"Two Souls, Two Thoughts," Two Self-Schemas: Double Consciousness Can Have Positive Academic Consequences for African Americans

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African Americans can experience a double consciousness—the two-ness of being an American and an African American. The present research hypothesized that: (a) double consciousness can function as 2 self-schemas—an independent self-schema tied to mainstream American culture and an interdependent self-schema tied to African American culture, and (b) U.S. educational settings can leverage an interdependent self-schema associated with African American culture through inclusive multicultural practices to facilitate positive academic consequences. First, a pilot experiment and Studies 1 and 2 provided evidence that double consciousness can be conceptualized as 2 self-schemas. That is, African Americans shifted their behavior (e.g., cooperation) in schema-relevant ways from more independent when primed with mainstream American culture to more interdependent when primed with African American culture. Then, Studies 3 and 4 demonstrated that incorporating African American culture within a university setting enhanced African Americans' persistence and performance on academic-relevant tasks. Finally, using the Gates Millennium Scholars dataset (Cohort 1), Study 5 conceptually replicated Studies 3 and 4 and provided support for one process that underlies the observed positive academic consequences. Specifically, Study 5 provided evidence that engagement with African American culture (e.g., involvement with cultural events/groups) on college campuses makes an interdependent self-schema more salient that increases African American students' sense of academic fit and identification, and, in turn, enhances academic performance (self-reported grades) and persistence (advanced degree enrollment in a long-term follow-up). The discussion examines double consciousness as a basic psychological phenomenon and suggests the intra- and intergroup benefits of inclusive multicultural settings.

Keywords: African Americans, self-schemas, academic performance, multiculturalism

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[G]*ifted with second-sight in this American world . . . One ever feels his two-ness—an American, a Negro; two souls, two thoughts . . .*
— W.E.B. Du Bois, 1903, p. 3

Identity for African Americans involves the psychological experience of two-ness (Bell, 1990; McCombs, 1985; Phinney & Devich-Navarro, 1997; Valentine, 1971). Famously termed *double consciousness*, this two-ness stems from multiple sources including slavery and segregation, and is fueled by contemporary racial disparities and the ongoing experience of prejudice, discrimination

and inequality. Reflecting these deep and tangled roots, double consciousness influences the lived experience of African Americans in complex and varied ways. In part, this double consciousness reflects the fact that two American cultures—(a) mainstream American and (b) African American ideas and practices—shape the daily lives of many African Americans. Across a pilot experiment and five studies, the present research, first, examines the hypothesis that engagement with these two American cultures is associated with the development of two elaborated self-sche-

mas—an independent and an interdependent self-schema. Then, the present research tests the prediction that inclusive multicultural practices within U.S. educational settings that allow African Americans to recruit and use an interdependent self-schema associated with African American culture can have positive academic consequences.

The opening quote by social scientist W.E.B. Du Bois hints that double consciousness in African Americans might in fact serve as a "gift." Echoing this sentiment, acclaimed author Richard Wright writes in his novel *The Outsider* "[Negroes] are going to be *gifted* with a double vision, for, being Negroes, they are going to be both inside and outside of [American] culture at the same time . . . They will not only be Americans or Negroes; they will be centers of knowing" (Wright, 1953, p. 129). Drawing upon Du Bois and Wright's shared insight, we propose that one potential *gift* of double consciousness—"two souls, two thoughts"—is the development of two self-schemas or two ways of thinking about the self that can guide behavior depending on the social context. Thus, we theorize that engagement with mainstream American cultural contexts, which tend to prioritize, cultivate, and reward the independence of the self from others, can afford African Americans, like Americans more broadly, an independent self-schema. Whereas, engagement with African American cultural contexts, which tend to prioritize, cultivate, and reward the interdependence of the self with others, especially members of one's racial/ethnic group, can afford African Americans an interdependent self-schema.[1]

Further, we theorize that the potential academic benefits of double consciousness as two self-schemas can be realized when U.S. educational settings make it safe and inviting for African Americans to recruit an interdependent self-schema associated with African American culture. Because independence is pervasive, chronically fostered, and often the normatively appropriate way of being in mainstream American society (e.g., Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985; Markus & Conner, 2013; Oishi & Diener, 2001) the inclusive multicultural practice of incorporating African American culture within U.S. educational settings (e.g., as part of the curriculum or student events/groups) should allow African Americans to draw on two self-schemas.[2] That is, such inclusive multicultural practices should allow African Americans to access an interdependent self-schema, in addition to a more chronically fostered independent self-schema.[3] One consequence of activating this interdependent self-schema within educational settings, we suggest, is that it will increase African American students' sense of academic fit and identification, and in turn, enhance their persistence and performance on academic-relevant outcomes.

Self-Schemas of Independence and Interdependence

Self-schemas are cognitive affective structures that direct and regulate self and behavioral processes. They develop as individuals attune themselves to their significant social contexts and they provide solutions to important existential questions such as *who am I*, *what should I be doing*, and *how do I relate to others* (e.g., Banaji & Prentice, 1994; Fiske & Taylor, 2013; Markus, 1977; Markus & Kitayama, 2010). As outlined in Figure 1A, extensive engagement with both mainstream American and African American cultural contexts among African Americans is likely to foster two elaborated self-schemas—an independent self-schema in

which the self is construed as relatively separate and autonomous from others, and an interdependent self-schema in which the self is construed as relatively connected to and related to others.[4]

Despite robust regional and local cultures, daily life for African Americans, as for most Americans, is shaped by a shared ideological foundation of independence. Common economic and political structures as well as a national media emphasize individualism, autonomy, personal responsibility, and control, and the view that one should be free from the constraints of history, other people, and society (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985; Kitayama, Duffy, & Uchida, 2007; Plaut, Markus, Treadway, & Fu, 2012). Moreover, multiple interpersonal interactions, institutional practices, and the products of everyday life promote the Protestant Work Ethic, the American Dream and emphasize the importance of being an independent self—an individual who is autonomous, in control, freely chooses, and expresses internal attributes, attitudes, and goals, (e.g., Hochschild, 1995; Markus & Conner, 2013; Markus & Kitayama, 1991; Sanchez-Burks, 2002; Spindler & Spindler, 1990). Relative to those with less exposure to these foundational notions, experience with these ideas and practices is likely to cultivate an understanding of the self as an independent individual—an *independent self-schema.* In schema-relevant situations, this independent understanding of self should guide behavior for all Americans, for instance, African Americans and European Americans alike.

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[1] Both mainstream American and African American cultures are American cultures, and accordingly both include ideas and practices that emphasize independence and autonomy. However, relative to mainstream American culture we suggest, consistent with previous research, that African American cultural ideas and practices emphasize more interdependence and connectedness.

[2] The present theorizing that engagement with African American culture within educational settings represents a bicultural experience for African Americans is consistent with previous theorizing on the experiences of African Americans within "America's core institutions." For instance, as cited by LaFromboise, Coleman, and Gerton (1993) "Rashid (1984) defined this type of biculturalism [alternating between two cultures] for African Americans as the ability to function effectively and productively within the context of America's core institutions while retaining a sense of self and African ethnic identity" (p. 399).

[3] The present theorizing that an independent self-schema is likely chronically salient for Americans, including African Americans, is consistent with meta-analyses on individualism and collectivism (e.g., Oyserman, Coon, & Kemmelmeier, 2002). Additionally, research that has surveyed high-level university administrators at a diverse range of U.S. college/universities (i.e., top-tier and second-tier schools, public and private schools, and liberal arts institutions) finds that U.S. higher education settings reflect and promote independent norms (Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012, Study 1). Highlighting the pervasiveness of independent norms in U.S. higher education settings this research included majority-minority schools like Historically Black Colleges and University (HBCUs) in the sample.

[4] Our focus in the present research is on double consciousness in African Americans and how it may result in the development of an independent self-schema (associated with mainstream American contexts) and an interdependent self-schema (associated with African American contexts) as well as the academic consequences of these self-schemas. Although varying in elaboration, frequency of use, and situational relevance, most people are likely to have schemas for both independence and interdependence as these and related constructs like autonomy and relatedness, constitute basic human needs that when met facilitate thriving in various life domains (e.g., Kagitcibasi, 1997; Ryan & Deci, 2000).
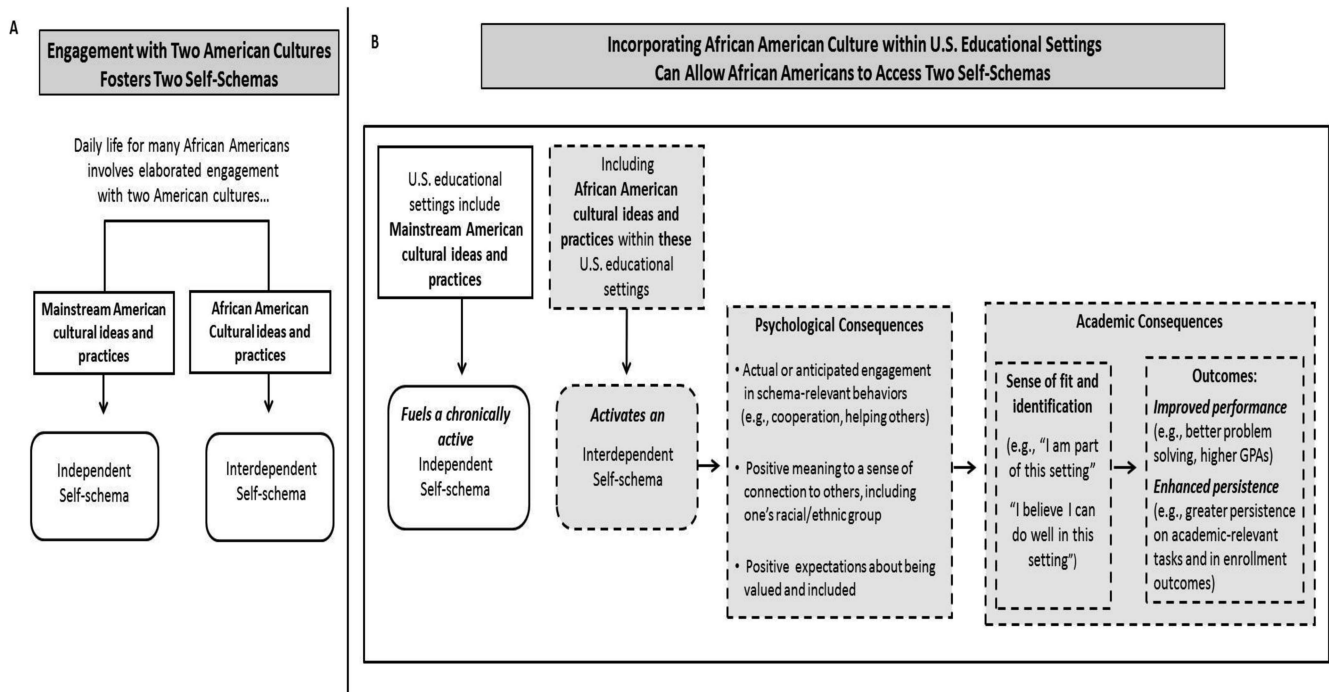
Figure 1. (A) Theorized psychological consequence of engagement with two American culture—the development of two self-schemas. (B) Theorized psychological and academic consequences, as represented by (—), of incorporating African American culture within U.S. educational settings and activating an interdependent self-schema, alongside a more chronically activated independent self-schema.

While independence is chronically salient for African Americans, some aspects of many African Americans' everyday life are organized by African American ideas and practices that highlight the primacy of relatedness to others importantly including one's racial/ethnic group. These ideas and practices emphasize the importance of family and community, and associate pride with one's racial/ethnic group membership and heritage. In so doing, many African American ideas and practices underscore the importance of collective responsibility, as well as the notion that one is fundamentally connected to history, other people, and society. These ideas and practices provide an additional set of answers to the questions of *who am I*, *what should I be doing*, and *how do I relate to others*—answers that emphasize interdependence and that the "I" is part of an encompassing "we" and an "us." This emphasis on interdependence has multiple historically derived as well as contemporary sources (see Jones (1986) and Nobles (1980) for a discussion of the influence and survival of West African traditions and philosophy as a source of interdependence).

One significant antecedent of interdependence in African American contexts stems from well-organized collective responses to stereotyping, stigma, and discrimination. As an example, the dehumanizing conditions of slavery gave rise to the Underground Railroad—a system of interdependence and collective action (Blassingame, 1979; Lawrence-McIntyre, 1987). Currently, many African American cultural institutions and practices highlight and draw upon a history of interdependence as a source of strength, pride, and motivation. These institutions and practices promote interdependence by cultivating a sense of common fate (e.g., political solidarity; Dawson, 1994), reliance on others including

God (e.g., African American churches; Pattillo-McCoy, 1998), and family (including extended and fictive kinship networks—e.g., use of terms "sister/sista" and "brother/brotha" to refer to nonkin or to more broadly refer to other African Americans; Dilworth-Anderson, 2001; Taylor, Chatters, Woodward, & Brown, 2013), connections to the past (e.g., celebration of Black History Month; Sesay, 1996), and collective responsibility (e.g., Kwanzaa celebrations; Madhubuti, 1972).

Additionally, African American family and parenting practices often underscore the importance of giving back to the community, cooperative effort, and a moral imperative to help others (e.g., Burlew, Banks, McAdoo, & Azibo, 1992; Hudley, Haight, & Miller, 2003). Like many African American cultural institutions and practices, African American parenting practices often implicitly or explicitly instill pride in a sense of connection to one's racial/ethnic group (see Hughes et al., 2006 for review and discussion of cultural socialization). Exposure to these ideas and practices is likely to foster an understanding of the self as an interdependent individual—an *interdependent self-schema*.[5] In schema-relevant situations, this interdependent understanding of self should guide behavior for African Americans (see

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[5] This is not the only route to an interdependent self-schema. Many different social contexts—for example, those of women, the working class, Southerners or Midwesterners in the U.S., and not-for profit organizations also foster relatively interdependent self-schemas. These schemas of interdependence are not the same as the interdependent self-schemas of African Americans but they share a focus on the importance of relationships and connections with others (see Markus & Conner, 2013; see also Plaut, Markus, & Lachman, 2002; Stephens, Markus, & Townsend, 2007).

Supplemental Materials for extended examples of ideas, institutions, and practices).

Leveraging an Interdependent Self-Schema to Foster Positive Academic Consequences

We propose that U.S. educational settings, places in which an independent self-schema is often chronically fostered, can leverage an interdependent self-schema to improve academic outcomes for African American students. As outlined in Figure 1B, the inclusion of African American ideas and practices within educational settings (e.g., colleges and universities) should allow African Americans to recruit and use an interdependent self-schema. Activating this sense of self as connected to others including one's racial/ethnic group is likely to be associated with a constellation of mutually constituting consequences. It should have implications for African Americans' thoughts, feelings, and actions. More specifically, the activation of an interdependent self-schema should: (a) increase African Americans' actual and/or anticipated engagement in schema-relevant behaviors (e.g., cooperation, collaboration, helping others) that can foster social connection and identification, (b) attribute positive meaning to a sense of connections to others, including one's racial/ ethnic group, and (c) facilitate positive expectations about being valued and included.

Because African Americans as a racial/ethnic group are negatively stereotyped within academic domains this constellation of mutually constituting consequences may be especially likely to be associated with positive academic outcomes for African American students. That is, the hypothesized consequences of activating an interdependent self-schema tied to African American culture within educational settings may carry special psychological significance for a group that is at risk for a variety of adverse consequences (e.g., Inzlicht & Schmader, 2012; Oyserman, Gant, & Ager, 1995; Steele & Aronson, 1995). Such negative consequences of membership in a stereotyped group for African Americans can include (a) doubts about fit and belonging (e.g., Walton & Cohen, 2007); (b) the attribution of negative meaning to a sense of connection to one's racial/ethnic group (e.g., linking group membership to negative stereotypes, I am connected to a group that is perceived as lacking intelligence, Steele, 2010; see also Sekaquaptewa, Waldman, & Thompson, 2007); and (c) the development of negative expectations about being valued and included (see Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008).

Thus, in contrast to varied and negative consequences tied to stereotypes that can impede academic fit and identification and undermine academic persistence and performance, we theorize that the mutually constituted consequences of activating an interdependent self-schema tied to African American culture will increase academic fit and identification and enhance academic persistence and performance. To illustrate, consider an African American student, Jasmine, who is attending a U.S. university in which it feels safe and inviting to engage with African American ideas and practices. Suppose then that Jasmine enrolls in an academic course that involves reading a novel by Toni Morrison, or completes an assignment for her political science course that requires an analysis of the major accomplishments of the Civil Rights Movement, or participates in a campus event celebrating the culture and heritage of African Americans. These activities are likely to make salient Jasmine's sense of interdependence with others importantly in-

cluding her racial/ethnic group. As depicted in Figure 1B, activating this interdependent self-schema, alongside her more chronically available independent self-schema, may allow Jasmine to engage in behaviors that reflect awareness and concern for others. She may, for example, participate in community service activities, work collaboratively with other students on academic assignments, or join a research lab to work cooperatively with others as part of a research team. Jasmine might also construe a sense of connection to her racial/ethnic group as positive and expect that based on her racial/ethnic group membership she will be valued and included. Accordingly, she may feel comfortable drawing on connections to her racial/ethnic group—including knowledge, perspectives, and experiences tied to her racial/ethnic background—in writing papers or discussing course topics with faculty and other students. This constellation of thoughts, feelings, and actions should increase Jasmine's sense that she is a part of and fits within the university. Empowered with a greater sense of fit and identification, Jasmine is likely to perform better and persist longer on academic endeavors.

These predictions about the consequences of activating an interdependent self-schema tied to African American culture build upon a robust foundation of previous theorizing and research that demonstrates that a sense of interdependence with others is related to social connection and identity formation processes (e.g., Fiske, 2009; Turner, 1982)[6] and that priming interdependence increases engagement in behaviors that reflect and that can foster social connection (Holland, Roeder, van Baaren, Brandt, & Hannover, 2004; van Baaren, Maddux, Chartrand, de Bouter, & van Knippenberg, 2003). Moreover, these predictions draw upon a growing volume of theorizing and research that demonstrates that people who experience a sense of fit and identification with an environment (e.g., occupation or academic setting) are more likely to persist and perform well (e.g., Kristof, 1996; Kristof-Brown, Zimmerman, & Johnson, 2005). Accordingly, individual differences and situational interventions theorized to resolve barriers to fit (e.g., doubts about belonging, cultural mismatches) for African Americans (Walton & Cohen, 2007), first-generation college students (Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012), and engineering majors (Cross & Vick, 2001) have been shown to increase academic achievement (e.g., grades, task performance) and persistence (e.g., continued enrollment in academic field). Finally, the present predictions are consistent with and extend past findings that show that interdependence is associated with positive academic outcomes for individuals who belong to racial/ethnic groups whose cultural ideas and practices prioritize and reward interdependence. For instance, Komarraju and Cokley (2008) observed a positive correlation between a scale measure of collectivism— a construct that emphasizes one's interdependence with others— and college grades for African American, but not European American, students. Similarly, laboratory studies have demonstrated a relationship between priming interdependence and increased motivation and performance for non-African American racial/ethnic groups whose cultural ideas and practices emphasize

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[6] Much research and theorizing has considered interdependence to be a foundational part of identity formation. For instance, Turner (1982) writes, "At minimum, a group has been defined as two or more persons who are in some way socially or psychologically interdependent" (p. 15). Similarly, Fiske (2009) states, "People readily affiliate with similar and proximate others, forming interdependent bonds that foster identity" (p. 497).

interdependence (i.e., Asian American and Mexican [from Guadalajara, Mexico], but not European American, participants; Fu & Markus, 2014; Iyengar & Lepper, 1999; Savani, Alvarez Mesquita, & Markus, 2013).

Overview of Studies and Hypotheses

A pilot experiment and five studies tested the predictions that double consciousness can function as two self-schemas and that leveraging an interdependent self-schema within U.S. educational settings can be associated with positive academic consequences for African Americans. First, a pilot experiment and Studies 1 and 2 examined the prediction that African American participants can shift their social behaviors to reflect an independent or an interdependent self-schema in response to a mainstream American or African American context, respectively (Hypothesis 1). Then, Studies 3 and 4 tested the prediction that U.S. educational settings that make it safe and inviting to access an interdependent self-schema tied to African American culture can enhance academic persistence and performance for African Americans. Specifically, we examined whether including African American ideas and practices within a university setting, as part of a proposed academic course, could enhance African American students' persistence and performance on academic-relevant tasks (Hypothesis 2). Finally, Study 5 conceptually replicated and extended Studies 3 and 4 using a sample of African American college students from the Gates Millennium Scholars dataset (Cohort 1). Specifically, we examined the prediction that engagement with African American culture (e.g., involvement with cultural events/groups) on college campuses makes an interdependent self-schema salient that increases African American students' sense of academic fit and identification, and, in turn, enhances academic performance and persistence (Hypothesis 3).

Pilot Experiment: Two Graduation Ceremonies and Two Self-Schemas?

With the goal of creating an inclusive multicultural environment, many U.S. colleges and universities offer campus activities that give students from underrepresented groups, like African Americans, an opportunity to celebrate their racial/ethnic heritage, in addition to broader (mainstream) campus activities. For instance, in a common practice, African American college students can participate in two commencement ceremonies, one that honors students within a particular major (e.g., communications, political science) and one that honors African American graduates across all majors. These dual graduation ceremonies afford a naturalistic and ecologically valid opportunity to test the hypothesis that African American can shift their self-description and social behavior in schema-relevant ways in response to two American contexts.

Typically, the ideas and practices that underlie these ceremonies vary in whether the focus is on the independence of the self or instead on the interdependence of the self. For example, the commencement exercise for a particular major, often honors graduates with practices that emphasize independence such as having each graduate walk individually across a stage to receive a diploma—symbolizing the achievement of graduating as an individual and autonomous act. By contrast, the commencement exercise for African American graduates often honors graduates with practices that emphasize interdependence such as having each graduate walk

collectively across a stage with close others (e.g., family, friends) to receive a Kente cloth[7]—symbolizing the achievement of graduating as a communal and shared act.

In a counterbalanced within-subjects design, we asked African American participants to simulate the experience of applying to be the graduation speaker for: (a) a ceremony for students within their major (Mainstream Grad) and (b) a ceremony for African American students across majors (African American Grad). For each ceremony, participants completed a graduation speaker application that required them to describe the significance of the ceremony, provide open-ended self-descriptions, and compose a short graduation address (speech). Assuming that the requirement to complete a graduation application would activate the relevant self-schema, we expected that the major ceremony (Mainstream Grad) would activate their independent self-schema and as a consequence, African Americans would describe themselves in more independent terms and compose speeches with more independent themes. Conversely, we expected that the African American ceremony (African American Grad) would activate their interdependent self-schema and as a consequence, African Americans would describe themselves in more interdependent terms and compose speeches with more interdependent themes.

Method

Participants

Forty-four students that self-identified as African American (23 female, 21male) participated in exchange for $10 cash or course credit.

Procedure

Across participants, using a within-subjects design, we counterbalanced which application was completed first—the major ceremony (Mainstream Grad) or African American ceremony (African American Grad). The two speaker applications were separated by a short, unrelated, filler task. While completing the first application participants did not know they would be completing a second application. Each application required participants to (a) describe the significance of the graduation ceremony, (b) provide an open-ended self-description, and (c) compose a graduation speech.

Two coders, who were unaware of the study hypotheses or experimental conditions, identified the presence of *independent* and *interdependent* themes in participants' (a) description of the significance of the ceremony, (b) self-descriptions, and (c) graduation speeches (interrater reliability, mean $\kappa = .89$). Based on adapted coding schemes (Gardner, Gabriel, & Lee, 1999, Experiment 1; Trafimow et al., 1991), a response was coded as *independent* if it referenced personal characteristics such as traits or attitudes and/or emphasized individual preferences. A response was coded as *interdependent* if it referenced connections to others such as social roles or group membership or emphasized relations to society and history. Responses were coded as "1" to indicate the presence of a particular theme or as "0" to indicate its absence. See Table 1 for example responses. Disagreements between coders were resolved using a consensus coding procedure.

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[7] A traditionally hand-woven fabric, native to Ghana.

Table 1

Percentage of Self-Descriptions Coded for Each Theme Category in Pilot Experiment

Theme category	Examples	African American graduation %	Mainstream graduation %	p
Independence				
Personal characteristics	1. I am an easy-going guy who likes to travel.	36.36	59.09	.033
Preferences, traits, attitudes	2. I enjoy being the best.			
Interdependence				
Connections to others	1. I am a person who loves to help others.	63.64	31.81	.003
Social roles, group membership, relations to society, and history	2. I enjoy spending time with family and friends.			

Results

See Supplemental Materials for detailed description of preliminary analysis that provide evidence that the two speaker application tasks were equally engaging (e.g., responses did not differ in word count, emotional positivity).

Significance of Graduation Ceremony

As expected, participants used more independent themes to describe the significance of the ceremony in the Mainstream Grad condition (50%) than the African American Grad condition (18.18%), McNemar's test, $p = .001$, $d = .75$. For example, one participant wrote that the significance of a department graduation ceremony is "to celebrate individual students." Conversely, participants' descriptions of the ceremony significance in the African American Grad condition contained more interdependent themes (43.18%) than the Mainstream Grad condition (20.45%), McNemar's test, $p = .021$, $d = .51$. For instance, one participant wrote that the significance of an African American graduation ceremony is "to show graduates that they have a core group of people backing them."

Self-Descriptions

As shown in Table 1, when completing the application for Mainstream Grad, participants used more independent themes (59.01%) than interdependent themes (31.81%), McNemar's test, $p = .012$, $d = .56$. For instance, in the Mainstream Grad condition one participant wrote, "I am independent, intelligent, [and] confi-

dent in self." When completing the application for African American Grad participants used more interdependent themes (63.64%) than independent themes (36.36%) to describe themselves, McNemar's test, $p = .031$, $d = .47$. For example, one participant wrote, "I am a wonderful daughter and sister."

Commencement Addresses (Graduation Speeches)

As shown in Table 2, when composing a speech in the Mainstream Grad condition participants used more independent themes (75.00%) than interdependent themes (47.73%), McNemar's test, $p = .002$, $d = .70$. For instance, one participant in the Mainstream Grad condition reminded fellow graduates that "as an individual you have made an investment of a few years that will last a life time. No one can ever take away what you have gained." In contrast, when composing a speech in the African American Grad condition, participants used more interdependent themes (70.45%) than independent themes (43.18%), McNemar's test, $p = .038$, $d = .45$. For example, one participant in the African American Grad condition advised fellow graduates that "using our skills in our professions will enable us to contribute to our communities and collectively we will significantly impact others for good."

Discussion

This pilot experiment examined a common bicultural experience for many African American students at inclusive multicultural universities—the experience of participating in two commencement ceremonies, one that celebrates students within a particular

Table 2

Percentage of Commencement Addresses Coded for Each Theme Category in Pilot Experiment

Theme category	Examples	African American graduation %	Mainstream graduation %	P
Independence				
Personal characteristics	1. Work hard for what you believe and do not let institutions or peer pressure push you in to a career or academic direction that you do not believe in	43.18	75.00	.002
Preferences, traits, attitudes	2. Remember to always do and work with things that make "you" happy.			
Interdependence				
Connections to others	1. We are an amazing group of people who, if we can support each other in our postgrad life can, accomplish great things.	70.45	47.73	.030
Social roles, group membership relations to society, and history	2. The true measure of success is the benefit you provide for others. Share what you have learned, and use it to lift up those around you who need your help.			

major and one that celebrates African American students across majors. Because these ceremonies often highlight the achievement of graduating in culturally specific ways this bicultural experience provided an ecologically valid prime to test the prediction that African Americans can access and shift between self-descriptions and social behaviors that reflect two self-schemas. The results of this pilot experiment provide some evidence for the hypothesis that African Americans can use an independent or interdependent self-schema depending on the context. That is, as hypothesized, when completing an application to be a speaker at a commencement ceremony for their major (Mainstream Grad) African American participants described themselves in relatively more independent ways and engaged in relatively more independent actions (i.e., composing a speech with more independent themes). However, when completing an application to be a speaker at a commencement ceremony for African American students (African American Grad) African American participants described themselves in relatively more interdependent ways and engaged in relatively more interdependent actions (i.e., composing a speech with more interdependent themes).

Although this pilot experiment examined one bicultural experience, attending two commencement ceremonies, Study 1 tests whether African American participants can shift their social behaviors in response to ideas and practices associated with mainstream American or African American culture. To do so, we adopt an iconic priming procedure to make a variety of ideas and practices related to mainstream American or African American culture salient. Additionally, we include a European American comparison group and examine cooperative decision making.

Study 1: To Cooperate or Not: Schema-Relevant Shifts in Social Behavior

To activate varied aspects of mainstream American and African American culture we adopted an iconic priming procedure (i.e., Hong, Morris, Chiu, & Benet-Martinez, 2000) in which participants view a set of images, icons that bring to mind cultural ideas and practices, associated with a particular context. To examine the consequence of activating a mainstream American or African American cultural context for social behavior we used decision making in a Prisoner's Dilemma (PD) game, indexing independence as relatively less cooperation and interdependence as relatively more cooperation. Previous research involving cross-racial/ethnic and cross-national samples (i.e., Cox, Lobel, & McLeod, 1991; Hemesath & Pomponio, 1998) as well as experimental manipulations (i.e., labeling a PD game as the "Wall Street Game" vs. the "Community Game"; Liberman, Samuels, & Ross, 2004) suggests that independence, self-interest, is related to less cooperation whereas interdependence, concern for others, is related to more cooperation in PD games. Furthermore, research by Wong and Hong (2005) has used iconic priming to demonstrate that Hong Kong Chinese college students (i.e., Asian/American biculturals) can shift their social behavior in a PD game by behaving less cooperatively when American culture is primed and more cooperatively when Chinese culture is made salient.

Extending this past work, we predicted that African American participants would shift their social behavior in a PD game. Specifically, we hypothesized that African Americans would engage in social behavior that is less cooperative (more independent) when primed with mainstream American culture and more cooperative (more interdependent) when primed with African American culture. We also included a European American comparison group. We expected that priming mainstream American culture would activate an independent self-schema for European Americans, but priming African American culture would not activate an interdependent self-schema for European Americans. Therefore, we hypothesized that European Americans would not shift their social behavior (i.e., making a cooperative decision) in response to priming African American ideas and practices.

Method

Design and participants. The study used a 2 (participant ethnicity: African American, European American) × 2 (cultural context: mainstream American, African American) between-subjects design. Eighty-three students participated in exchange for course credit or cash ($10). The sample included 44 self-identified African Americans (35 female, 9 male) and 39 self-identified European Americans (28 female, 11 male).

Procedure. Participants arrived individually to a lab room and were told that they would be completing tasks with an interaction partner who was ostensibly in another room. To corroborate the presence of a partner the experimenter: (a) left the lab room to confirm the partner's arrival before beginning the study and (b) referred to the partner by his or her first name, which was always gender and ethnicity matched (e.g., Greg, Jamel, Emily, Aeisha; Greenwald, McGhee, & Schwartz, 1998, Experiment 3) to the participant. After announcing that the study could begin, the experimenter revealed that the study would involve viewing a set of images and playing a "decision making" game. Participants were informed that the decision making game would involve making a choice between two options, and that the game would be played with a partner in a separate lab room. The image task was presented on a computer that randomly assigned participants to view either a set of mainstream American or African American cultural icons. Then, participants played the decision making game, also administered on a computer. To further corroborate the presence of a partner during the decision making game the computer displayed the participant's first name as well as the first name of his or her partner (gender and ethnicity matched).

Priming icons. Participants viewed six images related to mainstream American or African American cultural ideas and practices. Pretesting confirmed that both African Americans and European Americans associated the icons with the intended cultural context and as favorable. As described in Table 3, the selected mainstream American and African American primes were also matched for content and represented a variety of ideas and practices.

PD game. To introduce the PD game, participants were first shown a payoff matrix (adopted from Hemesath & Pomponio, 1998; Wong & Hong, 2005). The payoff matrix was designed so that a decision to cooperate could lead to the best possible joint outcome, whereas a decision to not cooperate could lead to the best possible individual outcome.

Results

To assess the influence of participant ethnicity and primed cultural context on cooperative behavior we ran a binary logistic

Table 3
Mainstream American and African American Cultural Icons

	Mainstream-American	African American
Educational institutions	Banner flag for a university that is a mainstream American university	Banner flag for a Historically Black College and University (HBCU)
Media/communication	Logo for Music Television (MTV)	Logo for Black Entertainment Television (BET)
Food	Image of classic American cuisine	Image of African American soul food cuisine
Arts and literature	Mainstream American literature (book cover)	African American literature (book cover)
National holidays/celebrations	Calendar highlighting the Fourth of July	Calendar highlighting Black history month
Landmark (New York City) Entertainment Venues	Image of Radio City Music Hall	Image of the Apollo Theater

regression (-1 = not cooperate; 1 = cooperate). We included participant ethnicity (-1 = European American; 1 = African American), priming condition (-1 = Mainstream American; 1 = African American), and the interaction term of these two variables as predictors. Consistent with our hypothesis, the interaction between participant ethnicity and priming condition emerged as a significant predictor of cooperative behavior, B = .67, *SE* = .28, Wald = 5.86, *p* = .016, Exp(B) = 1.95. The main effects of participant ethnicity and priming condition were not significant, Walds ≤1 .99, *p*s ≥ .16. As shown in Figure 2, African American participants cooperated significantly more when primed with African American cultural icons (90.90%) than mainstream American cultural icons (54.50%), $\chi^2(1, N = 44) = 7.33$, *p* = .007, *d* = .89. However, European American participants did not differ significantly in their cooperative behavior across priming conditions (75.00% vs. 63.20%, mainstream American and African American icons, respectively), $\chi^2(1, N = 39) = 0.64$, *p* = .43, *ns*.

Notably, African Americans and European Americans did not significantly differ in their cooperative behavior when mainstream American culture was primed, $\chi^2(1, N = 42) = 1.91$, *p* = .17, *ns*. This provides some evidence that as hypothesized, the mainstream American condition represented a shared and common cultural context for both racial/ethnic groups. Finally, as predicted, the cooperative behavior of African American and European American participants differed significantly when African American culture was primed, $\chi^2(1, N = 41) = 4.58$, *p* = .032, *d* = .71. This suggests that African American ideas and practices primed interdependence for African Americans, but not for European Americans.

Discussion

Similar to Wong and Hong (2005), overall cooperative behavior in Study 1 was relatively high across conditions (i.e., >50%). However, as predicted, African American participants did shift their social behavior in response to a salient mainstream American or African American cultural contexts. Specifically, African Americans did not differ from a European American comparison group in cooperative behavior when mainstream American culture was primed, yet they were more cooperative when African American culture was cued. This difference in cooperative behavior when primed with mainstream American or African American culture provides further support for our theorizing that double consciousness associated with African American life in the United States can result in two self-schemas. Moreover, as hypothesized, European Americans did not shift their

social behavior in response to mainstream American and African American cultural primes.

In Study 1, we further examine the predicted capacity for African Americans to shift their social behavior in schema-relevant ways in response to two American cultural contexts. Specifically, we test a replication of the observed shifting in social behavior among African Americans in Study 1 using anticipated
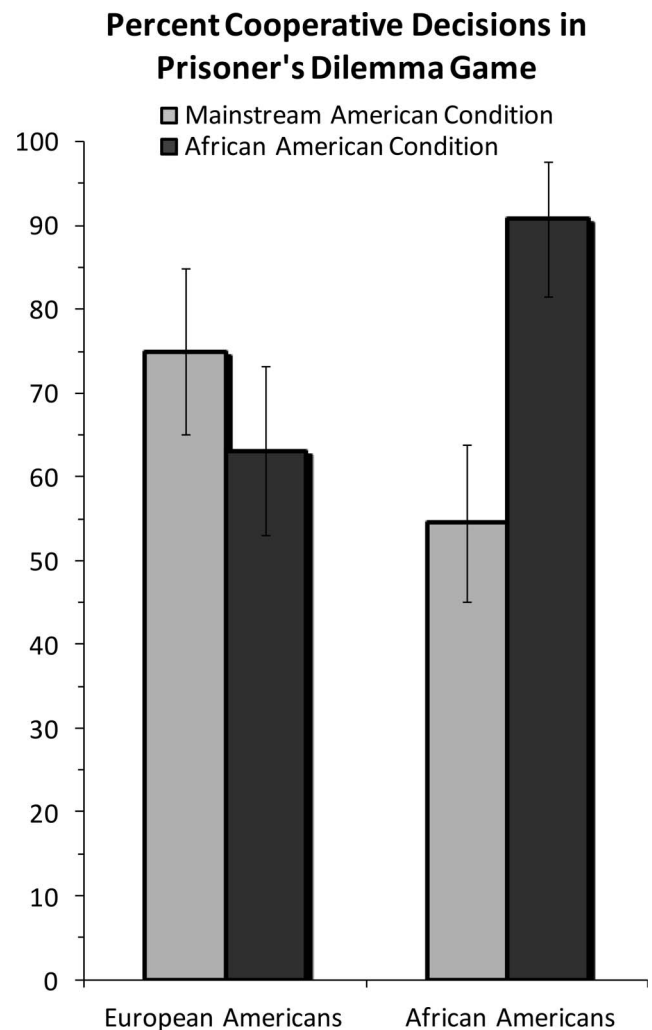

Figure 2. Percentage of cooperative decisions in Prisoner's Dilemma (PD) game. (Study 1). Error bars represent ±1 *SEM*s.

cooperation in a Commons Dilemma. Furthermore, we examine whether self-construal mediates a shift in African Americans' anticipated cooperation in response to mainstream American or African American cultural primes. That is, we test the prediction that a more interdependent self-construal will mediate shifts in African Americans' anticipated cooperation toward more interdependence (greater cooperation) when African American cultural icons, relative to mainstream American cultural icons, are primed.

Study 2: Does Self-Construal Mediate Shifts in Social Behavior?

To investigate whether a more interdependent self-construal underlies the shifts in social behavior observed among African Americans in the pilot experiment and Study 1, we primed African American participants with mainstream American or African American cultural icons and then administered two outcome measures. First, African American participants completed a self-construal measure (i.e., self-description task). Then participants read a Commons Dilemma vignette and completed a measure of anticipated cooperation adopted from Arnocky, Stroink, and DeCicco (2007). We hypothesized that social behavior (anticipated cooperation) and self-construal would differ by priming condition. That is, replicating Study 1, we expected that African American participants would anticipate behaving more cooperatively when primed with African American, relative to mainstream American, culture. Furthermore, we predicted that a more interdependent self-construal would explain this shift toward increased anticipated cooperation in response to African American ideas and practices, relative to mainstream American ideas and practices.

Method

Design and participants.   The study used a between-subjects design in which cultural priming condition was manipulated (African American vs. Mainstream American). Thirty-three self-identified African Americans (26 female, 7 male) participated in exchange for course credit or a monetary gift card ($10). Two participants whose responses to the self-construal measure were more than 2 SDs above the mean were excluded. The final sample included 31 participants.

Procedure.   In an online study, participants completed three ostensibly unrelated tasks. The first task involved the same iconic priming manipulation used in Study 1. The second task measured self-construal by prompting participants to complete 15 statements beginning with the stem "I am" (see Twenty Statements Task [TST]; Trafimow, Triandis, & Goto, 1991). Finally, participants read an adapted Commons Dilemma game vignette (Arnocky, Stroink, & DeCicco, 2007) involving a widely tested social dilemma (e.g., Hardin, 1968) that required participants to imagine raising cattle using shared resources (e.g., grazing land) that could be used to benefit the collective good (more cooperation) or individual outcomes (less cooperation). After the vignette, participants answered three questions, also adapted from Arnocky and colleagues (2007), that assessed participants' willingness to behave cooperatively in using the shared grazing land (e.g., I would cooperate with the other farmers; 1 = *strongly disagree*, 5 = *strongly agree*, α = .86).

Two coders unaware of the research hypotheses and experimental conditions coded participants' responses to the modified TST.[8] Coders used the same coding procedure and scheme for independent and interdependent themes that was used in Study 1 (interrater reliability, mean κ = .95). For each participant, the proportion of statements containing independent themes was calculated by dividing the total number of statements coded as containing an independent theme by the total number of statements.

Results

Commons Dilemma game vignette.   As predicted, the cultural priming condition had a significant effect on anticipated cooperation. Specifically, relative to the mainstream American cultural condition ($M = 2.94$, $SD = 1.01$) participants in the African American cultural condition ($M = 4.00$, $SD = 1.10$) reported higher anticipated cooperation, $t(29) = 2.79$, $p = .009$, $d = 1.01$. Thus, as hypothesized participants in the African American cultural condition anticipated behaving in ways that would collectively benefit the group (i.e., farmers).

Self-construal.

Independent.   Similar to studies that have used the Twenty Statements Task (e.g., Ross et al., 2002; Trafimow et al., 1991) in American/Canadian samples a high proportion of statements were coded as containing independent themes. However, consistent with our hypotheses and the results of the pilot experiment, participants' independent self-construal, the proportion of self-statements coded as containing independent themes, differed significantly by cultural priming condition, $t(29) = -3.73$, $p = .001$, $d = 1.35$. Accordingly, participants primed with mainstream American ideas and practices provided a higher proportion of self-statements with independent themes ($M = 0.88$, $SD = .075$) than those primed with African American ideas and practices ($M = 0.75$, $SD = .11$). Thus, as predicted, the direction of this effect suggests a greater activation of an independent self-schema in the mainstream American cultural condition.

Interdependent.   As hypothesized and consistent with the results of the pilot experiment, participants' interdependent self-construal, the proportion of self-statements containing interdependent themes, also differed significantly by cultural priming condition, $t(29) = 3.59$, $p = .001$, $d = 1.21$. That is, relative to participants primed with mainstream American ideas and practices ($M = .059$, $SD = .052$) participants primed with African American ideas and practices provided a higher proportion of self-statements with interdependent themes ($M = .14$, $SD = .08$). Thus, as predicted, the direction of this effect suggests a greater activation of an interdependent self-schema in the African American cultural condition.

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[8] Additionally, participants' self-descriptions were also coded for the mention of race/ ethnicity (i.e., Black, African American). This was done to examine a potential alternative explanation for the predicted effect of cultural priming condition on anticipated cooperation; one potential alternative explanation could suggest that the two priming conditions differed in activating participants' awareness of their racial/ethnic (ingroup) membership. However, our analysis found that five participants in the mainstream American cultural condition and six participants in the African American cultural condition mentioned being Black or African American. Thus, participants were not mentioning their race/ethnic group membership more in response to the mainstream American or African American cultural icons, $\chi^2 = .61$, $p = .44$, *ns*.

Mediation analysis. To examine whether the observed shift in anticipated cooperation is mediated by self-construal, we conducted a mediation analysis. Specifically, we tested whether the increase in participants' anticipated cooperative behavior when primed with African American culture is mediated by a more interdependent self-construal. The indirect SPSS Version 20 macro (Preacher & Hayes, 2008) was used to test a mediation model in which priming condition (contrast coded) was entered as the independent variable, anticipated cooperation as the dependent variable, and the proportion of self-statements containing interdependent themes as the mediator. As predicted and shown in Figure 3, a more interdependent self-construal fully mediated the effect of priming condition on anticipated cooperation (Path C, $B = .53$, $t(29) = 2.79$, $p = .009$; Path C,' $B = .26$, $t(29) = 1.24$, $p = .23$, ns).

Discussion

Study 2 further examined the hypothesis that double consciousness can function as two self-schemas—an independent self-schema tied to mainstream American culture and an interdependent self-schema tied to African American culture. Together, the pilot experiment and Studies 1 and 2 provide support for Hypothesis 1 by demonstrating that African American participants can shift their social behavior (e.g., actual and anticipated cooperation) in schema-relevant ways in response to priming mainstream American or African American ideas and practices. Study 2 provides evidence that this observed shift is mediated by self-construal. That is, priming African American culture, relative to mainstream American culture, increased African American participants' anticipation to behave cooperatively because a more interdependent sense of self is activated. In Studies 3 and 4 we test the academic consequences for African Americans of priming mainstream American or African American culture within a university setting. We predict that the inclusive multicultural practice of incorporating African American ideas and practices within a university will be related to increased academic persistence and performance. Accordingly, we expect that priming African American ideas and practices, shown in the pilot experiment and Studies 1 and 2 to activate an interdependent self-schema, will enhance academic relevant outcomes for African Americans.

Study 3: Including African American Culture, Enhancing Academic Outcomes

To test the hypothesized positive academic consequences of including African American cultural ideas and practices within educational settings we invited African American participants to review materials for an academic course to be proposed at a university. The content of the course was manipulated so that the class would include ideas and practices related to mainstream American culture or African American culture. All other aspects of the course were held constant (e.g., work load, type of assignments); thus only the specific cultural ideas and practices to be covered in the course varied across condition.[9] The cultural icons used in Studies 1 and 2 were used to provide examples of content to be covered in the course. For instance, in the mainstream American cultural condition examples of the course content included discussions of: classic American literature (Old Man in the Sea), popular American TV shows and networks (MTV), special ceremonies and holidays (Fourth of July), and landmarks (Radio City Music Hall). In the African American cultural condition the examples of the course context included discussions of: classic African American literature (The Color Purple), popular TV shows and networks (BET), special ceremonies and holidays (Black History Month), and landmarks (The Apollo Theater).

After reviewing the course material, participants answered questions that assessed their interest in the course, and then in a separate task completed a math persistence measure and a set of verbal anagrams. We expected that priming African American culture (shown to activate an interdependent self-schema in the pilot experiment and Studies 1 and 2) would facilitate increased persistence on a math persistence task and performance on a verbal anagrams task for African Americans. We tested this prediction relative to priming mainstream American culture which is often normative and chronically salient in the broader U.S. society and particularly salient in U.S. university settings (see Stephens et al., 2012; Stephens, Townsend, Markus, & Phillips, 2012). Assuming that the benefits of including African American ideas and practices within educational settings are likely to occur when settings make it safe and inviting to recruit an interdependent self-schema associated with African American culture, we tested our prediction under nonthreatening conditions.[10]

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[9] To confirm that the course primes differed only in culturally theorized ways we randomly assigned a different sample of African American college students ($n = 58$) to review the primes and answer questions that gauged their expectations about the course. There was no difference among participants who reviewed the course that included mainstream American culture or African American culture in positive expectations about taking the course (e.g., how much they expected to enjoy taking the course, how much they expected that the course would provide an inspiring and supportive environment, three items, $\alpha = .84$, $t(56) = 1.19$, $p = .24$). However, consistent with our theorizing that including African American culture within an educational setting should activate an interdependent self-schema that can facilitate a constellation of mutually constituting consequences participants differed in their expectations related to cooperative behavior and their expectations about being valued and included. That is, relative to participants who reviewed the course that included mainstream American culture, participants who reviewed the course that included African American culture reported greater expectations of cooperative behavior (e.g., working cooperatively with classmates, two items, $r = .81$, $p < .001$, $t(56) = 2.11$, $p = .039$) and greater expectations about being valued and included (e.g., "my various identities would be welcomed and valued," "I would be proud to think of myself as a student in this course," two items, $r = .66$, $p < .001$, $t(56) = 2.23$, $p = .03$). See Supplemental Materials for further description of the results of this separate study.

[10] To ensure that we tested our hypothesis under nonthreatening conditions we tested whether the course primes differed in making threat salient. In a separate African American sample ($N = 34$; 20 female, 14 male) we randomly assigned participants to review the mainstream American or African American course material, and then complete measures that assessed threat (i.e., self-esteem). The threat measure was adapted from Cohen and Garcia (2005, Experiment 5), it included five state self-esteem items (e.g., "I am confident in my abilities"; Heatherton & Polivy, 1991) and one global self-esteem item (e.g., "I feel good about myself"). The self-esteem items were assessed on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*) and to be consistent with Cohen and Garcia (2005) were summed to create a composite, $\alpha = .75$. There was no difference between participants randomly assigned to review the mainstream American or African American course material on the measure of threat (M mainstream American $= 27.22$, $SD = 6.37$; M African American $= 25.20$, $SD = 5.95$; $t < 1$, $p = .35$, ns). Additionally, as described in the Methods sections for Studies 2 and 3 we administered the academic measures using task instructions previously shown to be nonthreatening (e.g., Steele, 2010).
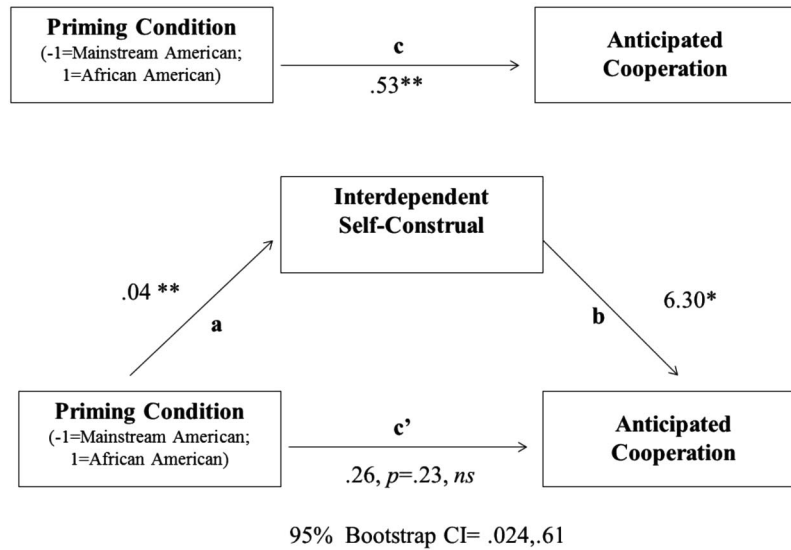
Figure 3.   Self-construal mediates anticipated cooperation (Study 2). Unstandardized coefficients are shown. Asterisks denote those paths that are significant ($^* p < .05$, $^{**} p < .01$).

Method

Design and participants.   Thirty-three (22 female, 11 male) self-identified African American students participated in a between-subjects experiment in which priming condition (mainstream American vs. African American) was manipulated. Participants received monetary payment ($10) or partial course credit.

Procedure.   In an online study, participants were asked to review materials for a proposed university course, and then to complete a math persistence task and a verbal anagrams task. Participants were randomly assigned to review materials for a course that would involve mainstream American ideas and practices or African American ideas and practices. The course was described as follows:

> This course examines and analyzes iconic and celebrated ideas and practices of mainstream American (African American) culture. Specifically, we will survey literature, TV shows, holidays, and architecture to gain insight into this culture. Students in the course will have opportunities to learn about and actively engage with ideas and practices associated with mainstream American (African American) culture.

Then participants were shown cultural primes, used in Studies 1 and 2, as examples of ideas and practices that would be engaged in the course.

After reviewing the course materials, participants answered questions that assessed their interest and affect related to the academic course. Participants responded to four items on a 7-point scale (1 = *not at all*, 7 = *very*) that gauged their interest, anticipated engagement, anxiety (reverse scored), and excitement related to the course. These items were averaged to create a composite of overall course interest (α = .74). This composite of overall course interest served as a manipulation check that the priming conditions did not differentially activate greater interest, including more positive affect, which has been shown to increase task persistence and related performance outcomes (see Deci & Ryan, 1991).

Finally, participants completed the academic persistence and performance measures that were presented as separate tasks. More important, these tasks were presented in ways previously shown to reduce or eliminate threat; for instance, the tasks were described as puzzles to frame the tasks as challenging but not threatening (see Steele, 2010). First, a math persistence task that was adopted from Oyserman, Gant, and Ager (1995) was administered as a measure of persistence. The task measures persistence by giving participants a string of three numbers (2, 3, and 7) and asking them to obtain a given number (36) by adding, subtracting, dividing, or multiplying. The task requires participants to use a new line on the page for every attempt that is made to solve the math problem. The number of attempts serves as a measure of task persistence. Second, after the math persistence task participants were given a set of 12 moderately difficult anagrams to solve as a measure of academic performance. The task requires participants to rearrange a set of letters in a given word to form a new word (e.g., the letters in "disease" can be rearranged to make "seaside"). The number of correctly solved anagrams served as an indicator of academic performance. The session ended with debriefing.

Results

Overall course interest.   Participants did not differ by cultural priming condition in their overall course interest (Mainstream American culture: M = 4.66, SD = 1.04 vs. African American culture: M = 4.77, SD = 1.51), $t(31)$ = −.23, p = .82, *ns*. Thus, indicating that the priming conditions did not differ in activating interest, including positive affect.

Academic relevant tasks: Persistence and performance.   A multivariate analysis of variance (MANOVA) was conducted to test the effect of cultural priming condition on the two academic relevant tasks (i.e., mathematics persistence task and verbal anagrams). The results of the MANOVA revealed significant differences between the cultural priming conditions on these two outcomes, Wilks' Λ = .62, $F(2, 30)$ = 9.36, p = .001.

Mathematics persistence task. As shown in Figure 4A, and consistent with our prediction, the cultural priming condition had a significant effect on participants' persistence on the mathematics task. Relative to participants primed with mainstream American culture ($M = 2.53$, $SD = 2.87$), who reviewed the course that included mainstream American ideas and practices, participants primed with African American culture ($M = 6.50$, $SD = 2.99$), who reviewed the course that included African American ideas and practices, made more attempts to solve the math problem demonstrating greater persistence, $t(31) = 3.89$, $p < .001$, $d = 1.25$. Thus, as hypothesized, priming African American ideas and practices increased persistence.

Verbal anagrams. As shown in Figure 4B, and as predicted, the cultural priming condition also had a significant effect on participants' performance on the anagram task. Relative to participants primed with mainstream American ideas and practices ($M = 4.06$, $SD = 3.23$), participants primed with African American ideas and practices ($M = 6.56$, $SD = 2.25$) correctly solved more anagrams, $t(31) = 2.57$, $p = .015$, $d = .89$. Thus, as hypothesized, priming African American ideas and practices enhanced verbal problem solving.

Discussion

Study 3 provides evidence that priming African American ideas and practices, relative to mainstream American ideas and practices, within an educational setting can facilitate positive academic consequences for African Americans. Consistent with the present theorizing, the observed results suggest that the inclusive multicultural practice of incorporating African American ideas and practices within an educational setting can enhance African Americans' academic persistence and performance. In Study 4, we further examine the hypothesized positive academic implications of including African American culture within a university setting for African Americans. Specifically, we test the

effects of priming African American culture, relative to mainstream American culture, as part of a proposed academic course using a different academic relevant task that involves creative problem solving and we include a European American comparison group.

Study 4: Including African American Culture, Improving Creative Problem Solving

The capacity to demonstrate flexible thinking (i.e., creativity) is an advantageous problem solving skill that is integral to success and innovation across a number of domains including academic achievement. Can inclusive multicultural practices within educational settings that make it safe and inviting for African Americans to engage with African American culture enhance performance on a creative problem solving task? To test this question, we again primed mainstream American or African American ideas and practices as part of a proposed academic course at a university, and then we administered a standard measure of creativity, a Remote Associates Test (Maddux & Galinsky, 2009; Mednick, 1962, Study 3). We also included a European American comparison group. Replicating and extending the results observed in Study 2, we predicted that African American participants would correctly solve more remote associates when primed with the course that includes African American ideas and practices, relative to the course that includes mainstream American ideas and practices. However, we expected that priming the course that includes African American culture, relative to mainstream American culture, would not improve European Americans' creative problem solving. This latter prediction is consistent with the results of Study 1 that suggested that priming African American ideas and practices did not activate an interdependence self-schema for European Americans.
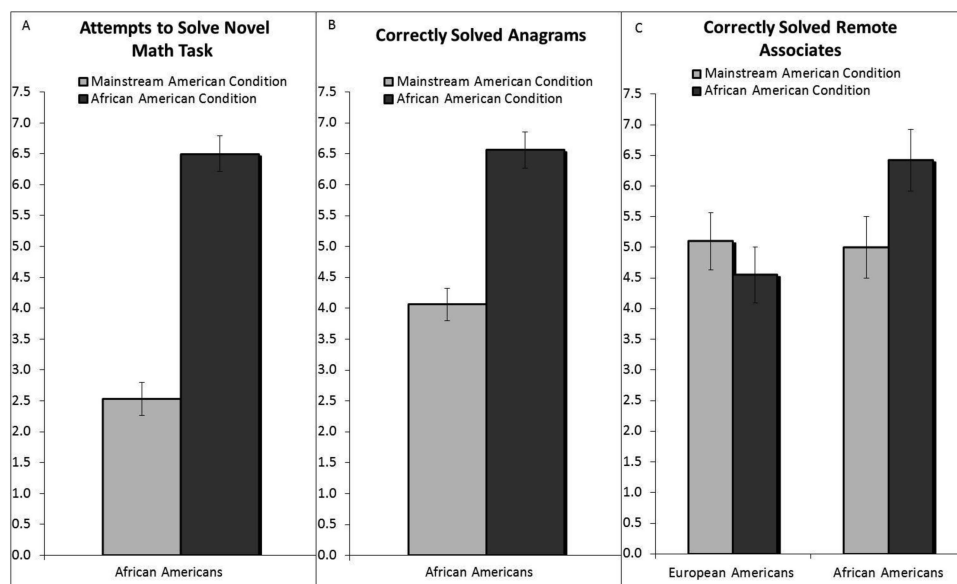

Figure 4. (A) Number of attempts to solve the novel math task (Study 3). (B) Number of correctly solved anagrams (Study 3). (C) Number of correctly solved remote associates (Study 4). Error bars represent ±1 *SEM*s.

Method

Design and participants. The study used a 2 participant ethnicity (African American, European American) × 2 priming condition (mainstream American or African American) between-subjects design. Forty-three (30 female, 13 male) self-identified European American and 38 self-identified African American (25 female, 13 male) students participated for monetary payment ($10) or course credit.

Procedure. To prime mainstream American or African American culture, participants were exposed to the same primes used in Study 3—they reviewed an academic course that would involve mainstream American ideas and practices or African American ideas and practices. Furthermore, as in Study 3, participants responded to four items (i.e., interest, engagement, anxiety [reverse scored], and excitement) that created a mean composite measure of overall course interest items ($\alpha = .70$). These items were again included to test whether the priming conditions differentially activated greater interest, including more positive affect. After answering the interest items, as a separate task, participants were then asked to complete a set of 10 remote associates, a measure of flexible thinking and creative problem solving (Maddux & Galinsky, 2009; Mednick, 1962; Study 3). As in Study 2, the problem solving task was presented as a separate measure, and it was administered in ways previously shown to reduce or eliminate threat (i.e., the task was described as puzzles to frame the tasks as challenging but not threatening). The remote associate's task required individuals to generate a word that underlies the relationship between three given words. For example, given the following three words, *falling*, *actor*, *dust*, a correct solution would be the word *star*.

Results

Overall course interest. The composite for course interest was submitted to a two-way ANOVA that revealed a significant interaction between cultural priming condition and participant ethnicity, $F(1, 77) = 7.38$, $p = .008$. This interaction was largely influenced by the fact that European American participants' were less interested in the course involving African American culture ($M = 4.08$, $SD = 1.08$) than they were in the course involving mainstream American culture ($M = 5.02$, $SD = 1.08$), $t(77) = -2.77$, $p = .007$, $d = .62$. European American participants' interest in the course involving African American culture was also significantly lower than African American participants' interest in the same course ($M = 5.17$, $SD = 1.27$), $t(77) = -3.13$, $p = .003$, $d = .69$. However, African American participants' interest in the course involving African American culture did not differ significantly from their interest in the course involving mainstream American culture, $t(77) < 1.4$, *ns*.

Remote Associates Test (RAT). A two-way ANOVA on the number of remote associates correctly solved by participants revealed that the main effect for cultural priming condition was not significant, $F < 1$, though the main effect for participant ethnicity was marginally significant, $F(1, 77) = 3.40$, $p = .07$. However, as predicted there was a significant cultural priming condition by participant ethnicity interaction, $F(1, 77) = 4.17$, $p = .045$. As shown in Figure 4C, simple effects analyses revealed that African American participants in the African American cultural condition, who reviewed the course involving African American culture,

solved significantly more remote associates ($M = 6.42$, $SD = 1.71$) than African American participants in the mainstream American cultural condition, who reviewed the course involving mainstream American culture ($M = 5.00$, $SD = 2.19$), $t(77) = 2.02$, $p = .047$, $d = .45$. However, for European Americans, performance did not vary with priming condition (mainstream American condition, $M = 5.10$, $SD = 2.36$, African American condition, $M = 4.55$, $SD = 2.30$), $t(77) = .83$, *ns*.

Moreover, in the African American cultural priming condition African American participants solved significantly more remote associates than European American participants, $t(77) = 2.75$, $p = .007$, $d = .62$. Furthermore, in the African American cultural priming Condition African American participants solved marginally more remote associates than European Americans in the mainstream American priming condition, $t(77) = 1.93$, $p = .06$, $d = .43$. There was no difference in performance between African American and European American participants in the mainstream American priming condition, $t < 1$.

Given the significant interaction effect on overall course interest we also ran an ANOVA with the composite score for overall course interest as a covariate. Course interest was not shown to be a significant covariate, $F < .14$, and when controlling for course interest the interaction effect on number of remote associates solved remained significant, $F(1, 76) = 4.19$, $p = .044$.

Alternative explanations. Although the effect on the number of remote associates solved correctly holds controlling for course interest, it is still possible that European American participants who were less interested in the African American course performed worse because they suppressed their effort. To test this alternative explanation, we ran an ANOVA with the number attempted for the remote associates as a covariate and found that the interaction remained significant, $F(1, 76) = 4.06$, $p = .048$.

Given work on creativity and mood (Baas, De Dreu, & Nijstad, 2008, for review) it is possible that the observed effects in the current study can be explained by positive or negative affect. Such an explanation would suggest that priming African American cultural ideas and practices induced more positive affect (i.e., excitement) in African American participants that enhanced creativity; or that priming African American cultural ideas and practices induced more negative affect (i.e., anxiety) in European American participants which undermined creativity. To test this alternative explanation, we ran an ANOVA with the single-item for excitement related to the course as a covariate and found that the interaction became marginally significant, $F(1, 76) = 3.85$, $p = .054$. However, the key contrasts between African American and European American participants in the African American course condition remained significant, $t(76) = 2.74$, $p = .007$, $d = .63$, as did the contrast between African American participants in the African American and mainstream American course condition, $t(76) = 2.01$, $p = .048$, $d = .45$. We also ran an ANOVA with the single-item for anxiety related to the course, and found that the interaction remained significant, $F(1, 76) = 4.50$, $p = .037$.

Discussion

Using a RAT, a standard measure of creativity, Study 3 further demonstrates the positive academic consequences of priming African American culture, relative to mainstream American culture,

for African Americans. That is, it provides evidence that educational settings that make it safe and inviting for African Americans to engage with African American ideas and practices, shown to activate an interdependent self-schema in the pilot experiment and Studies 1 and 2, can enhance performance on a relevant academic task—creative problem solving. As predicted, the positive effect of priming a course that includes African American culture, relative to mainstream American culture, did not extend to a European American comparison group.

It is notable that the number of correctly solved remote associates for African American and European American participants did not differ when mainstream American culture was made salient. This finding suggests that priming mainstream American cultural ideas and practices, shown to activate an independent self-schema in the pilot experiment and Studies 1 and 2, did not undermine African Americans' academic performance relative to European Americans. Of interest to the authors, the results in the mainstream American priming condition seem to mirror findings in the no-threat conditions of stereotype threat studies (i.e., when threat is removed many studies find no difference in the performance of African American and European American participants, see Steele, 2010). However, the greater number of correctly solved remote associates among African American participants when African American culture was primed highlights the particular benefits and importance of including African American ideas and practices within educational settings for enhancing academic achievement among African Americans.

In Study 5 we examine conceptual replications and extensions of Studies 3 and 4. That is, instead of examining the effects of reviewing materials for an academic course that includes African American culture on academic relevant tasks that assess persistence and performance, in Study 5 we examine the effects of actual engagement with African American cultural groups and events on college campuses on measures that reflect academic performance and persistence over time (i.e., college grades, enrollment in advanced degree programs). Using a sample of African American college students from the Gates Millennium Scholars (GMS) Cohort 1 dataset, Study 5 also tests one proposed process that underlies the positive academic consequences of including African American ideas and practices within educational settings.

Study 5: African American Cultural Engagement and Positive Academic Outcomes

What process underlies the observed positive academic consequences of including African American ideas and practices within a university setting? One process, we propose, is that engagement with African American culture on college campuses makes an interdependent self-schema salient which increases African American students' sense of academic fit and identification and, in turn, enhances academic performance and persistence. In Study 5 we test this proposed process.

A sample of African American students drawn from the GMS Cohort 1 dataset (Bill and Melinda Gates Foundation, 2013) was used to test this prediction. Students in the GMS Cohort 1 dataset were assessed at baseline (2002), first follow-up (2004), and second follow-up (2006). Students in the GMS Cohort 1 dataset were entering first-year undergraduate students in the 2000–2001 academic year. The GMS Cohort 1 sample includes racial/ethnic minority undergraduates from across the United States who are recipients or nonrecipients of the Bill and Melinda Gates foundation's GMS scholarship. All respondents in the survey were GMS program applicants who met the scholarship's qualifying criteria which included self-identified as a racial/ethnic minority and having a grade point average of 3.3 or higher in high school. Thus, the sample represents relatively high achieving racial/ethnic minorities (see Sedlacek & Sheu, 2008). The selected sample for Study 5 included all respondents who were identified as African American ($N = 326$).

Using this sample, we examined African American students' reported engagement with African American culture on campus at baseline and their cooperative academic and community behaviors (as a measure of interdependence). Examining students' cooperative academic and community behaviors as a measure of interdependence conceptually replicates and extends the measures used in the pilot experiment and Studies 1 and 2 (e.g., actual and anticipated cooperation). Furthermore, given past research that links cooperative behavior to a sense of inclusiveness and being valued (e.g., respected; de Cremer, 2002; De Cremer & Van Knippenberg, 2002), examining students' cooperative academic and community behaviors is a measure of interdependence that captures our theorizing that activating an interdependent self-schema tied to African American culture can facilitate a constellation of mutually constituted consequences (i.e., cooperation, helping others, expectations about being valued and included; see Figure 1B).

Additionally, we examined African Americans students' academic fit and identification beliefs, their self-reported GPA measured at the first follow-up[11] (as a measure of academic performance), and, their reported enrollment in a master's or doctorate program four years later (second follow-up). Consistent with the results of the pilot experiment and Studies 1 and 2 we expected that campus experiences that involve engagement with African American culture would create opportunities for African American students to recruit an interdependent self-schema. That is, we predicted that there would be a positive relationship between African American students' engagement with African American culture and their cooperative academic and community behaviors. Additionally, we predicted that African American cultural engagement would be related to increased academic fit and identification beliefs. Furthermore, consistent with the results of Studies 3 and 4 we predicted that engagement with African American culture on college campuses would be related to higher academic performance (GPA) and persistence (enrollment in an advanced degree program). Finally, we expected that the effect of African American cultural engagement on GPA and enrollment in an advanced degree program would be explained by the activation of a more interdependent self-schema, indexed by cooperative academic and community behavior, which increases academic fit and identification beliefs.

To be consistent with our theorizing that the academic benefits of leveraging an interdependent self-schema tied to African Amer-

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[11] Self-reported GPA was not assessed at baseline, it was assessed at the first follow-up and second follow-up. For our analysis we only examined self-reported GPA at the first follow-up, when the majority of the sample was advanced undergraduates. At the time of the second follow-up, 44.79% of the sample was no longer students and only 8.5% of the sample reported being enrolled in an undergraduate degree program.

ican culture are likely to be realized when environments make it safe and inviting for African American students to engage with African American culture, and to conceptually replicate the methods used in Studies 3 and 4 in which the predictions were tested under nonthreatening conditions, we included a measure of campus racial/ethnic threat perceptions as a control variable in the tests of the hypotheses explored in Study 5.

Method

Design and participants. The sample included a total of 326 African Americans (254 female, 72 male). There were 188 GMS scholarship recipients and 138 nonrecipients. Respondents were entering first-year undergraduate students in the 2000–2001 academic year, they participated in the survey at three time points: first in 2002 (baseline), then in 2004 (first follow-up), and finally in 2006 (second year follow-up). Respondents attended doctoral research extensive/intensive universities (65%, $n = 212$), master's colleges (31%, $n = 101$), and baccalaureate-liberal arts/general, associate's college or specialized institutions (4%, $n = 13$). Of these, 59 respondents attended a Historically Black College and University (HBCU).[12] Respondents attended highly selective (39%, $n = 127$) and less selective (61%, $n = 199$) colleges/ universities.[13]

Measures.

Verification checks. First, to verify, as theorized, that an independent self-schema is often chronically activated within U.S. educational settings we assessed four items that asked respondents about the abilities that their experience in college have helped to develop. At the first follow-up, the four items asked about the development of abilities that reflect independence and that have been shown in previous research to be among the top independent abilities that U.S. colleges and universities aim to cultivate in students (see Stephens et al., 2012, Study 1). The items asked about the ability to work independently, to express oneself orally and in writing, and to use analytical problem solving. Given the distribution of the data we analyzed the items as dichotomous variables: whether or not respondents reported that their college experience had helped to develop each ability. We summed each ability to create a composite measure of independent self-schema activation.

Next, to verify, as theorized, that engagement with African American culture on college campuses is associated with a positive sense of connection to one's racial/ethnic group we assessed an item that asked respondents about the impact of their college experience on their ethnic identity. At the first follow-up, the item asked respondents to indicate whether their "experience in college has strengthened [their] sense of ethnic identity, weakened [their] sense of ethnic identity, or has [their] sense of ethnic identity remained the same." Given the distribution of the data and our interest in testing whether respondents' college experience was associated with a positive sense of connection to their racial/ethnic group or not we analyzed the item as a dichotomous variable: whether respondents' indicated that their ethnic identity was strengthened ($n = 185$) or not (remained the same ($n = 118$) or weakened ($n = 8$).[14]

African American cultural engagement.[15] To measure respondents' engagement with African American culture we examined two items that assessed interaction and involvement with

racial/ethnic cultural groups and activities on campus. The items were asked at baseline; we standardized and averaged the items to create a composite of engagement with African American culture on a respondents' college campus, $r = .47$, $p < .001$. These items included a question that assessed how often respondents' participated in "events or activities sponsored by groups reflecting [their] own cultural heritage" (5-point scale; $1 = never$, $5 = very often$). An item that gauged interaction with campus racial/cultural groups, "I rely on racial/cultural groups as my main support group on campus" (4-point scale; $1 = strongly disagree$, $4 = strongly agree$). The composite African American cultural engagement measure was negatively skewed ($Z = -2.08$, $p = .04$); a square root transformation eliminated the skew ($Z = -.71$, $p = .47$, ns). For interpretive clarity, the transformed variable was reflected so that higher values indicate greater cultural engagement.

Interdependent self-schema. To index the activation of an interdependent self-schema we assessed respondents' self-reported cooperative behaviors. First, we examined respondents' cooperative academic behaviors using four items that asked about the frequency of working and collaborating with others (i.e., students and faculty) on schoolwork and research/artistic projects (e.g., "how often do you work with other students on schoolwork outside of class," "how often do you discuss ideas from your readings or classes with faculty outside of class"). Responses to these items were indicated on a 6-point scale, recoded so that higher scores indicate greater frequency ($1 = less than once a month$, $6 = three or more times a week$). We examined respondents' responses to these four items at baseline ($\alpha = .76$) and the first follow-up ($\alpha = .76$). Mean cooperative academic behaviors for both time points was standardized and averaged to create a composite, $r = .50$, $p < .001$.

Additionally, we assessed respondents' cooperative community behaviors (e.g., helping others) using an item that asked about the

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[12] We included respondents attending HBCUs in the sample as their reported engagement with African American culture on their college campuses did not differ from respondents not attending HBCUs, $t = .54$, $p = .59$, ns. However, as stated in the description of the measures within the Methods section for Study 5 we included whether respondents attended an HBCU or not as a control variable in the tests of hypotheses. This allowed an examination of the hypothesized benefits of engagement with African American culture within U.S. college settings that are HBCUs and those that are not HBCUs. Additionally, consistent with previous research (Stephens et al., 2012) that documents the pervasiveness of independent norms and values within a variety of U.S. college settings, respondents attending HBCUs and those not attending HBCUs in this sample did not differ in their response about whether their college experience had helped to develop independent abilities, $t = .82$, $p = .41$, see Study 5 for a description of this measure.

[13] Barron's Profiles of American Colleges selectivity rankings from 2004 were used to determine whether respondents attended highly selective (ranked most competitive or highly competitive) or less selective schools. Barron's selectively rankings are widely used and have been shown to be associated with a variety of academic outcomes (see Reardon, Baker, & Klasik, 2012).

[14] For this item, eight respondents selected to not indicate a response and seven respondents had missing data.

[15] A potential alternative explanation involves participation in extracurricular activities (e.g., Eccles & Barber, 1999; Mahoney & Cairns, 1997). Additional analyses suggested that more general involvement in extracurricular activities or social support from peers did not drive the results for Study 5 (see Supplemental Materials for a description of these additional analyses).

frequency of participating in community service. Respondents indicated how often they participated in community service using a 5-point scale, coded so that higher scores indicate greater frequency ($1 = never$, $5 = very often$). We examined respondents' response to this item at baseline and the first follow-up. Responses to this item for both time points were standardized and averaged to create a composite, $r = .46$, $p < .001$.

To create an overall measure of cooperative behavior (academic and community) we averaged the composite scores for cooperative academic behaviors and cooperative community behaviors[16], $r = .36$, $p < .001$. The composite cooperative behavior measure was negatively skewed ($Z = -3.16$, $p = .002$); a square root transformation eliminated the skew ($Z = .84$, $p = .40$, ns). For interpretive clarity, the transformed variable was reflected so that higher values indicate greater activation of an interdependent self-schema.

Academic fit and identification beliefs. To assess respondents' sense of academic fit and identification a composite measure was created that included items that assessed established components of fit and identification. The composite included items that assessed respondents' sense of connection to their school, perceived fit, and potential to succeed at their school including within their academic major, and efficacy including managing schoolwork and academic help seeking. The items were as follows: "I don't feel like I am part of this campus community" asked at baseline, standardized, one item; "Students like me do not usually do well at this college/university" asked at baseline and first follow-up, standardized and averaged to create one item; "I expect to be an honor student at this college/university" asked at baseline and first follow-up, standardized and averaged to create one item; "I am afraid I may not make it in college or in a university" asked at baseline and first follow-up, standardized and averaged to create one item; "I could get higher grades in a major that suited me better" asked at baseline and first follow-up, standardized and averaged to create one item; "How difficult did you find . . . getting help with academic work when you needed it" asked at baseline and first follow-up, standardized and averaged to create one item; and "How difficult did you find . . . keeping up with your schoolwork" asked at baseline and first follow-up, standardized and averaged to create one item.

A factor analysis confirmed that these seven items loaded on to a single factor that explained 37.46% of the variance (eigenvalue = 2.62). No other factor was extracted, all other eigenvalues <1. All of the seven items (that were standardized) were averaged, $\alpha = .71$. The composite academic fit and identification beliefs measure was negatively skewed ($Z = -2.05$, $p = .04$); a square root transformation eliminated the skew ($Z = .059$, $p = .95$, ns). For interpretive clarity, the transformed variable was reflected so that higher values indicate greater academic fit and identification beliefs.

Academic performance (self-reported GPA). At the first follow-up, respondents were asked to report their "GPA as of April 30 2004." The mean reported GPA was 3.28 ($SD = .47$). Reported GPA was negatively skewed ($Z = -9.60$, $p < .001$) a square root transformed eliminated the skew ($Z = 1.89$, $p = .06$, ns). For interpretive clarity, the transformed variable was reflected so that higher values indicate greater academic performance.

Academic persistence (reported enrollment in an advanced program). At the second follow-up respondents indicated whether they were currently seeking a graduate degree. Respon-

dents who indicated that they were seeking a master's or doctorate (including a professional master's or doctorate) degree were coded as 1 (enrolled in a master's, professional or doctorate program) and those who did not report enrollment in an advanced degree program as −1. At the second follow-up 47.24% ($n = 154$) of the sample reported that they were seeking an advanced degree.

Controls. All analysis controlled for the racial/ethnic threat perceptions measure as well as demographic, population, and institutional characteristics. The racial/ethnic threat perceptions measure was a composite variable that assessed students' perception of their school's academic and social climate as "discriminatory or supportive for racial minority student populations" (two items, 4-point scale: $1 = very\ discriminatory$, $4 = very\ supportive$, standardized and averaged, $r = .71$, $p < .001$). The campus racial/ethnic threat perceptions measure was negatively skewed ($Z = -2.80$, $p = .005$); a square root transformation eliminated the skew ($Z = -.52$, $p = .60$, ns). For interpretive clarity, the transformed variable was reflected so that higher values indicate more supportive perceptions. The demographic and population characteristics included respondents' gender ($-1 = male$, $1 = female$), GMS status ($-1 = nonrecipient$, $1 = recipient$), and self-reported SAT score (combined verbal and math). The institutional characteristics included the classification of the respondents' college/university ($1 = $ doctoral research extensive/intensive university, $2 = $ master's colleges, $3 = $ baccalaureate-liberal arts/general, associate's college, or specialized institution), whether respondents' college/university is an HBCU (1) or not (-1), and the selectivity of respondents' college/university ($-1 = less\ selective$, $1 = highly\ selective$).

Results

Because of missing data across different variables,[17] the sample size for the reported analysis varies. First, we report the results of analyses that tested the effect of African American cultural engagement on the verification checks and outcome variables. Then, we report the results of a path analysis that used structural equation modeling to test the hypothesized process by which African American cultural engagement enhances academic performance (self-reported GPA). Finally, we report the results of a path analysis that used Bayesian structural equation modeling to test the hypothesized process by which African American cultural engagement

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[16] Consistent with Cohen (1988) and Hemphill (2003) the strength of this correlation is moderate.

[17] Because of missing data across different variables the sample size for the reported analysis varies. Some respondents had missing data for more than one variable. Missing data for variables were as follows: African American cultural engagement ($n = 3$), academic fit and identification beliefs ($n = 1$), interdependent self-schema ($n = 1$), racial/ethnic threat perceptions ($n = 18$), self-reported SAT score ($n = 15$). There was also missing data for self-reported GPA for 23 respondents. Of respondents missing self-reported GPA data 19 reported not being enrolled in college at the time of the first follow-up. Some respondents who were missing the self-reported GPA variable were also missing other variables (as noted in Study 5), this overlap in missing data is why the reported analyses involving self-reported GPA has a reduced sample size ($n = 15$).

increases academic persistence (reported enrollment in an advanced degree program).

Verification checks.

Independent self-schema. As theorized, respondents indicated that their experience in college had helped to develop independent abilities. Specifically, 94.12% of respondents reported that their college experience helped to develop at least one independent ability; 84.97% of respondents indicated that at least three independent abilities had been developed. This provides some evidence that an independent self-schema is often chronically activated within U.S. educational settings.

Positive sense of connection to racial/ethnic group. To verify that African American cultural engagement on campus is associated with a positive sense of connection to one's racial/ethnic group we ran a logistic regression, in which respondents' sense that their experience in college strengthened their ethnic identity or not was the dependent variable. As theorized, engagement with African American culture was shown to be a positive and significant predictor, $B = 2.36$, $SE = .51$, Wald $= 21.45$, $p < .001$, Exp(B) $= 10.60$. Furthermore, whether respondents attended an HBCU emerged as a significant predictor, $B = .56$, $SE = .21$, Wald $= 7.04$, $p = .008$, Exp(B) $= 1.75$, and the institutional classification of their college/university was shown to be a marginal predictor, $B = -.46$, $SE = .26$, Wald $= 2.98$, $p = .084$, Exp(B) $= .63$. None of the other control variables were significant, Walds ≤ 1.57, $ps \geq .21$.

Interdependent self-schema. To test whether respondents' reported engagement with African American culture on campus is related to greater activation of an interdependent self-schema we ran a regression. Consistent with our hypotheses, African American cultural engagement emerged as a significant predictor, $B = .31$, $t(281) = 7.69$, $p < .001$, $d = .92$. Additionally, racial/ethnic threat perceptions, $B = .12$, $t(281) = 2.10$, $p = .04$, $d = .25$ and whether respondents attended an HBCU, $B = .05$, $t(281) = 2.93$, $p = .004$, $d = .35$, were significant predictors, which suggests that respondents who perceived their campus as more supportive (nonthreatening) and respondents who attended an HBCU reported higher activation of an interdependent self-schema. None of the other control variables were significant predictors, $ts \leq |1.35|$, $ps \geq .18$.

Academic fit and identification beliefs. To examine whether reported engagement with African American culture on campus predicts increased academic fit and identification beliefs we ran a regression. In support of our hypotheses, African American cultural engagement was shown to be a significant predictor, $B = .09$, $t(281) = 2.71$, $p = .007$, $d = .32$. Respondents' racial/ethnic threat perceptions also emerged as a significant predictor, $B = .25$, $t(281) = 5.86$, $p < .001$, $d = .70$, which indicates that respondents who perceived their campus as more supportive (nonthreatening) reported higher academic fit and identification beliefs. Additionally, gender was a significant predictor, $B = .04$, $t(281) = 3.73$, $p < .001$, $d = .45$, which indicates that academic fit and identification beliefs were higher among female respondents. The selectivity of respondents' college/university was shown to be a marginal predictor, $B = -.02$, $t(281) = -1.96$, $p = .051$, $d = .23$, which suggests that respondents attending relatively less selective schools reported higher academic fit and identification beliefs.

Academic performance (self-reported GPA). To examine whether engagement with African American culture on campus is related to higher academic performance we ran a regression. Consistent with the findings in Studies 3 and 4 and as hypothesized, African American cultural engagement emerged as a significant predictor, $B = .016$, $t(266) = 2.30$, $p = .02$, $d = .27$. No other control variables were significant predictors, $ts \leq |1.56|$, $ps \geq .12$.

Academic persistence (reported enrollment in an advanced degree program). To test if engagement with African American culture on campus predicts whether respondents' reported being enrolled in an advanced degree program we ran a logistic regression. As hypothesized, African American cultural engagement was a significant predictor, $B = .92$, $SE = .45$, Wald $= 4.11$, $p = .042$, Exp(B) $= 2.50$. GMS scholar status was also a significant predictor, $B = .28$, $SE = .12$, Wald $= 4.88$, $p = .027$, Exp(B) $= 1.32$. None of the other control variables were significant predictors, Walds $\leq |2.26|$, $ps \geq .13$.

Path analysis (structural equation model- academic performance). To test the hypothesized process by which engagement with African American culture enhances academic performance (self-reported GPA) an analysis of a structural equation model was conducted using AMOS 22.0 (Arbuckle, 2013). The model included the measures for African American cultural engagement, an interdependent self-schema, academic fit and identification beliefs, and self-reported GPA. The model also included the previously noted control variables. As shown in Figure 5A, and consistent with our hypothesis, the three predicted paths were significant. Table 4 shows the results for the control variables. The tested structural equation model met the goodness-of-fit criteria outlined by Byrne (2010), $\chi^2(3) = 4.68$, $p = .20$, comparative fit index $= .996$, normed fit index $= .99$, and RMSEA $= .041$.

Using the hypothesized model, we tested whether an interdependent self-schema and academic fit and identification beliefs mediate the effect of African American cultural engagement on self-reported GPA. Evidence of full mediation was found using the structural equation modeling criteria for full mediation (Little, Card, Bovaird, Preacher, & Crandall, 2007). That is, when a direct path between African American cultural engagement and self-reported GPA was added to the hypothesized model, it was not significant ($B = .007$, $p = .25$). The three predicted paths remained significant when the direct path was added to the model and the indices of model fit did not significantly change.

Path analysis (Bayesian structural equation model-academic persistence). To test the hypothesized process by which engagement with African American culture enhances academic persistence (reported enrollment in an advanced degree program) an analysis of a Bayesian structural equation model was conducted using AMOS 22.0 (Arbuckle, 2013). The model included the measures for African American cultural engagement, an interdependent self-schema, academic fit and identification beliefs, and reported enrollment in an advanced degree program. The model also included the previously noted control variables. As shown in Figure 5B, and consistent with our hypothesis, the three predicted paths were significant. Table 5 shows the results for the control variables. The tested Bayesian structural equation model met the goodness-of-fit criteria outlined by Lee & Song (2003), posterior predictive $p = .50$.

Providing evidence of mediation, when a direct path between African American cultural engagement and reported enrollment in an advanced degree program was added to the hypothesized model, it was not significant ($B = .41$, 95% credibility interval
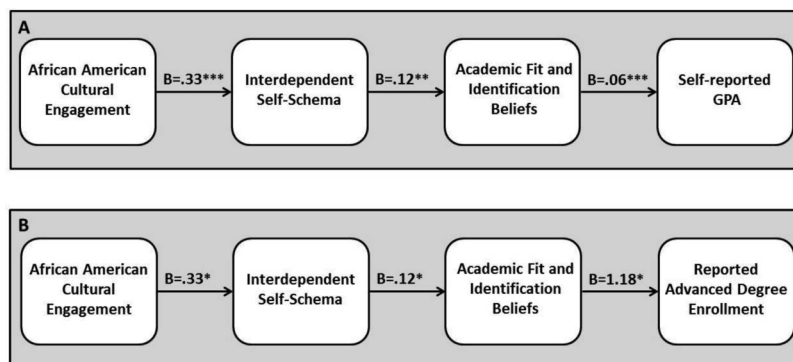
Figure 5. (A) Conceptual model with results from the structural equation model testing the predicted links between African American cultural engagement, an interdependent self-schema, academic fit/identification beliefs, and self-reported GPA. Asterisks indicate significant paths (* $p < .05$, ** $p < .01$, *** $p < .001$). (B) Conceptual model with results from the Bayesian structural equation model testing the predicted links between African American cultural engagement, an interdependent self-schema, academic fit/identification beliefs, and reported advanced degree enrollment. Statistically significant paths (marked with an asterisk [*]) have a 95% credibility interval that does not cover zero.

does cover zero). The three predicted paths remained significant when the direct path was added to the model and the indices of model fit did not significantly change.

Discussion

Using a relatively diverse sample of African American college students, the results of Study 5 provide evidence that engagement with African American culture on college campuses makes salient an interdependent self-schema that increases African American students' academic fit and identification beliefs, and in turn, enhances academic outcomes. More important, the finding that African American cultural engagement can enhance academic fit and identification beliefs is consistent with past research that has used diary methods and found that African American college students tend to report increases in belongingness on days after positive race-relevant experiences such as attending a Caribbean festival or campus event organized by an African American organization (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002). In providing support for the hypothesized process, Study 5 replicates and extends the effects on academic outcomes observed in Studies

3 and 4 to academic outcomes that reflect performance and persistence over time. More specifically, Study 5 extends the positive effects on academic outcomes to measures that are often linked to valued life opportunities—college grades and persisting in higher education by pursuing an advanced degree.

General Discussion

The current research proposed that double consciousness in African Americans can function as the gift of two self-schemas. Specifically, we tested the hypothesis that African Americans, like Americans more broadly, are likely to develop an independent self-schema associated with engagement in mainstream American cultural contexts and an interdependent self-schema associated with engagement in African American cultural contexts. We also tested the hypothesis that the opportunity to recruit and use an interdependent self-schema associated with African American culture within U.S. educational settings would have positive academic consequences.

First, a pilot experiment and Study 1 provided evidence that double consciousness can be conceptualized as two self-schemas.

Table 4
Effect of Control Variables on Interdependent Self-Schema, Academic Fit/Identification Beliefs, and Self-Reported GPA (Structural Equation Model)

Controls	Interdependent self-schema	Academic fit and identification beliefs	Self-reported GPA
Racial/ethnic threat perceptions	0.12 (0.05)*	0.23 (0.04)***	−0.02 (0.008)*
Gender	−0.02 (0.01)	0.04 (0.01)***	0.001 (0.002)
GMS status	0.02 (0.01)†	0.004 (0.008)	−0.001 (0.002)
SAT scores	0 (0)	0 (0)	0 (0)
Institution classification	−0.004 (0.02)	−0.02 (0.02)	0.006 (0.003)†
HBCU status	0.06 (0.02)**	0.004 (0.01)	0.004 (0.003)
Institution selectivity	−0.004 (0.022)	−0.02 (0.02)	0.006 (0.003)†

Note. The table presents unstandardized regression coefficients with standard errors in parentheses. Asterisks indicate significant coefficients.
† $p < .08$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5

Effect of Control Variables on Interdependent Self-Schema, Academic Fit/Identification Beliefs, and Reported Advanced Degree Enrollment (Bayesian Structural Equation Model)

Controls	Interdependent self-schema	Academic fit and identification beliefs	Reported advanced degree enrollment
Racial/ethnic threat perceptions	0.11 (0.003)*	0.23 (0.002)*	−0.38 (0.01)
Gender	−0.02 (0.001)	0.04 (0.001)*	0.001 (0.003)
GMS status	0.021 (0)	0.004 (0)	0.13 (0.003)*
SAT scores	0 (0)	0 (0)	0 (0)
Institution classification	−0.002 (0.001)	−0.02 (0.001)	0.016 (0.005)
HBCU status	0.056 (0)*	0.004 (0.001)	0.19 (0.004)*
Institution selectivity	−0.002 (0.001)	−0.02 (0.001)	0.02 (0.005)

Note. The table presents unstandardized regression coefficients with standard errors in parentheses. Asterisk indicates significant coefficients (*95% credibility interval that does not cover zero).

That is, African Americans shift their self-descriptions and social behaviors (i.e., giving a speech, making a cooperative decision) in schema-relevant ways by emphasizing relatively more independence or interdependence in response to a salient mainstream American or African American context. Study 2 provided evidence that self-construal mediates this shift in African American participants' social behavior from more independent (less cooperation) when primed with mainstream American culture to more interdependent (more cooperation) when primed with African American culture.

Then, Studies 3–5 showed that university settings that leverage an interdependent self-schema tied to African American culture, through the inclusion of African American ideas and practices, can benefit African Americans' academic persistence and performance. That is, priming African American culture, relative to mainstream American culture, increased mathematics persistence and verbal problem solving on an anagram task (Study 3) and creative problem solving on a remotes associates test (Study 4). Using a sample of African American students in the GMS dataset (Cohort 1), Study 5 replicated and extended the results of Studies 3 and 4 by examining academic outcomes that reflect performance and persistence over time (i.e., self-reported GPA and reported enrollment in a master's or doctorate program in a long-term follow-up). Additionally, Study 5 provided evidence for one process that underlines positive academic consequences of including African American culture within educational settings. That is, Study 5 demonstrated that African American cultural engagement on college campuses makes an interdependent self-schema more salient which increases African American students' academic fit and identification beliefs, and, in turn, enhances academic performance and persistence.

Studies 1 and 4 provided some evidence that double consciousness as two self-schemas—associated with mainstream American and African American culture—is particular to individuals who are part of groups theorized to have elaborated engagement with mainstream American and African American culture. That is, Study 1 found that priming African American ideas and practices did not activate an interdependent self-schema for European Americans, a comparison group that was theorized to have elaborated engagement with mainstream American culture but not African American culture (see Hamedani, Markus, & Fu, 2011, 2013) for more discussion of effects related to priming interdependence among European American). Relatedly, Study 4 showed

that making salient African American ideas and practices as part of an academic course did not improve European Americans' academic performance.

Together, the findings of the pilot experiment and five studies extend research in two areas: (a) self and behavioral consequences of dual identities and multicultural experiences and (b) positive academic consequences associated with African American identity.

Dual Identities and Multicultural Experiences

A growing literature on cultural frame-switching (e.g., Benet-Martínez & Hong, 2014; Chen, Benet-Martinez, & Harris Bond, 2008; Hong, Morris, Chiu, & Benet-Martinez, 2000; Luna, Ringberg, & Peracchio, 2008; Ramírez-Esparza, Gosling, Benet-Martínez, Potter, & Pennebaker, 2006) demonstrates that dual identities fostered through extensive participation in two national cultures (e.g., Chinese and American) can serve as cognitive resources that can enable flexibility in self-construal and social behavior. For instance, Asian American and Asian Canadian biculturals can alternate or frame-switch between an independent self-schema or an interdependent self-schema depending on which cultural context is salient (Hong et al., 2000; Ross, Xun, & Wilson, 2002; Wong & Hong, 2005). The present research extends findings related to cultural frame-switching to double consciousness—a dual identity associated with two American cultures rather than two distinct national cultures. In so doing, the present findings provide some evidence that African Americans can frame-switch between an independent and interdependent self-schema in response to two American contexts.

Further, by providing some evidence that African Americans are biculturals who can frame-switch the present research sheds some light on seemingly inconsistent past theorizing and findings about the cultural orientation of African Americans. In a meta-analysis on individualism and collectivism, Oyserman, Coon, and Kemmelmeier (2002) write, "it is unclear whether African Americans resemble Africans in their cultural orientation, as is sometimes proposed (e.g., Jones, 1986), or whether the African American cultural frame is distinctly American (or, given their higher individualism, quintessentially American)" (p. 41). The results of the present research suggests that the "cultural frame" of African Americans might depend on whether mainstream American and/or African American cultural ideas and practices are salient, and that

depending on the salient cultural context the cultural frame of African Americans can reflect independence, interdependence or both.

The findings of the present research dovetails with studies in sociology, linguistics, education, and cultural studies that highlight the capacity for racial/ethnic minorities such as Latino and African Americans to "straddle," "shift," and "code switch" between two American cultural contexts (e.g., Anderson, 1999; Carter, 2006). For instance, these studies demonstrate that African Americans can code-switch between Standard American English and African American Vernacular English (AAVE) or that inner city youth can shift between behaviors that are valued by mainstream American culture and those valued by "street" culture.

Future investigations might explore whether double consciousness is a basic psychological phenomenon that can arise with subordinate status (e.g., people in working class or other low power situations or contexts; see Brannon & Markus, 2013). Past theorizing supports the notion that varied experiences of low power (low resources, influence, or control) or low status is likely to foster double consciousness—a *two-ness*. For instance, Jean Baker Miller (1986) theorized that women, because their fate is often tied with that of men, must understand the cultural ideas and practices associated with men (dominant status) as well as those associated with women (subordinate status). Similarly, work on stereotyping and prejudice suggests that low power and low status positions often require understanding and developing knowledge about dominant, high power, or high status groups (e.g., Fiske, 1993). Building on this theorizing, it would be important to test, for example, whether women many of whom have the bicultural experience of engaging extensively with both male-dominated and female-dominated contexts can develop two self-schemas that flexibly guide behavior across these contexts. Furthermore, future work could investigate whether this two-ness—although often a source of tension and conflict for women— might in some situations function as a resource that facilitates positive social and cognitive consequences (cf., Kray, Galinsky, & Thompson, 2002; see also Cheng, Sanchez-Burks, & Lee, 2008, Study 2; Markus & Conner, 2013).

The current findings also raise questions about whether shifting between cultural contexts that vary in power and status dimensions (e.g., alternating between mainstream American and African American or middle class and working class contexts) can have positive intergroup implications. For example, might African Americans who are particularly skilled at frame-switching be perceived more positively by majority group members? This potential is suggested by sociologist Orlando Patterson who draws attention to "the effortless 'mode-switching' of celebrities and leaders like Oprah Winfrey and President Obama" and suggests that it "allows them not only to trust and be trusted by European Americans, but to seamlessly display the many forms of blackness when the occasion demands" (Patterson, 2011). Future research might also examine whether intergroup interactions with an out-group partner that has the ability to shift between cultural contexts can positively impact other intergroup outcomes such as implicit bias or interest in an out-group's culture (see Brannon & Walton, 2013).

Finally, the present research also adds to literature that reveals that multicultural experiences can facilitate a variety of advantageous outcomes, including enhanced creativity. While previous

experimental research has linked multicultural identities associated with two national cultures (e.g., China and United States) to innovation and flexible thinking (e.g., Leung, Maddux, Galinsky, & Chiu, 2008), the current work shows that the multicultural identities that stem from experiences within the same nation (i.e., mainstream American and African American cultures) can also increase creativity (Study 4). The current empirical findings complement historical examples of creativity that have been tied to *two-ness* in African Americans. For instance, Jean Paul Sartre praised award winning African American novelist Richard Wright for his ability to engage both mainstream American and African American culture in his writing. Sartre writes, "each of Wright's works contains what Baudelaire would have called 'a double simultaneous postulation'; each word refers to two contexts." Sartre concludes that this ability made Wright's writing "the pretext for a work of art" (as cited by Gilroy, 1993, p. 146).

Future research might explore the conditions or situations that allow individuals who are members of negatively stereotyped groups like African Americans to harness their multicultural identities for positive social and creative outcomes. An analysis of periods such as the Harlem Renaissance—an era of explosive creativity among African American artists, writers, and musicians in New York during the 1920s and 1930s—might provide insights into these conditions. Some historians claim, for example, that the catalyst for the Harlem Renaissance was the opportunity for artists like Zora Neale Hurston and Langston Hughes to embrace their cultural diversity and to express both their "their blackness and their 'Americanism'" (Hutchinson, 1995, p. 1). Such research might ask whether the structural and psychological conditions in the broader American society and within the community of Harlem that made it desirable and possible for African Americans to express their *two-ness* in positive social and creative ways can be leveraged within contemporary U.S. settings including schools and workplaces to improve intra- and intergroup outcomes (see Plaut, Thomas, & Goren, 2009)?

Positive Academic Consequences Associated With African American Identity

The present findings are consistent with conceptualizations of African American identity as multidimensional (e.g., Sellers, Smith, Shelton, Rowley, & Chavous, 1998). Accordingly, they demonstrate that two self-schemas, one associated with mainstream American and another with African American culture can facilitate positive academic consequences (see Oyserman, Kemmelmeier, Fryberg, Brosh, & Hart-Johnson, 2003). These findings also complement and extend past research suggesting the potential for the positive aspects of identity to protect against the negative academic consequences of pervasive and negative stereotypes. For example, Cohen and Garcia (2005, pilot study) observed that African American and Latino American high school students who strongly identified with their racial/ethnic group were buffered against the detrimental effects of collective threat on GPA. Likewise, Davis, Aronson, and Salinas (2006) found that under low threat, positive racial/ethnic identity attitudes predicted better performance on a verbal assessment in an African American sample. The positive academic consequences shown in the present research are consistent with these past studies that reveal the moderating effect that positive aspects of identity for groups like African

Americans, who are negatively stereotyped within academic domains, can have on academic performance.

Moreover, the present research aligns with findings in literatures on child development that link African American identity to advantageous outcomes. For example, African American parenting practices that are designed to foster racial/ethnic pride such as having African American cultural products in the home (e.g., African American children's literature) have been shown to correlate with better problem solving skills among preschool aged children (Caughy, O'Campo, Randolph, & Nickerson, 2002; see also Bowman & Howard, 1985). Furthermore, aspects of racial/ethnic identity such as a sense of connection to one's racial/ethnic group and associating academic attainment with one's racial/ethnic group have been shown to predict higher academic grades in low income African American and Latino American middle school students (Altschul, Oyserman, & Bybee, 2006). Further, research on health outcomes complement the academic benefits associated with positive aspects of African American identity. For instance, studies on health and well-being suggest that membership in a racial/ethnic minority group or minority status can serve protective functions and promote resilience (Abdou et al., 2010; Ryff, Keyes, & Hughes, 2003). Together, these past findings and the present research provide support for the idea that identity for African Americans, a negatively stereotyped group, can have positive consequences. One productive future direction might be to investigate how positive aspects of identity for African Americans, and other negatively stereotyped groups, can be mobilized to address long-standing racial-ethnic disparities in education and health (see Stephens, Brannon, Markus, & Nelson, 2015). More generally, this work might distinguish the conditions that allow identity in African Americans to function as a source of pride from those that allow it to function as a source of prejudice (see Markus, 2008).

Conclusion

The present studies offer the idea that U.S. educational settings can foster improved academic outcomes by creating inclusive multicultural environments that afford opportunities to engage with cultural ideas and practices associated with racial/ethnic minority groups. In the present research the practice of offering an academic course that included African American cultural ideas and practices and self-reported experiences of engaging with African American culture on U.S. college campuses enhanced academic outcomes that reflect persistence and performance on tasks and over time (self-reported GPA and advanced degree enrollment). Taken together, the current findings suggest an untapped potential for inclusive multicultural U.S. settings (e.g., schools, workplaces) to creatively and systematically leverage identity in negatively stereotyped and/or low power groups. They suggest that identity in such groups can serve as a resource—as a two-ness, second sight, or double vision—that can be mobilized to address social and educational disparities.

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