
ΔR ²	.06***		.20***	
Adjusted R ²	.06***		.26***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 5

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Teachers at School and Demographic Variables on African American Students' Value of School

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.20(.14)**	.06	.10(.07)	.06
SES	-.04(-.05)	.04	-.05(-.06)	.04
Ability	.17(.21)***	.04	.13(.16)***	.04
Youth Report of Discrimination by Teachers at School			-.35(-.43)***	.03
ΔR^2	.06***		.17***	
Adjusted R ²	.06***		.23***	
$\dagger p < .1$	*p < .05	**p < .01	***p < .001	

Table 6

Summary of Hierarchical Regression Analysis for Parent Report of Job Discrimination and Demographic Variables on African American Students' Value of School

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.20(.14)**	.06	.20(.14)**	.07
SES	-.04(-.05)	.04	-.04(-.05)	.04
Ability	.17(.21)***	.04	.17(.21)***	.04
Parent Report of Job Discrimination			.00(.00)	.05
ΔR^2	.06***		.00	
Adjusted R ²	.06***		.06***	
$\dagger p < .1$	*p < .05	**p < .01	***p < .001	

Table 7

Summary of Hierarchical Regression Analysis for Parent Report of Discrimination in the Community and Demographic Variables on African American Students' Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.20(.14)**	.06	.21(.15)**	.06
SES	-.04(-.05)	.04	-.03(-.03)	.04
Ability	.17(.21)***	.04	.17(.21)***	.04
Parent Report of Discrimination in the Community			-.10(-.10)*	.04
ΔR ²	.06***		.01*	
Adjusted R ²	.06***		.07***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 8

Summary of Hierarchical Regression Analysis for All Discrimination Variables Predicting African American Students' Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.20(.14)**	.06	.05(.03)	.06
SES	-.04(-.05)	.04	-.04(-.06)	.04
Ability	.17(.21)***	.04	.12(.15)***	.03
Youth Perception of Glass Ceiling			.08(.10)*	.03
Youth Report of Discrimination by Peers at School			-.27(-.31)***	.05
Youth Report of Discrimination by Teachers at School			-.21(-.25)***	.04
Parent Report of Job Discrimination			.09(.09)†	.05
Parent Report of Discrimination in the Community			-.12(-.13)**	.05
ΔR^2	.06***		.25***	
Adjusted R ²	.06***		.31***	

†p < .1

*p < .05

**p < .01

***p < .001

Table 9

Summary of Hierarchical Regression Analysis for Youth Perception of Glass Ceiling and Demographic Variables on African American Students' Change in Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.17(.13)**	.06	.17(.13)**	.06
SES	-.05(-.05)	.04	-.04(-.05)	.04
Ability	.11(.15)**	.04	.11(.15)**	.04
Youth Perception of Glass Ceiling			.00(.00)	.04
ΔR ²	.03***		.00	
Adjusted R ²	.03***		.03**	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 10

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Peers at School and Demographic Variables on African American Students' Change in Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.17(.13)**	.06	.07(.05)	.06
SES	-.05(-.05)	.04	-.06(-.07)	.04
Ability	.11(.15)**	.04	.09(.11)*	.03
Youth Report of Discrimination by Peers at School			-.36(-.44)***	.04
ΔR ²	.03***		.18***	
Adjusted R ²	.03***		.21***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 11

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Teachers at School and Demographic Variables on African American Students' Change in Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.17(.13)**	.06	.08(.06)	.06
SES	-.05(-.05)	.04	-.05(-.06)	.04
Ability	.11(.15)**	.04	.08(.10)*	.04
Youth Report of Discrimination by Teachers at School			-.30(-.39)***	.03
ΔR ²	.03***		.15***	
Adjusted R ²	.03***		.18***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 12

Summary of Hierarchical Regression Analysis for Parent Report of Job Discrimination and Demographic Variables on African American Students' Change in Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.17(.13)**	.06	.17(.13)**	.06
SES	-.05(-.05)	.04	-.05(-.06)	.04
Ability	.11(.15)**	.04	.11(.15)**	.04
Parent Report of Job Discrimination			.02(.02)	.05
ΔR ²	.03***		.00	
Adjusted R ²	.03***		.03**	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 13

Summary of Hierarchical Regression Analysis for Parent Report of Discrimination in the Community and Demographic Variables on African American Students' Change in Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.17(.13)**	.06	.17(.13)**	.06
SES	-.05(-.05)	.04	-.03(-.04)	.04
Ability	.11(.15)**	.04	.11(.15)**	.04
Parent Report of Discrimination in the Community			-.10(-.11)*	.04
ΔR ²	.03***		.01**	
Adjusted R ²	.03***		.04***	

†p < .1

*p < .05

**p < .01

***p < .001

Table 14

Summary of Hierarchical Regression Analysis for All Discrimination Variables Predicting African American Students' Change in Value of School

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.17(.13)**	.06	.03(.02)	.06
SES	-.05(-.05)	.04	-.05(-.06)	.04
Ability	.11(.15)**	.04	.07(.09)*	.03
Youth Perception of Glass Ceiling			.07(.09)*	.03
Youth Report of Discrimination by Peers at School			-.26(-.32)***	.05
Youth Report of Discrimination by Teachers at School			-.16(-.21)***	.04
Parent Report of Job Discrimination			.12(.12)*	.05
Parent Report of Discrimination in the Community			-.14(-.15)**	.04
ΔR^2	.03***		.23***	
Adjusted R^2	.03***		.26***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 15

Summary of Hierarchical Regression Analysis for Youth Perception of Glass Ceiling and Demographic Variables on African American Students' Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.05(.02)	.09	.03(.02)	.09
SES	-.12(-.09)†	.06	-.12(-.10)†	.06
Ability	.27(.25)***	.06	.27(.24)***	.06
Youth Perception of Glass Ceiling			.05(.05)	.05
ΔR ²	.05***		.00	
Adjusted R ²	.05***		.05***	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 16

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Peers at School and Demographic Variables on African American Students' Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.05(.02)	.09	-.01(-.01)	.09
SES	-.12(-.09)†	.06	-.13(-.10)*	.06
Ability	.27(.25)***	.06	.26(.23)***	.06
Youth Report of Discrimination by Peers at School			-.21(-.18)***	.06
ΔR ²	.05***		.03***	
Adjusted R ²	.05***		.08***	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 17

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Teachers at School and Demographic Variables on African American Students' Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.05(.02)	.09	-.04(-.02)	.09
SES	-.12(-.09)†	.06	-.12(-.10)*	.06
Ability	.27(.25)***	.06	.24(.22)***	.05
Youth Report of Discrimination by Teachers at School			-.28(-.24)***	.05
ΔR ²	.05***		.05***	
Adjusted R ²	.05***		.10***	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 18

Summary of Hierarchical Regression Analysis for Parent Report of Job Discrimination and Demographic Variables on African American Students' Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.05(.02)	.09	.04(.02)	.09
SES	-.12(-.09)†	.06	-.12(-.10)†	.06
Ability	.27(.25)***	.06	.28(.25)***	.06
Parent Report of Job Discrimination			.05(.03)	.07
ΔR ²	.05***		.00	
Adjusted R ²	.05***		.05***	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 19

Summary of Hierarchical Regression Analysis for Parent Report of Discrimination in the Community and Demographic Variables on African American Students' Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.05(.02)	.09	.05(.03)	.09
SES	-.12(-.09)†	.06	-.10(-.08)	.06
Ability	.27(.25)***	.06	.27(.24)***	.06
Parent Report of Discrimination in the Community			-.09(-.07)	.06
ΔR^2	.05***		.00	
Adjusted R^2	.05***		.05***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 20

Summary of Hierarchical Regression Analysis for All Discrimination Variables Predicting African American Students' Self-Concept of Ability

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.05(.02)	.09	-.09(-.04)	.08
SES	-.12(-.09)	.06	-.12(-.10)	.05
Ability	.27(.25)***	.06	.23(.20)***	.05
Youth Perception of Glass Ceiling			.12(.11)*	.07
Youth Report of Discrimination by Peers at School			-.04(-.04)	.06
Youth Report of Discrimination by Teachers at School			-.28(-.25)***	.08
Parent Report of Job Discrimination			.16(.11)*	.14
Parent Report of Discrimination in the Community			-.15(-.11)*	.08
ΔR^2	.05***		.07***	
Adjusted R^2	.05***		.12***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 21

Summary of Hierarchical Regression Analysis for Youth Perception of Glass Ceiling and Demographic Variables on African American Students' Change in Self-Concept of Ability

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.06(.03)	.10	.05(.03)	.10
SES	-.14(-.11)*	.07	-.14(-.11)*	.07
Ability	.22(.19)***	.06	.22(.19)***	.06
Youth Perception of Glass Ceiling			.03(.02)	.06
ΔR^2	.03**		.00	
Adjusted R ²	.03**		.03**	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 22

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Peers at School and Demographic Variables on African American Students' Change in Self-Concept of Ability

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.06(.03)	.10	.03(.01)	.10
SES	-.14(-.11)*	.07	-.15(-.11)*	.07
Ability	.22(.19)***	.06	.21(.19)***	.06
Youth Report of Discrimination by Peers at School			-.12(-.10)*	.06
ΔR^2	.03**		.01*	
Adjusted R ²	.03**		.04*	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 23

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Teachers at School and Demographic Variables on African American Students' Change in Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.06(.03)	.10	.01(.01)	.10
SES	-.14(-.11)*	.07	-.14(-.11)*	.06
Ability	.22(.19)***	.06	.20(.18)***	.06
Youth Report of Discrimination by Teachers at School			-.16(-.14)**	.06
ΔR ²	.03**		.02**	
Adjusted R ²	.03**		.05***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 24

Summary of Hierarchical Regression Analysis for Parent Report of Job Discrimination and Demographic Variables on African American Students' Change in Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.06(.03)	.10	.06(.03)	.10
SES	-.14(-.11)*	.07	-.14(-.11)*	.07
Ability	.22(.19)***	.06	.23(.20)***	.06
Parent Report of Job Discrimination			.08(.06)	.07
ΔR ²	.03**		.00	
Adjusted R ²	.03**		.03**	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 25

Summary of Hierarchical Regression Analysis for Parent Report of Discrimination in the Community and Demographic Variables on African American Students' Change in Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.06(.03)	.10	.06(.03)	.10
SES	-.14(-.11)*	.07	-.13(-.10)*	.07
Ability	.22(.19)***	.06	.22(.19)***	.06
Parent Report of Discrimination in the Community			-.06(-.04)	.07
ΔR ²	.03**		.00	
Adjusted R ²	.03**		.03**	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 26

Summary of Hierarchical Regression Analysis for All Discrimination Variables Predicting African American Students' Change in Self-Concept of Ability

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.06(.03)	.10	-.02(-.01)	.1
SES	-.14(-.11)*	.07	-.14(-.11)*	.07
Ability	.22(.19)***	.06	.20(.17)***	.06
Youth Perception of Glass Ceiling			.06(.05)	.06
Youth Report of Discrimination by Peers at School			-.02(-.01)	.08
Youth Report of Discrimination by Teachers at School			-.17(-.14)*	.07
Parent Report of Job Discrimination			.16(.11)†	.08
Parent Report of Discrimination in the Community			-.12(-.09)	.08
ΔR^2	.03**		.02*	
Adjusted R^2	.03**		.05***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 27

Summary of Hierarchical Regression Analysis for Youth Perception of Glass Ceiling and Demographic Variables on African American Students' Achievement

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.43(.26)***	.07	.43(.26)***	.07
SES	.16(.15)**	.05	.16(.15)**	.05
Ability	.34(.36)***	.05	.34(.36)***	.04
Youth Perception of Glass Ceiling			.00(.00)	.04
ΔR ²	.26***		.00	
Adjusted R ²	.26***		.26***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 28

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Peers at School and Demographic Variables on African American Students' Achievement

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.43(.26)***	.07	.39(.23)***	.07
SES	.16(.15)**	.05	.15(.15)**	.05
Ability	.34(.36)***	.05	.33(.34)***	.04
Youth Report of Discrimination by Peers at School			-.14(-.14)**	.04
ΔR ²	.26***		.02**	
Adjusted R ²	.26***		.28***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 29

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Teachers at School and Demographic Variables on African American Students' Achievement

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.43(.26)***	.07	.37(.23)***	.07
SES	.16(.15)**	.05	.15(.14)**	.05
Ability	.34(.36)***	.05	.32(.33)***	.04
Youth Report of Discrimination by Teachers at School			-.18(-.19)***	.04
ΔR^2	.26***		.03***	
Adjusted R^2	.26***		.29***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 30

Summary of Hierarchical Regression Analysis for Parent Report of Job Discrimination and Demographic Variables on African American Students' Achievement

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.43(.26)***	.07	.43(.26)***	.07
SES	.16(.15)**	.05	.16(.15)**	.05
Ability	.34(.36)***	.05	.34(.35)***	.05
Parent Report of Job Discrimination			-.06(-.05)	.05
ΔR^2	.26***		.00	
Adjusted R^2	.26***		.26***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 31

Summary of Hierarchical Regression Analysis for Parent Report of Discrimination in the
Community and Demographic Variables on African American Students' Achievement

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.43(.26)***	.07	.43(.26)***	.07
SES	.16(.15)**	.05	.17(.16)**	.05
Ability	.34(.36)***	.05	.34(.36)***	.05
Parent Report of Discrimination in the Community			-.05(-.04)	.05
ΔR^2	.26***		.00	
Adjusted R^2	.26***		.26***	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 32

Summary of Hierarchical Regression Analysis for All Discrimination Variables Predicting African American Students' Achievement

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.43(.26)***	.07	.36(.22)***	.08
SES	.16(.15)**	.05	.15(.14)**	.05
Ability	.34(.36)***	.05	.31(.32)***	.05
Youth Perception of Glass Ceiling			.04(.05)	.04
Youth Report of Discrimination by Peers at School			-.04(-.04)	.06
Youth Report of Discrimination by Teachers at School			-.16(-.17)**	.06
Parent Report of Job Discrimination			-.05(-.04)	.06
Parent Report of Discrimination in the Community			.00(.00)	.06
ΔR^2	.26***		.04**	
Adjusted R^2	.26***		.30***	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 33

Summary of Hierarchical Regression Analysis for Youth Perception of Glass Ceiling and Demographic Variables on African American Students' Change in Achievement

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.17(.16)**	.05	.18(.17)**	.07
SES	.03(.05)	.04	.03(.05)	.05
Ability	.05(.09)	.03	.05(.09)	.05
Youth Perception of Glass Ceiling			.00(-.01)	.04
ΔR ²	.03***		.00	
Adjusted R ²	.03***		.03**	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 34

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Peers at School and Demographic Variables on African American Students' Change in Achievement

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.17(.16)**	.05	.17(.16)**	.05
SES	.03(.05)	.04	.03(.05)	.04
Ability	.05(.09)	.03	.05(.08)	.03
Youth Report of Discrimination by Peers at School			-.02(-.04)	.03
ΔR ²	.03***		.00	
Adjusted R ²	.03***		.03**	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 35

Summary of Hierarchical Regression Analysis for Youth Report of Discrimination by Teachers at School and Demographic Variables on African American Students' Change in Achievement

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.17(.16)**	.05	.17(.16)**	.05
SES	.03(.05)	.04	.03(.05)	.04
Ability	.05(.09)	.03	.05(.08)	.03
Youth Report of Discrimination by Teachers at School			-.03(-.05)	.03
ΔR^2	.03***		.00	
Adjusted R ²	.03***		.03***	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 36

Summary of Hierarchical Regression Analysis for Parent Report of Job Discrimination and Demographic Variables on African American Students' Change in Achievement

Predictors	Step 1		Step 2	
	B(β)	SE B	B(β)	SE B
Gender	.17(.16)**	.05	.17(.16)**	.05
SES	.03(.05)	.04	.03(.05)	.04
Ability	.05(.09)	.03	.06(.09)†	.03
Parent Report of Job Discrimination			.03(.04)	.04
ΔR^2	.03***		.00	
Adjusted R ²	.03***		.03***	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 37

Summary of Hierarchical Regression Analysis for Parent Report of Discrimination in the
Community and Demographic Variables on African American Students' Change in Achievement

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.17(.16)**	.05	.18(.16)**	.05
SES	.03(.05)	.04	.04(.06)	.04
Ability	.05(.09)	.03	.05(.08)	.03
Parent Report of Discrimination in the Community			-.04(-.05)	.04
ΔR^2	.03***		.00	
Adjusted R ²	.03***		.03***	

†p < .1 *p < .05 **p < .01 ***p < .001

Table 38

Summary of Hierarchical Regression Analysis for All Discrimination Variables Predicting African American Students' Change in Achievement

<u>Predictors</u>	<u>Step 1</u>		<u>Step 2</u>	
	<u>B(β)</u>	<u>SE B</u>	<u>B(β)</u>	<u>SE B</u>
Gender	.17(.16)**	.05	.17(.16)**	.06
SES	.03(.05)	.04	.04(.06)	.04
Ability	.05(.09)	.03	.05(.09)	.03
Youth Perception of Glass Ceiling			.00(.00)	.03
Youth Report of Discrimination by Peers at School			.00(.00)	.04
Youth Report of Discrimination by Teachers at School			-.03(-.05)	.04
Parent Report of Job Discrimination			.07(.09)	.05
Parent Report of Discrimination in the Community			-.07(-.11)	.04
ΔR^2	.03***		.01	
Adjusted R ²	.03***		.04**	
†p < .1	*p < .05	**p < .01	***p < .001	

Table 39

Summary of Regression Analysis for Mediating and Demographic Variables Predicting African American Students' Achievement

<u>Predictors</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Gender	.37***	.07	.22***
SES	.20***	.05	.19***
Ability	.24***	.04	.25***
Youth Perception of Glass Ceiling	.01	.04	.01
Youth Report of Discrimination by Peers at School	.00	.06	.00
Youth Report of Discrimination by Teachers at School	-.08	.06	-.08
Parent Report of Job Discrimination	-.10	.06	-.08
Parent Report of Discrimination in the Community	.04	.06	.04
Youth's Value of School	.11**	.06	.09**
Youth's Self-Concept of Ability	.22***	.04	.25***
Adjusted R ²	.36***		
†p < .1	*p < .05	**p < .01	***p < .001

Table 40

Summary of Simultaneous Regression Analysis for Mediating and Demographic Variables
Predicting African American Students' Change in Achievement

<u>Predictors</u>	<u>B</u>	<u>SE B</u>	<u>β</u>
Gender	.14**	.05	.13**
SES	.07*	.03	.11*
Ability	.00	.03	.01
Youth Perception of Glass Ceiling	-.01	.03	-.02
Youth Report of Discrimination by Peers at School	.00	.05	.00
Youth Report of Discrimination by Teachers at School	.02	.04	-.03
Parent Report of Job Discrimination	.06	.05	.07
Parent Report of Discrimination in the Community	-.05	.05	-.07
Youth's Change in Value of School	-.02	.05	-.03
Youth's Change in Self-Concept of Ability	.12***	.03	.23***
Adjusted R ²	.07***		

†p < .1

*p < .05

**p < .01

***p < .001