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Shifting Contexts and Shifting Identities: Campus Race-Related Experiences, Racial Identity, and Academic Motivation Among Black Students During the Transition to College

Tabbye M. Chavous[1] · Bridget L. Richardson[2] · Felecia R. Webb[1] · Gloryvee Fonseca-Bolorin[1] · Seanna Leath[1]

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Abstract This study examined Black college students' ($N = 309$, 70% women) racial identity beliefs over their freshman year. Using latent class cluster analysis, we identified clusters reflecting patterns of change and stability in students' racial centrality (importance of race to overall self-concept), private regard (group pride), and public regard (perceptions of others' views of Blacks). Racial identity change clusters were distinguished by campus experiences (racial discrimination, interracial friendships, and campus racial climate). Racial identity change clusters predicted end-of-year academic motivation (competence, affect, interest/curiosity, and persistence). Findings suggest the importance of examining critical transitions in identity development and highlight the deleterious effects of stigmatizing campus experiences on identity. Findings also highlight ways students' racial identity beliefs may help promote academic motivation.

✉ Bridget L. Richardson
bridgetr@umich.edu

Tabbye M. Chavous
tchavous@umich.edu

Felecia R. Webb
frwebb@umich.edu

Gloryvee Fonseca-Bolorin
gfonseca@umich.edu

Seanna Leath
scadel@umich.edu

[1] University of Michigan, 610 E. University Ave, Ann Arbor, MI 48109, USA

[2] University of Michigan, 530 Church Street, Ann Arbor, MI 48109, USA

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Introduction

Despite persistent racial group differences in college attainment, Black students are entering US higher educational institutions at higher levels than ever before, and a majority are attending predominantly White institutions (PWIs) (Guiffrida and Douthit 2010; KewalRamani et al. 2007). As such, the predominantly White college environment is an important space within which Black emerging adults' personal identity development is investigated. Scholars increasingly highlight racial identity processes in the college context as relevant to the academic and psychological adjustment of Black students. For instance, researchers document how heightened awareness of one's group as racially stigmatized can inhibit individual motivation and achievement, even among academically prepared students (Steele 1997). Other scholars demonstrate how Black students draw on their racial identity connectedness and heritage as cultural resources, promoting motivation, achievement, and campus engagement (e.g., White-Johnson 2012) and serving as an academic and psychological resilience factor in the face of experiencing racial stigma (e.g., Banks and Kohn-Wood 2007). Similarly, college student development theories posit that awareness and understanding of race and racism are relevant to the intellectual development and positive college adjustment of ethnic minority students, particularly within settings in which they are numerical and social minorities (Perry 1981; Torres 2003). Taken together, these studies suggest that Black students' constructions around the importance and meaning of their racial group in society have important implications for their college adjustment.

Despite increasing evidence that racial identity matters in Black students' college adjustment, there has been relatively less conceptual or empirical consideration of how race-related college experiences influence the development of Black students' racial identity beliefs. The lack of such research is surprising, given the popularity of developmental models of racial and ethnic identity that posit linkages between identity-related experiences and changes in identity beliefs (e.g., Cross 1991; Phinney 1989). The dearth of such research also is particularly striking, given research documenting the high salience of race in PWI settings and ways that Black students at PWIs commonly encounter challenges to their racial identities. For instance, Black students routinely report experiencing interpersonal racial discrimination and racial microaggressions, as well as hostile or unwelcoming racial climates in PWI settings (e.g., Fries-Britt and Griffin 2007; Solórzano et al. 2000). Such experiences also are evidenced in the recent movement of Black student protests at PWIs across the USA. What is less clear is how these contextual experiences influence students' racial identity beliefs, specifically their beliefs around the importance and meanings of their racial group membership in society.

In this study, we addressed these considerations by examining within-group variation in Black students' racial identity over their first-year college transition at predominantly White universities. We documented patterns of stability and change in students' beliefs about the importance of their racial group membership (centrality). We also documented stability and change in the meanings students attached to their racial identities: their personal affective beliefs, or racial pride (private regard) and beliefs about their racial group's societal status (public regard). In addition, we examined how students' identity change patterns related to their campus race-related experiences, both interpersonal (discrimination, intergroup friendships) and institutional (perceived campus racial climate) levels. Finally, we investigated how racial identity change related to students' end-of-year achievement motivation. This work highlights the vast diversity among Black students in their identities, experiences that may challenge students' identities, and how students' racial identities may support adaptive responses to these experiences.

College Transition as a Critical Period for Identity Development

We ground our examination of racial identity change among Black college students in the period of *emerging adulthood* (Arnett 2000), a period characterized by change and instability, consideration of multiple possibilities in academic and social domains, and a continuing process of personal identity exploration. For traditional-aged college students, college entry entails developmental and contextual transitions typical of entry into emerging adulthood. As adolescents move into adulthood, they experience greater demographic diversity in their contexts and are exposed to a wider range of individuals relative to younger and older individuals (Arnett 2000), and this is particularly likely among youth entering college settings (Tsai and Fuligni 2012). Furthermore, youth during this age period often view themselves as still "in process" or still developing a clear sense of and commitment to their personal and social identities, including belief systems around those identities (Arnett 2000; Jensen 2003). Similarly, college student development models posit that changes in worldview are a central part of cognitive development during the transition to college (e.g., Perry 1981, 1999), and 4-year college contexts expose students to numerous worldviews within the same environment (e.g., Pascarella and Terenzini 2005). Some exposures involve meaningful connections with student peers, including friendships and other academic and social interactions. Identity explorations are not always enjoyable, however. Personal disappointments and rejections in social and academic areas can shape individuals' identity values and worldviews (Arnett 2000). In particular, experiences that challenge students' identities and prior worldviews may cause them to reconsider their prior attitudes and beliefs, such that they work to assimilate this new information in order to maintain prior beliefs, and if they cannot do so, develop new belief systems more consistent with their new experiences (e.g., Gurin 1999). Despite increasing recognition of the emerging adulthood period and the college years as important influences on identity, relatively little research focuses on Black emerging adults, including students at PWIs and the unique contextual supports and challenges to racial identity development they may face.

Considering Change in Racial Identity Beliefs

For our study, we were particularly interested in how college contextual experiences may serve to affirm or challenge Black emerging adults' values and worldviews around their racial identities, specifically their beliefs around the importance of their racial group to their personal identity as well as the meanings they construct around their racial group. In our examination of racial identity, we used the Multidimensional Model of Racial Identity (MMRI) as a conceptual framework for describing individuals' cognitions around the importance and meanings of their racial group membership (Sellers et al. 1998). We considered two racial identity dimensions proposed by the MMRI that tap into importance and meaning of race: centrality and regard. *Racial centrality* is the overall importance of being Black to individuals' self-concept. *Racial regard* involves the affective meanings individuals attach to their racial group, including private regard (individuals' personal affect or pride in being Black)

and public regard (individuals' perceptions of how others in society view Blacks). The MMRI dimensions of centrality and regard can be seen as representing worldviews or lenses through which individuals experience and understand the relevance and meaning of their Black identity in their proximal and societal contexts, affecting individuals' attributions of and responses to identity-based experiences (Sellers et al. 1998). As such, these dimensions are particularly appropriate for considering how Black students' race-related experiences at PWIs shape both their racial identity beliefs and subsequent motivational responses in the college context.

However, little research has examined how contextual experiences influence change in racial identity beliefs. One reason may be that the MMRI dimensions of centrality and regard were conceptualized as relatively stable, especially as individuals enter adulthood, rather than situationally or contextually dependent dimensions of racial identity (Sellers et al. 1998), and indeed, research provides evidence of general stability in centrality, private regard, and public regard among young adult populations (e.g., Hurd et al. 2012; Seaton et al. 2012; Sellers et al. 1997; Sellers and Shelton 2003). However, a primary premise of the MMRI framework is that individuals' racial identity beliefs are a function of contextual experiences (e.g., socialization and interactions around race in developmental contexts of home, school, and community). Developmental models of racial and ethnic identity also emphasize race-related experiences as critical to racial and ethnic identity exploration and change in identity beliefs. For instance, Cross's Nigrescence stage model (1991) of African American racial identity described the roles of race-related "encounters," or experiences that cause individuals to question and eventually change previously held attitudes regarding their racial identities. These encounters could be negative (racial discrimination, heightened awareness of racial bias) or positive (intergroup friendships, experiencing a climate of racial inclusion). Similarly, Phinney's ethnic identity development model (e.g., Phinney 1989) describes how individuals move from unexplored, uncommitted identities to achieved, internalized identities through the process of identity exploration. In this model, individuals' exploration entails considering and reconsidering the meaning of one's group membership based, in part, on identity-based experiences and interactions. Supporting this model is research with racially and ethnically diverse emerging adults in college, indicating increases in ethnic identity exploration and commitment during the college years (Syed and Azmitia 2009; Tsai and Fuligni 2012). Research also finds that students who increased in identity exploration across the college years showed more change in described narratives around their ethnic identities, and their narratives were more likely to include experiences of prejudice or connection to culture relative to students who decreased or remained stable in exploration (Syed and Azmitia 2010). Thus, research suggests the relevance of race-related experiences in identity beliefs formation; however, these studies did not actually examine change in the content of students' identity beliefs about the importance or meaning of their groups nor did they examine specific race-related contextual experiences that may have led to identity beliefs change.

Race-Related Contextual Experiences in College and Racial Identity Change

For many Black students, entry into PWIs is a critical transition period during emerging adulthood, facilitating novel race-related encounters, experiences, and personal explorations that can shape and reshape how they think about their racial group (Baber 2012; Tsai and Fuligni 2012). However, Black students vary in the nature and degree of these experiences. Racial discrimination is one such experience, defined as experiences of race-based stigma, devaluation, and unfair treatment (Banks 2010; Lewis et al. 2013). Researchers consistently document Black students' reports of social isolation and interpersonal discrimination based on their race (e.g., microaggressions, stereotype-based treatment) (Fries-Britt and Griffin 2007; Greer and Chwalisz 2007; Solórzano et al. 2000; Swim et al. 2003). Studies also indicate deleterious impacts of such experiences on college outcomes, including sense of belonging, academic engagement, and performance (Cabrera et al. 1999; Smedley et al. 1993). Along with negative experiences, positive intergroup interactions, such as meaningful exposures to other racial groups (e.g., friendships), can lead to sociocognitive changes, for instance, enhanced perspective taking and critical thinking (Gurin 1999) that may lead to changes in identity beliefs. However, an important critique of intergroup contact studies is that they have tended to focus on majority/White students, considering non-White students only as subjects that affect changes in White students' racial attitudes and beliefs or enhance their diversity experiences in college (Shelton and Richeson 2006). Less research examining intergroup contact in college focuses on ethnic minority students and the potential impacts of intergroup interactions on ethnic minority students' beliefs around their own racial identities. Along with interpersonal experiences, perceived institutional norms around race may influence students' racial identity beliefs. In this study, we consider students' appraisals of the college racial climate or setting-level norms around race and intergroup relations on campus (Chavous 2005). Black students commonly report experiencing negative racial climates at PWIs, in the form of perceived inequalities in racial group treatment or negative institutional values around diversity (Allen 1992; Ancis et al. 2000; Bourke 2010; Guiffrida and Douthit 2010). Similarly, students' perceptions of the extent that interracial interactions are normative and encouraged in their college contexts have been related to their own

intergroup contact (Chavous 2005), their sense of connectedness to the academic setting, and achievement motivation (Byrd and Chavous 2012). The implications of such experiences for students' racial identity beliefs, however, have been less examined.

Addressing the above questions, we posit that race-related experiences on campus may influence students' racial identity beliefs about the importance and the meaning of race in different ways. Experiencing more frequent racial discrimination may cause changes in the normative importance of race to the individual (racial centrality), as a higher frequency of social interactions in which students are devalued or treated unfairly increases the chronic, or day-to-day, salience of race such that race eventually becomes more normatively salient, or more central to the self-concept (Sellers et al. 1998; Stryker and Serpe 1982). Similarly, perceiving a negative racial climate at the institutional level can increase the normative salience of race (centrality) to students; such climates convey negative messages about Blacks' value and contributions (e.g., reinforcing stereotypical views and low status) that may negatively affect students' own affective feelings of group pride (private regard). Perceiving campus norms of inclusion and institutional value for diversity may also influence individuals' system-level beliefs or worldviews around race, including their views and understandings of how the broader society regards their racial group (public regard).

Furthermore, the extent that students' campus experiences are consistent with their prior racial identity beliefs should influence whether they maintain or shift their beliefs in response to new experiences. Social identity theories suggest that for students entering college with lower racial centrality, repeated discrimination experiences would lead to increases in centrality over time (e.g., Sellers et al. 1998; Stryker and Serpe 1982). But for students who are already entering college with high centrality, it would take even more frequent discrimination experiences to make race more central to their identities (Sellers et al. 1998). Ethier and Deaux (1990, 1994), in their research with Latino/a students in selective PWI settings, posited that ethnic minority individuals entering new settings may experience ethnic identity threats (challenges to meanings of their identity through experiences of devaluation or stigma) when there is a mismatch between individuals' prior beliefs about their identity and the meanings attached to that identity in the new setting. The authors posit that individuals may respond to identity threat in various ways—by distancing themselves from the identity as they become more aware of stigma attached to the group (e.g., decreasing racial centrality and private regard) or increasing focus on positive group attributes if they wish to maintain a strong connection to the group (e.g., increasing private regard, maintaining high centrality, or increase in centrality).

Racial Identity Change and Academic Motivation

Black students' efforts to negotiate their racial identity beliefs in response to new identity experiences and identity threats at PWIs also may have implications for their academic motivation within these contexts. Scholars studying stigma effects assert that increased salience of a group's stigmatized status in educational contexts (e.g., through stereotype-based cues and treatment in academic settings) can undermine students' overall self-concept, especially those most invested in education, which is arguably the case for college students (e.g., Aronson 2002; Chang et al. 2011; Steele 1997). When experiencing identity threats such as racial discrimination and negative racial climate, in order to protect their self-concept students may disconnect their personal identity from the academic domain, termed dis-identification. Dis-identification may protect students psychologically but lead to decreased academic engagement and motivation (Cokley et al. 2011; Steele 1997). From this perspective, students increasing in racial centrality and decreasing in public regard due to racial stigma experiences on campus such as discrimination would be particularly vulnerable to such stigma effects. Similarly, researchers found that the congruence between Black students' racial identities and their perceived college racial climates related to stronger affective connections to the college context (Byrd and Chavous 2012). Specifically, the authors found a stronger, positive relationship between private regard beliefs and academic satisfaction among students perceiving positive racial climates and norms around intergroup interactions than for students perceiving more negative norms. This work would suggest that students decreasing in feelings of racial pride (private regard) as a function of experiencing their group as devalued would be more at risk for dis-identification. Finally, racial identity and college student development scholarship highlights the positive roles of a strong and positive racial group connection and awareness and understanding of racism in the academic motivation and adjustment of Black students (Chavous et al. 2003; Gurin 1999; Hope et al. 2013). Taken together, these latter bodies of work suggest that students with high and increasing racial centrality and private regard would show higher motivation and engagement than those with weaker and less positive racial identity connections, especially among those transitioning to a PWI context that may challenge their identities.

Current Study

We examine racial identity beliefs over the 1 year of college transition among a sample of Black students in PWIs. Given the dearth of research examining racial identity change, our first objective was to describe variation in how students changed in their racial identity beliefs around the importance of race to their overall identity (centrality), their personal group affect (private regard), and affective beliefs about societal views of their group (public regard). Using latent class cluster (LCC) analysis, we distinguished patterns of change and stability in students' centrality, private regard, and public regard beliefs. The MMRI conceptualizes these dimensions of racial identity as relatively stable but shaped by contextual experiences (Sellers et al. 1998); further, emerging adulthood and the transition to college represent "critical periods" for personal identity exploration and re-negotiation (Tsai and Fuligni 2012; Syed and Azmitia 2009). Thus, we expected that students would vary in stability and change, with shifts in racial identity beliefs for some students to the extent that their new experiences challenge or affirm their prior identity beliefs.

Drawing on social identity scholarship (e.g., Ethier and Deaux 1994; Sellers and Shelton 2003), we hypothesized that students' campus race-related experiences would relate to racial identity change in different ways across the identity dimensions. Experiencing more racial discrimination would relate to increased racial centrality and lower private regard—especially for those entering college with lower centrality and private regard—and to lower public regard. In contrast, we hypothesized that positive experiences—intergroup friendships and positive racial climate perceptions—would relate to maintaining high or increasing private regard and public regard. Also, we expected those experiencing negative racial climates would show increases in centrality and decreases in private and public regard. Finally, we considered how racial identity change over the 1 year related to students' academic motivation. Our reviewed scholarship suggests heightened awareness of racism can inhibit or promote motivation. As such, our examinations of centrality and public regard tested these possibilities empirically. In contrast, we hypothesized that decreases in positive group affect (private regard) would be associated with more negative academic motivation outcomes.

Method

Participants

The study sample included 309 Black freshmen and first-year transfer students (70% female) from 3, 4-year predominantly White public universities in the Midwestern USA. Two were large, suburban universities ($N = 138$, $N = 96$), and the third was a mid-sized suburban institution ($N = 75$). Participants are a subsample from the College Academic and Social Identities Study, a larger ongoing longitudinal study of college students' academic experiences and pathways. We examined two data waves from two cohorts (2012 and 2013) across the freshmen/first college year. Participants' averaged 18 years old (SD = 2.00), with median reported family household income between $45,000 and $54,999. Participants' reported pre-college racial composition (high school and neighborhood) ranged between 41 and 60% African American.

Procedures

Students were recruited through institutional registrar offices. At the research team's request, each university's registrar's office sent self-identified African American/Black freshman and 1st year transfer students recruitment emails explaining the study purpose. After consenting, participants completed an online survey in fall of their freshmen/first year (Time 1), and those completing the Time 1 survey were followed up in spring/summer following their freshmen/first year for a second online survey (Time 2). The survey questions covered topics of racial and gender identity, faculty and peer interactions, campus academic and social experiences, and academic beliefs. Participants were compensated $20 for completing the Time 1 survey and $25 the Time 2 survey. Of participants completing the Time 1 survey ($N = 546$), 57% completed the Time 2 survey ($N = 309$). We examined differences between participants with complete Time 1 and Time 2 data with those only completing Time 1 on key variables. There were no significant differences by gender, pre-college racial composition, household income, age, or Time 1 racial centrality and private regard. However, students completing both surveys reported lower Time 1 public regard than students who did not complete the Time 2 survey.

Measures

Racial Identity

Racial identity was measured with shortened racial centrality, private regard, and public regard subscales of the Multidimensional Inventory of Black Identity (MIBI, Sellers et al. 1997). Racial identity was measured at beginning of freshmen/first year (Time 1) and at end of freshmen/first year (Time 2). For each subscale, participants answered on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). Three items assessed *racial centrality*, or the extent being Black was important to participants' overall self-concept (e.g., "Being a member of my racial group is an important

reflection of who I am"). The *private regard* subscale included 3 items assessing feelings about being Black (e.g., "I am happy that I am a member of my racial group"). The *public regard* subscale included 4 items assessing respondents' views of how others in society view Blacks (e.g., "In general, other groups view my racial group in a positive manner"). Each subscale showed high internal consistency at Time 1 and Time 2: $\alpha = .82$ and .84 for centrality, $\alpha = .86$ and .85 for private regard, and $\alpha = .90$ and .87 for public regard, respectively.

Race-Related Contextual Experiences

Interpersonal racial discrimination was assessed at Time 2 using a modified Daily Racial Hassles Scale (Harrell 1997), a self-report measure of 15 discriminatory events. Participants indicated whether each event occurred at least once over the past academic year on campus and whether it was because of race. An example item includes: "Have you experienced being treated rudely or disrespectfully because of your race?" We created a discrimination variable representing the number of individuals' reported racial hassles on campus. *Meaningful intergroup contact* was assessed at Time 2 with two items ($r = .47$, $p < .001$) in which participants' reported numbers of White close friends and White friendly acquaintances on a 5-point scale, with item responses indicating "0," "1–2" "3–4," "5–6," or "more than 6." *Racial climate* perceptions of campus norms around intergroup interactions were assessed at Time 2 with a racial climate subscale (Chavous 2005). Participants responded to 7 items ($\alpha = .88$) on 7-point scale ranging from 1 (not true at all) to 7 (very true). An example item includes: "Students at this university like to have friends of different races/ethnicities."

Pre-college racial background At Time 1, participants reported the racial compositions of the neighborhood in which they lived the longest and of their high school on a 5-point scale, from 1 (less than 20% of my racial/ethnic background) to 5 (from 81 to 100% of my racial/ethnic background) ($r = .59$, $p < .001$). We created a composite variable with the two items, with higher scores indicating a higher percentage of African Americans in participants' pre-college contexts.

Academic Motivation

Academic competence ($\alpha = .72$) was assessed at Time 2 using a 4-item subscale asking participants to rate their academic abilities compared to other students at their university on a 5-point scale ranging from 1 (much less than the average college student, bottom 10%) to 5 (much more than the average college student, top 10%). For example, students rated their ability to "do well at coursework" and "do well in advanced math and science." At Time 2, participants' *positive academic affect* was assessed through 5 items ($\alpha = .81$) related to experiencing positive feelings about their academic life in the past year, e.g., how often participants felt "excited about what you were learning" or "pride in your academic performance." Similarly, the *negative academic affect* subscale included 6 items assessing negative feelings about academic life ($\alpha = .77$), e.g., how often participants felt "apprehensive about taking certain courses because they were too difficult" or "discouraged about your academic performance." The affect items were on a 5-point scale ranging from 1 (almost never) to 5 (very often). Finally, *academic engagement* was assessed at Time 2 using two subscales: academic interest/curiosity and persistence, both on a 5-point scale from 1 (not true of me at all) to 5 (very true of me). The interest/curiosity subscale included 3 items ($\alpha = .71$), e.g., "In classes, the first time my professors talk about a new topic, I listen very carefully." The persistence subscale ($\alpha = .76$) included 3 items, e.g., "When I run into a difficult question, I try even harder."

Grade Performance

Participants' reported grades in major-relevant classes, assessed at Time 2, were included as a control in primary analyses to account for students' reports of their grade performance quality in examining associations between their racial identity change and motivation variables. Reported grades were assessed by the item: "What were your grades in the classes most closely related to your major or intended major this past academic year?" As the larger study from which the sample was drawn was focused on disciplinary/major identity, the item was intended to assess how students were performing in courses that they viewed as relevant for their major and as such, were "higher stakes" courses. Participants responded on a 6-point scale ranging from 1 (mostly A's), 2 (mostly A's and B's), 3 (All B's), 4 (Mostly B's and C's), 5 (All C's) to 6 (mostly C's and below). On average participants in our sample reported that they received approximately mostly all B's ($M = 2.87$, SD = 1.22).

Results

Descriptive Analysis

Correlations among primary study variables Table 1 summarizes means, standard deviations, and correlations among racial identity variables at Time 1 and 2 and the Time 2 academic motivation outcomes. Findings were consistent with prior literature suggesting promotive functions of racial identity in relation to achievement motivation. Racial centrality at Times 1 and 2 showed small to moderate, positive

Table 1 Summary of means, standard deviations, and correlations among racial identity and academic motivation variables

		M (SD)	1	2	3	4	5	6	7	8	9	10
1	Centrality T1	5.22 (1.30)										
2	Private regard T1	5.79 (1.21)	.77***									
3	Public regard T1	3.39 (1.49)	.24***	.19**								
4	Centrality T2	5.09 (1.28)	.56***	.50***	.15*							
5	Private regard T2	5.58 (1.19)	.38***	.46***	.07	.72***						
6	Public regard T2	3.39 (1.39)	.13*	.05	.56***	.10	− .04					
7	Academic competence T2	3.57 (0.70)	.16**	.11*	.16**	.19**	.17**	.19**				
8	Positive academic affect T2	3.67 (0.71)	.12*	.11	.08	.35***	.36***	.08	.48***			
9	Negative academic affect T2	2.57 (0.79)	− .06	− .08	.06	− .11	− .21***	.09	− .19**	− .44***		
10	Academic interest/curiosity T2	3.59 (0.87)	.05	.12*	− .12*	.22***	.31***	− .15**	.25***	.46***	− .53***	
11	Academic persistence T2	3.84 (0.74)	.15**	.16**	.11*	.24***	.32***	.00	.50***	.51***	− .29***	.47***

*$p < .05$; **$p < .01$; ***$p < .001$

associations with Time 2 academic competence, positive academic affect, and academic persistence. Time 2 centrality positively related to Time 2 academic interest/curiosity. Private regard at Times 1 and 2 positively related to Time 2 academic competence, academic interest/curiosity, and academic persistence. Higher Time 2 private regard related to higher positive academic affect at Time 2 and to lower Time 2 negative academic affect. Finally, public regard scores at Time 1 and 2 were positively associated with Time 2 academic competence. Lower public regard at Time 1 and Time 2 related to higher Time 2 academic interest/curiosity. Public regard scores at Time 1 positively related to Time 2 academic persistence.

Results also indicated modest associations of Time 1 racial identity variables with students' pre-college backgrounds and with race-related experiences in the college context reported at Time 2; there were a greater number of significant associations of college context variables with Time 2 racial identity. Specifically, pre-college racial composition (higher percentage of African Americans) related to higher Time 1 and Time 2 racial centrality. With regard to race-related experiences on campus, participants' Time 1 centrality was not significantly associated with the reported interpersonal racial discrimination experiences on campus reported at Time 2, but Time 2 racial discrimination experiences were significantly and positively related to Time 2 centrality. Time 1 centrality was unrelated to racial climate perceptions of intergroup associations as normative on campus (reported at Time 2); but racial climate was positively related to Time 2 centrality. Time 1 centrality showed a moderate, negative correlation with Time 2 reported college intergroup friendships with Whites. For private regard, some similar patterns emerged. Time 1 private regard was not significantly associated with campus racial discrimination experiences reported at Time 2, but racial discrimination was positively related to Time 2 private regard. Also, Time 2 private regard showed a positive correlation with Time 2 racial climate. Finally, lower Time 1 and Time 2 public regard scores related to higher Time 2 reported discrimination. Perceiving a positive racial climate with regard to intergroup association at Time 2 was associated with higher Time 2 public regard.

Racial Identity Stability and Change over the College Year

We first explored stability and change in racial identity variables through bivariate correlations of Time 1 centrality, private regard, and public regard reported in early freshman year with end-of-year scores on those same variables assessed at Time 2 (see Table 1). Findings indicated moderately large associations between Time 1 and Time 2 variables.

Latent class cluster analysis approach To examine intra-individual change in each of our three racial identity variables from Time 1 to Time 2, we conducted latent class cluster (LCC) analyses (Vermunt and Magidson 2002) for each identity variable. LCC analysis is useful for organizing observed data into theoretically meaningful subgroups based on minimizing within-group (i.e., cluster) variation and maximizing the between-cluster variation (Clogg 1995; Vermunt and Magidson 2002). As a person-oriented approach, LCC analysis allows us to examine students' racial identity scores at multiple time points to distinguish individuals who have an orientation of change on those variables that differ from other students within the same sample. In addition to the conceptual advantages of applying a person-oriented approach, this analysis has several advantages compared to nonhierarchical clustering methods. For instance, LCC analysis is a probabilistic or model-based analysis. Thus, we were able to select the most optimal cluster solutions based on both theoretical and formal statistical criteria. We followed the convention used by Neblett et al. (2008) in order to assess the fit of the various latent class solutions. The fit indices we utilized in selecting the class solutions included the log-likelihood-based Bayesian information criterion, the BIC (LL), and the likelihood ratio Chi-square statistic (L^2); lower values on both indices indicate a better fit. The L^2 is also compared to a bootstrap distribution estimation to produce a significance level and bootstrap p value (Langeheine et al. 1996). A nonsignificant bootstrap p value ($p > .05$) indicates that the model is a better fit to the data than the other models. Additionally, we examined the bivariate residuals among the racial identity variables. A nonsignificant bivariate residual (less than 3.84) indicates that the relationships between the variables are fully accounted for in the model (Magidson and Vermunt 2004). Finally, we used a comparison bootstrap difference test to statistically compare various models.

Using LCC analysis, we were able to distinguish latent clusters that showed change and stability in centrality, private regard, and public regard. For each racial identity variable, six latent class models were tested (ranging from 1 to 6 classes), using the Time 1 and 2 variables. Summary statistics of the models are displayed in Table 2. For centrality, the 3-class model was deemed to have the best fit. The 3-class model had the smallest BIC (1935.78), a nonsignificant bootstrap p value (.21), a substantial reduction in L^2 (88.87%) as compared to the baseline model, and

Table 2 Model fit statistics for latent class cluster analyses of change classes for each racial identity variable

Model	BIC(LL)	L^2	*df*	Bootstrap *p* value	% Reduction in L^2	Maximum BVR
Centrality						
No direct effects						
One-class	2013.33	125.97	16	.00	.00	97.73
Two-class	1946.92	42.36	13	.00	66.37	6.51
Three-class	1935.78	14.02	10	.21	88.87	0.10
Four-class	1951.93	12.97	7	.15	89.70	0.04
Five-class	1962.67	6.52	4	.56	94.82	0.00
Six-class	1979.43	6.07	1	.54	95.18	0.00
Private regard						
No direct effects						
One-class	2013.95	118.63	16	.00	.00	59.64
Two-class	1956.30	43.79	13	.00	63.09	1.93
Three-class	1960.12	30.40	10	.00	74.37	0.26
Four-class	1959.33	12.42	7	.16	89.53	0.01
Five-class	1976.34	12.23	4	.11	89.69	0.01
Six-class	1993.43	12.12	1	.09	89.78	0.01
Public regard						
No direct effects						
One-class	2028.81	141.06	16	.00	.00	101.27
Two-class	1956.74	51.78	13	.00	63.29	4.91
Three-class	1935.56	13.41	10	.38	90.49	0.11
Four-class	1951.01	11.65	7	.33	91.74	0.01
Five-class	1964.32	7.77	4	.35	94.49	0.03
Six-class	1984.86	11.11	1	.23	92.12	0.01

BIC(LL) log-likelihood-based Bayesian information criterion, *L2* likelihood ratio Chi square, *BVR* bivariate residuals

adequate bivariate residuals (smaller than 3.84). Additionally, a comparison bootstrap difference test showed that the 3-class solution was significantly different than the 2-class solution ($p < .001$), indicating the 3-class solution had a unique cluster in comparison with the 2-class solution that should be explored. However, the 3-class solution was not significantly different than the 4-class solution ($p = .49$); thus, for parsimony we adopted the 3-class model as our final centrality change solution.

For private regard, the 4-class model was best fitting, with a relatively small BIC compared to other models (1959.33), a nonsignificant bootstrap p value (.16), a substantial reduction in L^2 (89.53%) as compared to the baseline model, and adequate bivariate residuals. Also, a comparison of the 4-class model to the 3-class model using a comparison bootstrap method difference test was significant ($p < .001$), indicating that the 4-class model included unique distinctions compared to the 3-class model. However, the 4-class model did not significantly differ from the 5-class model ($p = .57$); thus, for parsimony we adopted the 4-class model.

For public regard, the 3-class model had the best fit, with the smallest BIC (1935.56), a nonsignificant bootstrap p value (.38), a substantial reduction in L^2 (90.49%) as compared to the baseline model, and adequate bivariate residuals. Additionally, a comparison of the 3-class model to the 2-class model using a comparison bootstrap method difference test was significant ($p < .001$), indicating that the 3-class model was significantly different from the 2-class model. However, the 3-class model was not significantly different from the 4-class model ($p = .50$); thus, we considered parsimony and adopted the 3-class solution for use in further analyses.

For the latent class solution for each racial identity variable, clusters were labeled to indicate patterns of Time 1 and Time 2 scores for each racial identity subscale. For example, "high-stable" would indicate a cluster of participants with similarly high scores at Times 1 and 2, while "average-increase" indicates a cluster showing a statistically significant increase from average to higher scores across Times 1 and 2. After determining each latent class solution, we examined whether race-related contextual experiences distinguished cluster membership using multinomial logistic regression. This approach was appropriate for our goal of describing and testing hypotheses about predictive relationships between multiple continuous explanatory variables (race-related experiences) and our latent categorical-dependent variables (identity change clusters) (Long and Freese 2001). Finally, we used Multivariate Analyses of Co-Variance (MANCOVA) to examine whether latent cluster membership related to academic motivation outcomes (competence, positive and negative academic affect, interest/curiosity and persistence). We used MANCOVA to account for the correlations among motivation dependent variables, which ranged from $r = -.53$ to $r = .51$. College grade performance was included as the covariate.

Racial Centrality Change Clusters

The overall sample centrality mean did not differ significantly from Time 1 to Time 2 ($M = 5.22$, SD = 1.30 and $M = 5.09$, SD = 1.28, respectively) [t (308) = 1.85, $p = .07$]. But, latent class analyses revealed three distinct cluster groups describing participants' racial centrality from Time 1 to Time 2 (see Fig. 1 for summary of clusters). The largest cluster, "average-decrease" ($n = 205$), had average Time 1 racial centrality relative to the sample mean ($M = 5.20$, SD = 0.94) and significantly decreased at Time 2 ($M = 5.00$, SD = 0.93) [t (204) = 2.05, $p < .05$]. The next largest cluster, "high-stable" ($n = 59$), had high Time 1 centrality of 6.75 (SD = 0.38), and remained high at Time 2 ($M = 6.73$, SD = 0.40) [t (58) = .21, $p = .83$]. Finally, the "low-stable" centrality cluster ($n = 45$) had similarly low centrality at Time 1 ($M = 3.33$, SD = 0.88) and at Time 2 ($M = 3.35$, SD = 0.74) [t (44) = − .13, $p = .90$]. Gender [X^2 (2) = 1.53

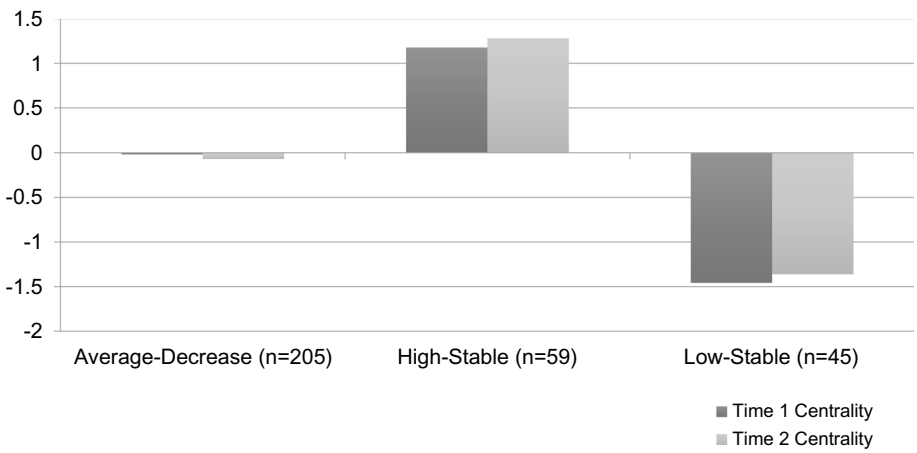

Fig. 1 Racial centrality change clusters using standardized means

Table 3 Summary of multinomial logistic regression for centrality change clusters

	B	SE	Wald	Df	Sig.	Exp(B)
Average-decrease						
Pre-college racial comp	− .43	.13	11.14	1	< .01	.65
Racial discrimination	− .06	.04	2.49	1	.12	.95
Intergroup contact	.18	.15	1.57	1	.21	1.20
Racial climate	− .21	.14	2.43	1	.12	.81
Low-stable						
Pre-college racial comp	− .51	.16	9.68	1	<.01	.60
Racial discrimination	− .07	.05	1.91	1	.17	.93
Intergroup contact	.48	.20	5.68	1	.02	1.61
Racial climate	− .53	.18	8.44	1	.00	.59

Model $X^2 = 34.56$; $p < .001$, − 2 log likelihood = 477.94, pseudo R^2 (Nagelkerke) = 0.13

The reference category is high-stable

$p = .46$] and university [X^2 (4) = .87, $p = .93$] were unrelated to centrality change cluster membership.

Racial centrality change clusters and race-related contextual experiences Using multinomial logistic regression, we examined whether pre-college racial context and campus race-related experiences predicted centrality change cluster membership. The final model was statistically significant [X^2 (8, $N = 296$) = 34.56, $p < .001$] (see Table 3). Centrality change cluster membership was distinguished by pre-college racial composition, intergroup contact with Whites, and racial climate perceptions. The high-stable cluster was examined as the reference group. Membership in the average-decrease and low-stable clusters related to coming from pre-college backgrounds with fewer African Americans compared to the high-stable cluster. A one-unit increase in pre-college background related to a .43 and .51 decrease in the relative log odds of being in the average-decrease and low-stable clusters, respectively, versus the high-stable cluster. Membership in the low-stable cluster related to more intergroup contact with Whites compared to the high-stable cluster. A one-unit increase in intergroup contact related to a .48 increase in the relative odds of being in the low-stable cluster versus the high-stable cluster. Having less positive perceptions of campus intergroup norms (racial climate) related to membership in the low-stable cluster compared to the high-stable cluster. A one-unit increase in racial climate perceptions related to .53 decrease in the relative log odds of being in the low-stable cluster compared to the high-stable cluster.

Racial centrality change clusters and academic motivation We conducted Multivariate Analysis of Co-Variance (MANCOVA) to examine racial centrality change cluster variation in Time 2 academic motivation variables (competence, positive and negative academic affect, interest/curiosity, and persistence). Results indicated a significant model ($F = 2.45$, $p < .01$, $N = 298$; see Table 4). Racial centrality change clusters varied in academic competence, with Tukey post hoc analyses indicating that the high-stable centrality cluster ($M = 3.88$, SD = 0.71) had significantly higher academic competence scores than did the average-decrease ($M = 3.53$, SD = 0.67) and low-stable ($M = 3.34$, SD = 0.63) clusters. Similarly, the high-stable centrality cluster ($M = 4.01$, SD = 0.70) had significantly higher positive academic affect than did the Average-decrease ($M = 3.64$, SD = 0.69) and low-stable ($M = 3.42$, SD = 0.63) clusters. Racial centrality change cluster was not related to negative academic affect. However, the high-stable cluster ($M = 3.90$, SD = 0.96) reported higher interest/curiosity

Table 4 Racial centrality change clusters and academic motivation outcomes

	Average-decrease ($n = 195$) *M* (SD)	High-stable ($n = 58$) *M* (SD)	Low-stable($n = 45$) *M* (SD)
Academic competence***	$3.53\ (.67)_a$	$3.88\ (.71)_b$	$3.34\ (.63)_a$
Positive academic affect***	$3.64\ (.69)_a$	$4.01\ (.70)_b$	$3.42\ (.63)_a$
Negative academic affect	$2.61\ (.75)_a$	$2.38\ (.96)_a$	$2.59\ (.68)_a$
Academic interest/curiosity**	$3.54\ (.81)_a$	$3.90\ (.96)_b$	$3.46\ (.85)_a$
Academic persistence**	$3.81\ (.72)_a$	$4.14\ (.67)_b$	$3.61\ (.78)_a$

Significant differences at the .05 level are denoted by differences in subscripts. College grade performance was included as a covariate

**$p < .01$; ***$p < .001$

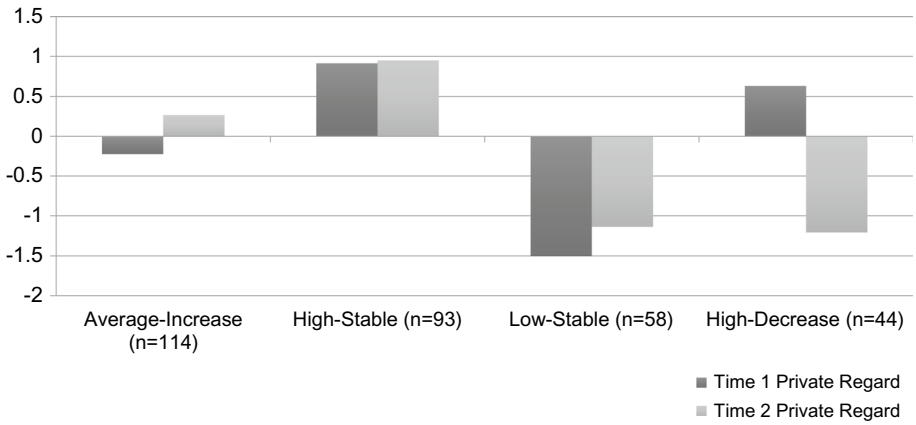

Fig. 2 Private regard change clusters using standardized means

compared to the average-decrease ($M = 3.54$, SD = 0.81) and low-stable ($M = 3.46$, SD = 0.85) clusters. Similarly, the high-stable cluster ($M = 4.14$, SD = 0.67) reported higher academic persistence than the average-decrease ($M = 3.81$, SD = 0.72) and low-stable ($M = 3.61$, SD = 0.78) clusters.

Private Regard Change Clusters

While generally high at both time points, the sample mean for private regard decreased significantly between Time 1 and Time 2 ($M = 5.79$, SD = 1.21 and $M = 5.58$, SD = 1.19, respectively) [t (308) = 2.91, $p < .01$]. LCC analysis yielded a 4-class solution describing private regard change and stability from Time 1 to Time 2 (see Fig. 2 for summary of clusters). The largest cluster, "average-increase" ($n = 114$) had average private regard at Time 1 compared to the sample mean and showed a significant increase at Time 2 ($M = 5.51$, SD = 0.62 and $M = 5.90$, SD = 0.70, respectively) [t (113) = − 4.34, $p < .001$]. The second cluster, "high-stable," ($n = 93$) showed a slight, significant decrease in private regard from Time 1 to Time 2 [t (92) = 3.82, $p < .001$] but still had high Time 1 and 2 private regard relative to the sample mean ($M = 6.89$, SD = 0.22 and $M = 6.71$, SD = 0.41, respectively). The "low-stable" cluster ($n = 58$) had lower Time 1 private regard scores ($M = 3.96$, SD = 1.01) and remained relatively low at Time 2 ($M = 4.24$, SD = 0.61) [t (57) = − 1.83, $p = .07$]. The smallest cluster, "high-decrease" ($n = 44$), had relatively high Time 1 private regard ($M = 6.55$, SD = 0.35) that significantly decreased at Time 2 ($M = 4.15$, SD = 0.62) [t (43) = 23.03, $p < .001$]. Gender related to private regard change cluster membership [$X^2(3) = 11.41$, $p = .01$], with women over-represented in the low-stable and high-decrease clusters as

Table 5 Summary of multinomial logistic regression for private regard change clusters

	B	SE	Wald	*df*	Sig.	Exp(B)
Average-increase						
Pre-college racial comp	− .23	.11	4.61	1	.03	.79
Racial discrimination	− .00	.03	.01	1	.94	1.00
Intergroup contact	.05	.14	.12	1	.73	1.05
Racial climate	-.13	.13	.93	1	.34	.88
Low-stable						
Pre-college racial comp	− .17	.13	1.64	1	.20	.84
Racial discrimination	− .11	.05	5.27	1	.02	.90
Intergroup contact	.07	.17		.16	.69	1.07
Racial climate	− .73	.17	18.77	1	< .01	.48
High-decrease						
Pre-college racial comp	− .21	.15	1.85	1	.17	.81
Racial discrimination	− .11	.05	4.39	1	.04	.89
Intergroup contact	− .35	.19	3.51	1	.06	.71
Racial climate	− .80	.19	17.84	1	< .01	.45

Model $X^2 = 56.88$; $p < .001$, − 2 log likelihood = 712.25, pseudo R^2 (Nagelkerke) = 0.19

The reference category is: high stable

compared to men, relative to what would be expected by chance. University setting was unrelated to private regard change cluster membership [$X^2(6) = 9.74$, $p = .14$].

Private regard change clusters and race-related contextual experiences Using multinomial logistic regression, we regressed private regard change cluster membership on race-related experiences variables (see Table 5). The high-stable cluster was the reference group. A significant model resulted [$X^2(12, N = 296) = 56.88$, $p < .001$]. Pre-college racial composition and campus race-related experiences related to private regard change cluster membership. Coming from neighborhoods and high schools with fewer African Americans distinguished the average-increase cluster from the high-stable one. A one-unit increase in African American pre-college racial composition related to a .23 decrease in the relative odds of being in the average-increase cluster versus the high-stable cluster. Racial discrimination and racial climate distinguished the low-stable and high-decrease clusters from the high-stable cluster. A one-unit increase in racial discrimination related to a .11 decrease in the relative log odds of being in the low-stable and the high-decrease clusters, compared to the high-stable cluster. Similarly, a one-unit increase in racial climate perceptions related to a .73 and .80 decrease in the relative log odds of being in the low-stable and high-decrease clusters, respectively, versus the high-stable cluster.

Private regard change clusters and academic motivation Conducting MANCOVA, we examined private regard cluster variation on academic motivation variables ($F = 2.60$, $p < .001$, $N = 298$; see Table 6). Tukey post hoc analyses indicated that private regard change clusters significantly varied on most academic outcomes. The high-stable ($M = 3.90$, SD = 0.68) cluster reported higher positive academic affect than did the low-stable ($M = 3.38$, SD = 0.62) and high-decrease ($M = 3.47$, SD = 0.59) clusters. The average-increase cluster ($M = 3.73$, SD = 0.73) had higher positive academic affect than the low-stable cluster. The high-stable ($M = 2.45$, SD = 0.89) and average-increase ($M = 2.43$, SD = 0.77) clusters reported significantly lower negative academic affect than the low-stable ($M = 2.85$, SD = 0.67) cluster. The high-stable ($M = 3.82$, SD = 0.92) and average-increase ($M = 3.71$, SD = 0.76) clusters reported significantly higher academic interest/curiosity than the low-stable ($M = 3.21$, SD = 0.82) and high-decrease

Table 6 Private regard change clusters and academic motivation outcomes

	Average-increase ($n = 111$) *M* (SD)	High-stable ($n = 90$) *M* (SD)	Low-stable ($n = 56$) *M* (SD)	High-decrease ($n = 41$) *M* (SD)
Academic competence^{+}	$3.49\ (.70)_{a}$	$3.74\ (.65)_{a}$	$3.47\ (.68)_{a}$	$3.51\ (.73)_{a}$
Positive academic affect***	$3.73\ (.73)_{a,b}$	$3.90\ (.68)_{b}$	$3.38\ (.62)_{c}$	$3.47\ (.59)_{a,c}$
Negative academic affect**	$2.43\ (.77)_{a}$	$2.45\ (.89)_{a}$	$2.85\ (.67)_{b}$	$2.76\ (.60)_{a,b}$
Academic interest/curiosity***	$3.71\ (.76)_{a}$	$3.82\ (.92)_{a}$	$3.21\ (.82)_{b}$	$3.32\ (.80)_{b}$
Academic persistence**	$3.94\ (.67)_{a}$	$3.97\ (.72)_{a}$	$3.53\ (.70)_{b}$	$3.73\ (.87)_{a,b}$

Significant differences at the .05 level are denoted by differences in subscripts. College grade performance was included as a covariate

$^{+}p<.1$; $^{**}p < .01$; $^{***}p < .001$

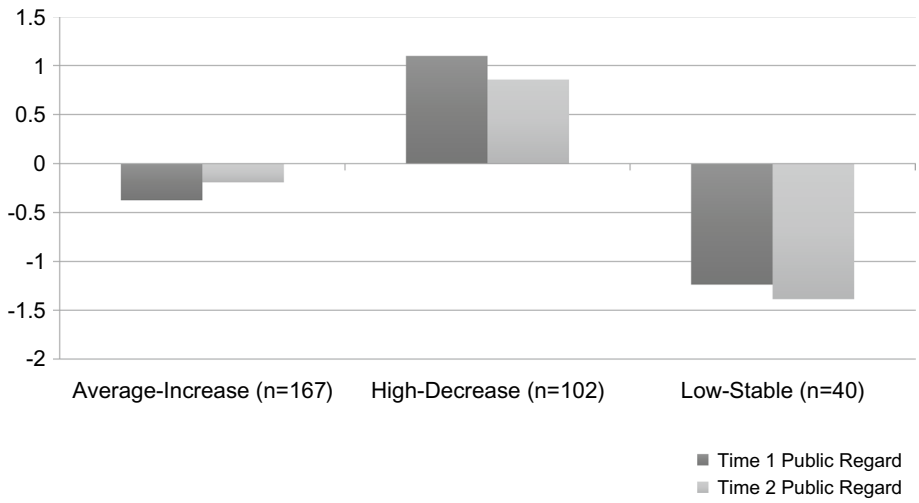

Fig. 3 Public regard change clusters using standardized means

(M = 3.32, SD = 0.80) clusters. Lastly, the high-stable (M = 3.97, SD = 0.72) and average-increase (M = 3.94, SD = 0.67) private regard clusters reported higher academic persistence compared to the low-stable private regard cluster (M = 3.53, SD = 0.70).

Public Regard Change Clusters

The public regard mean for the full sample did not differ significantly from Time 1 to Time 2 (M = 3.39, SD = 1.49 and M = 3.39, SD = 1.39, respectively) [t (308) = − .00, p = 1.00]. LCC analysis distinguished three cluster groups describing public regard change and stability from Time 1 to Time 2 (see Fig. 3). The largest cluster group, "average-increase" (n = 167), had average Time 1 public regard compared to the sample mean (M = 2.83, SD = 0.82) and showed a small, but significant increase at Time 2 (M = 3.12, SD = 0.93) [t (166) = − 2.74, p < .01]. Participants in the "high-decrease" (n = 102) cluster had a relatively high public regard mean at Time 1 (M = 5.02, SD = 1.02) and Time 2 (M = 4.58, SD = 1.18) relative to the sample mean, although decreasing significantly over time [t (101) = 3.08, p < .01]. Students in the "low-stable" cluster (n = 40) reported lower Time 1 public regard (M = 1.54, SD = 0.39) that was not significantly different at Time 2 (M = 1.46, SD = 0.42) [t (39) = 1.36, p = .18]. Gender was unrelated to public regard change cluster membership [X^2(2) = 1.74, p = .42]. Public regard change cluster membership related to university [X^2(4) = 22.78, p < .001] such that students attending the mid-sized university were more represented in the high-decrease cluster than students attending the second largest university. There was higher representation of students from the second largest university in the low-stable cluster than students attending the other two institutions.

Public regard change clusters and race-related contextual experiences Multinomial logistic regression results [X^2 (8, N = 296) = 21.10; p < .01] indicated that variation in racial discrimination related to public regard change cluster (see Table 7). The high-decrease cluster was the reference group. Experiencing more racial discrimination events distinguished the average-increase and low-stable clusters from the high-decrease cluster. A one-unit increase in discrimination related to a .10 increase and .18 increase, respectively, in the relative log odds of being in the average-increase and low-stable clusters compared to the high-decrease.

Public regard change clusters and academic motivation MANCOVA results indicated a significant model (F = 2.42,

Table 7 Summary of multinomial logistic regression for public regard change clusters

	B	SE	Wald	Df	Sig.	Exp(B)
Average-increase						
Pre-college racial comp	− .03	.10	.07	1	.80	.98
Racial discrimination	.10	.04	7.05	1	< .01	1.11
Intergroup contact	.03	.12	.05	1	.82	1.03
Racial climate	− .20	.11	3.16	1	.08	.82
Low-stable						
Pre-college racial comp	.03	.15	.03	1	.86	1.03
Racial discrimination	.18	.05	15.02	1	< .01	1.20
Intergroup contact	.18	.19	.91	1	.34	1.19
Racial climate	− .17	.17	1.04	1	.31	.84

Model X^2 = 21.10; p < .01, − 2 log likelihood = 535.19, pseudo R^2 (Nagelkerke) = 0.08

The reference category is high-decrease

Table 8 Public regard change clusters and academic motivation outcomes

	Average-increase (n = 163) M (SD)	High-decrease (n = 97) M (SD)	Low-stable (n = 38) M (SD)
Academic competence**	3.47 (.65)$_a$	3.75 (.75)$_b$	3.53 (.65)$_{a,b}$
Positive academic affect	3.60 (.67)$_a$	3.77 (.73)$_a$	3.76 (.73)$_a$
Negative academic affect	2.50 (.73)$_a$	2.67 (.83)$_a$	2.56 (.90)$_a$
Academic interest/curiosity	3.64 (.84)$_a$	3.46 (.89)$_a$	3.73 (.86)$_a$
Academic persistence*	3.75 (.73)$_a$	3.96 (.75)$_a$	3.97 (.69)$_a$

Significant differences at the .05 level are denoted by differences in subscripts. College grade performance was included as a covariate

*p < .05; **p < .01

$p < .01$, $N = 298$) (see Table 8). The high-decrease public regard cluster ($M = 3.75$, SD = 0.75) reported significantly higher academic competence than the average-increase cluster ($M = 3.47$, SD = 0.65). There was a significant cluster effect for persistence, but Tukey post hoc analyses did not show significant between-cluster differences. Positive and negative academic affect and interest/curiosity were not related to public regard change cluster.

Discussion

The transition to college is a critical period for identity development for all students. For many Black students, entry into predominantly White universities can present challenges and opportunities that shape their personal identities, including the importance and meanings they attach to their racial group membership. A critical contribution of our study is its illumination of how students vary in how their racial identity beliefs change, depending on the beliefs they hold as they enter college and the types of race-related experiences they encounter that affirm or challenges these beliefs. We used latent class cluster analysis, a person-oriented approach, to distinguish clusters of students showing varying patterns of change and stability in the importance of race to their personal identity (centrality), affective views of their racial group (private regard), and beliefs about how the broader society views their racial group (public regard). Findings support scholarship conceptualizing the relative stability of the racial centrality and regard dimensions of the Multidimensional Model of Racial Identity during young adulthood (Sellers et al. 1997, 1998), in that some clusters reflected students who reported similar levels of centrality, private regard, and public regard across the freshman year. However, consistent with the MMRI's emphasis on the roles of contextual experiences in informing the content of individuals' identity beliefs, literatures on racial identity development (e.g., Cross 1991), and emerging adulthood scholarship (Arnett 2000), we also identified clusters reflecting change from lower levels of endorsement to higher levels, and vice versa among a substantial proportion of students.

Our findings are consistent with studies suggesting that there is no one type of normative change in racial identity across early adulthood for ethnic minority college students (e.g., Hurd et al. 2012). Instead, results support our expectations that developmental and contextual transition periods involving new identity-based experiences can lead to affirmation of prior beliefs or identity beliefs change (Tsai and Fuligni 2012). In particular, findings suggest race-related experiences at interpersonal and institutional levels influenced students' beliefs around the importance (racial centrality) and meanings (private regard and public regard) of their racial group but in ways that differed across these racial identity dimensions. Finally, racial identity change and stability had implications for academic motivation, suggesting that challenges to students' personal beliefs and worldviews around their racial group membership can inhibit or promote academic adjustment.

Racial Identity Stability and Change in Context

Our study findings highlight the need to consider individual differences in Black students' racial identity beliefs as well as variation in their pre-college racial contexts in studying their college development. For instance, students' centrality change related to where students came from (racial composition of background) and to their college experiences. Students in the average-decrease and low-stable centrality clusters came from neighborhood and high school contexts with fewer African Americans compared to students with higher centrality across both time points (high-stable). Those in the high-stable cluster may have developed a stronger connection to their Black identity because their daily experiences were grounded in settings with other in-group members. Those in the average-decrease and low-stable clusters came from more racially diverse or predominantly White pre-college contexts, and their interactions within these contexts may have resulted in race being relatively less salient to their self-definitions as they entered college.

Accounting for pre-college context, identity-based experiences on campus related to centrality stability and change. Students with low, stable centrality reported having more close White friendships and acquaintances than those with higher, stable centrality. However, students in the high-stable cluster reported more positive racial climate perceptions. The college racial climate measure captured students' perceptions of the extent that intergroup interactions are valued and normatively occur on campus. As such, those entering college with higher centrality may be more attuned to such norms relative to students entering college with lower centrality, even if they had fewer intergroup friendships themselves. For students entering college with lower centrality, having more contact with Whites and perceiving less institutional emphasis on intergroup interactions may have been aligned with their initial racial centrality beliefs, making race less chronically salient for them, and allowing them to continue to view their race as relatively less important to their self-concept. These findings point to the importance of acknowledging variation and complexity in Black student identity, including acknowledging that while race is very important to many Black students, it is not important in the same way to all. In addition to informing theory and research, such findings highlight the challenge for many college institutions to provide environments that support Black students in all their diversity. That is, colleges must learn to effectively strike a balance between emphasizing

and affirming race in ways that support Black students without doing so in a way that homogenizes them or assumes they view their race as their only identity or only important identity.

Similar to centrality findings, having higher, stable private regard related to coming from more African American pre-college contexts than those who came to college with average private regard. Also, having higher, stable private regard related to perceiving more positive intergroup racial climate norms relative to those with lower or decreasing private regard. The overall similarity with centrality patterns is not surprising, given the fairly high correlations between centrality and private regard at both time points. However, a distinguishing feature is that racial discrimination helped explain private regard cluster membership, while discrimination was unrelated to centrality change, demonstrating the utility of examining how race-related experiences relate to different changes for different types of racial identity beliefs. Students with high and stable private regard reported more discrimination experiences compared to those lower or decreasing in private regard. Consistent with the Ethier and Deaux (1994) social identity threat framework, students with very high private regard may have responded to perceived discrimination by emphasizing positive group attributes.

While we expected that perceptions of campus racial norms (racial climate) would be most influential on public regard views, findings suggest that interpersonal experiences of racial stigma and bias (racial discrimination) were the strongest influences on students' views of how the broader society regards their racial group. Students in the low-stable and average-increase public regard clusters reported experiencing more discrimination events than those who started with higher public regard and decreased over time (high-decrease). The finding is consistent with the idea that for students entering college with more negative worldviews about society's regard for Blacks (such as for low-stable cluster), experiencing discrimination is consistent with their initial beliefs, resulting in their maintaining low public regard over time (Seaton et al. 2009; Spencer et al. 2003). Also, although students in the average-increase cluster reported higher public regard at the end of the college year relative to their public regard at college entry, their Time 2 public regard was still around the sample mean level and lower than that of the high-decrease cluster. This may help explain why the average-increase cluster reported more discrimination than the high-decrease cluster. As the high-decrease cluster had very high public regard relative to other students in the sample, the decrease in public regard for students in this cluster may reflect a general increased awareness of Blacks' societal status as they entered their predominantly White college contexts. In sum, the findings around public regard change suggest that Black students' daily proximal experiences with peers, faculty, and other campus actors are important areas of study for identity scholarship and college student development scholarship. These interactions also would be important potential targets for practice and intervention, e.g., efforts to promote positive intergroup engagement opportunities, bias awareness, and reduction efforts.

Racial Identity Change and Achievement Motivation

Achievement motivation scholarship posits that Black students' identification with their racial group can function in ways that inhibit (Crocker and Major 1989) and enhance motivation (Chavous et al. 2003). Our study supports both perspectives, suggesting different implications for students reporting change and stability on our assessed racial identity dimensions. Students who viewed their race to be an important identity and continued to view it as such (high-stable centrality) reported more positive academic outcomes overall compared to students who placed less importance on their racial group membership (low-stable) and those who decreased in importance over time (average-decrease). Students who entered college with low or average centrality and remained low or decreased in centrality had more negative outcomes for academic competence, positive academic affect, academic interest/curiosity, and academic persistence relative to students who entered college with high centrality and remained high.

Private regard findings were similar. While our sample's private regard was high overall, students with higher, stable private regard and those who increased showed more positive motivation (academic affect, interest/curiosity, and persistence) than those with lower or decreasing private regard. The findings are consistent with research suggesting motivational benefits of a positive racial group attachment for ethnic minority students' achievement motivation (e.g., Chavous et al. 2003; White-Johnson 2012). In contrast, students entering college with lower centrality or private regard, or who decreased in centrality and private regard in PWI contexts in which race is highly salient, may be more likely to experience racial identity threats (Ethier and Deaux 1994) that can undermine their engagement and motivation.

Finally, students entering college with higher public regard but who decreased (high-decrease) had higher academic competence compared to students with average, increasing public regard. As noted previously, the high-decrease cluster still had higher public regard at Time 2 than other clusters (an average of about mid-point on a 7-point scale, compared to other clusters' means closer to the subscale's lower end). Furthermore, the high-decrease students reported less frequent discrimination experiences, which may have still allowed them to maintain some of their previous positive beliefs about society's view of their group. Having moderate public regard views also may reflect these students' somewhat positive view of their group's societal

status along with some awareness of societal bias. This type of perspective may have played a promotive role with regard to students' engagement in the college context and specifically, their feelings of competence around their academics.

Limitations and Considerations

Our study represents an important exploration of the nature of racial identity change among Black emerging adults, potential mechanisms explaining stability and change, and implications of change for adjustment. In interpreting our findings, we note a study limitation is the sample gender distribution (70% women), although representative of Black student populations on the study campuses. As women and men were represented disproportionately in some clusters, future work might consider gender variation in students' race and gender campus experiences that may link to variation in racial identity change. Another consideration is that our study universities were mid-sized to large, selective, 4-year, public institutions; so findings cannot be generalized across PWIs. However, there was significant demographic diversity across and within each institution. Also, in examining intergroup friendships, we assessed only contact with Whites, not allowing consideration of intergroup interactions with other racial/ethnic groups or of intra-group experiences with other Black students that could elicit changes in racial identity relevant to motivation and adjustment. Finally, our examination of racial identity change was focused on a 1-year period because of our interest in the college transition year. While some patterns of change related to more positive academic motivation outcomes at year's end, it is unclear whether changes would be sustained or adaptive across longer periods. Future research should examine longer-term trajectories of racial identity, campus experiences, and academic outcomes.

Conclusions

In recent years, buoyed by social media campaigns, there has been a surge in Black students at predominantly White universities across the nation documenting academic and social encounters of race-related marginalization. For instance, students attending the University of Missouri, University of Michigan, Harvard, Yale, UCLA, UC Berkeley, and Georgetown University among others, describe experiences related to those we assessed in this study, such as being ignored or devalued in academic settings and racially profiled and harassed, and skepticism regarding their institutions' diversity values. Given a renewed spotlight on diversity and campus climate in US higher education, our study findings have implications for development and success of Black college students. Research on the challenges and benefits of diversity on PWI campuses emphasizes sociocognitive benefits of meaningful, positive intergroup interactions—including impacts on social identity beliefs—but has mainly focused on White students (Gurin 1999). Our findings demonstrate the importance of considering identity development processes of ethnic minority students. Such theory and research should include a focus on campus context, including how day-to-day experiences of racial marginalization or inclusion may shape students' racial identities in ways that influence their college motivation and adjustment.

Our findings also make salient the challenge of shifting the dominant culture within PWIs to be inclusive and supportive of all students. While researchers have focused on strategies such as increasing structural and demographic diversity in student and faculty populations (e.g., Hurtado et al. 1999), it is also important to consider individuals and units (administrators, faculty and staff) within the college environment and their programs and practices (Harper and Hurtado 2007; Torres et al. 2009). Thus, our recommendations focus on these significant individuals and units and how they can help create inclusive environments—where students are able to express and affirm their identities in ways that promote engagement and learning. That is, university leadership should implement and support campus programmatic efforts and encourage pedagogical practices that signal the value of diverse identities and inclusion and also encourage meaningful engagement of students from different racial and ethnic backgrounds (both within and outside classroom contexts).

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Compliance with Ethical Standards

Conflict of interest The authors do not have a conflict of interest with the organization that sponsored the research. The first author has full control of all primary data and will allow the journal to review data if requested.

References

Allen, W. R. (1992). The color of success: African-American college student outcomes at predominantly White and historically Black public colleges and universities. *Harvard Educational Review, 62*(1), 26–44. doi:10.17763/haer.62.1.wv5627665007v701.

Ancis, J. R., Sedlacek, W. E., & Mohr, J. J. (2000). Student perceptions of campus cultural climate by race. *Journal of Counseling and Development, 78*(2), 180–185. doi:10.1002/j.1556-6676.2000.tb02576.x.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55,* 469–480. doi:10.1037/0003-066X.55.5.469.

Aronson, J. (2002). Stereotype threat: Contending and coping with unnerving expectations. In J. Aronson (Ed.), *Improving academic achievement: Impact of psychological factors on education*

(pp. 279–301). San Diego, CA: Academic Press. doi:10.1016/B978-012064455-1/50017-8.

Baber, L. D. (2012). A qualitative inquiry on the multidimensional racial development among first-year African American college students attending a predominantly White institution. *The Journal of Negro Education, 81*(1), 67–81. doi:10.7709/jnegroeducation.81.1.0067.

Banks, K. H. (2010). African American college students' experience of racial discrimination and the role of college hassles. *Journal of College Student Development, 51*(1), 23–34. doi:10.1353/csd.0.0115.

Banks, K. H., & Kohn-Wood, L. P. (2007). The influence of racial identity profiles on the relationship between racial discrimination and depressive symptoms. *Journal of Black Psychology, 33,* 331–354. doi:10.1177/0095798407302540.

Bourke, B. (2010). Experiences of Black students in multiple cultural spaces at a predominantly White institution. *Journal of Diversity in Higher Education, 3*(2), 126–135. doi:10.1037/a0019025.

Byrd, C. M., & Chavous, T. M. (2012). The congruence between African American students' racial identity beliefs and their academic climates: Implications for academic motivation and achievement. In J. M. Sullivan & A. M. Esmail (Eds.), *African American racial identity: An interdisciplinary exploration of the racial and cultural dimensions of the black experience* (pp. 345–369). Lanham, MD: Lexington Books/Rowman & Littlefield.

Cabrera, A. F., Nora, A., Terenzini, P. T., Pascarella, E., & Hagedorn, L. S. (1999). Campus racial climate and the adjustment of students to college: A comparison between White students and African-American students. *Journal of Higher Education, 70*(2), 134–160. doi:10.2307/2649125.

Chang, M. J., Eagan, M. K., Lin, M. H., & Hurtado, S. (2011). Considering the impact of racial stigmas and science identity: Persistence among biomedical and behavioral science aspirants. *The Journal of Higher Education, 82*(5), 564–596. doi:10.1353/jhe.2011.0030.

Chavous, T. M. (2005). An intergroup contact-theory framework for evaluating racial climate on predominantly white college campuses. *American Journal of Community Psychology, 36*, 239–257. doi:10.1007/s10464-005-8623-1.

Chavous, T. M., Bernat, D. H., Schmeelk-Cone, K., Caldwell, C. H., Kohn-Wood, L., & Zimmerman, M. A. (2003). Racial identity and academic attainment among African American adolescents. *Child Development, 74*(4), 1076–1090. doi:10.1111/1467-8624.00593.

Clogg, C. C. (1995). Latent class models. In G. Arminger, C. C. Clogg, & M. E. Sobel (Eds.), *Handbook of statistical modeling for the social and behavioral sciences* (pp. 311–359). NY: Plenum Press. doi:10.1007/978-1-4899-1292-3.

Cokley, K., McClain, S., Jones, M., & Johnson, S. (2011). A preliminary investigation of academic disidentification, racial identity, and academic achievement among African American adolescents. *The High School Journal, 95*(2), 54–68. doi:10.1353/hsj.2012.0003.

Crocker, J., & Major, B. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review, 96*(4), 608–630. doi:10.1037/0033-295X.96.4.608.

Cross, Jr., W. E. (1991). *Shades of Black: Diversity of African American identity*. Philadelphia: Temple University Press. Retrieved from http://web.b.ebscohost.com.proxy.lib.umich.edu/ehost/detail/detail?vid=33&sid=d0cec9aa-212c-4471-bb56-8b055e62151b%40sessionmgr102&hid=107&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#AN=1991-97452-000&db=psyh.

Ethier, K. A., & Deaux, K. (1990). Hispanics in Ivy: Assessing identity and perceived threat. *Sex Roles, 22,* 427–440. doi:10.1007/BF00288162.

Ethier, K. A., & Deaux, K. (1994). Negotiating social identity when contexts change: Maintaining identification and responding to threat. *Journal of Personality and Social Psychology, 67,* 243–251. doi:10.1037/0022-3514.67.2.243.

Fries-Britt, S., & Griffin, K. (2007). Black box: How high-achieving Blacks resist stereotypes about Black Americans. *Journal of College Student Development, 48*(5), 509–524. doi:10.1353/csd.2007.0048.

Greer, T., & Chwalisz, K. (2007). Minority-related stressors and coping processes among African American college students. *Journal of College Student Development, 48*(4), 388–404. doi:10.1353/csd.2007.0037.

Guiffrida, D. A., & Douthit, K. Z. (2010). The Black student experience at predominantly White colleges: Implications for school and college counselors. *Journal of Counseling & Development, 88*(3), 311–318. doi:10.1002/j.1556-6678.2010.tb00027.x.

Gurin, P. (1999). New research on the benefits of diversity in college and beyond: An empirical analysis. *Diversity Digest*, 5/15. Washington, DC: Association of American Colleges and Universities. Retrieved from http://www.diversityweb.org/Digest/Sp99/benefits.html

Harper, S. R., & Hurtado, S. (2007). Nine themes in campus racial climates and implications for institutional transformation. *New Directions for Student Services, 2007*(120), 7–24. doi:10.1002/ss.254.

Hope, E. C., Chavous, T. M., Jagers, R. J., & Sellers, R. M. (2013). Connecting self-esteem and achievement: Diversity in academic identification and dis-identification patterns among black college students. *American Educational Research Journal, 50*(5), 1122–1151. doi:10.3102/0002831213500333.

Hurd, N. M., Stoddard, S. A., & Zimmerman, M. A. (2012). Neighborhoods, social support, and African American adolescents' mental health outcomes: A multilevel path analysis. *Child Development, 84*(3), 858–874. doi:10.1111/cdev.12018.

Hurtado, S., Milem, J., Clayton-Pederson, A., & Allen, W. (1999). *Enacting diverse learning environments: Improving the climate for racial/ethnic diversity in higher education*. ASHE-ERIC Higher Education Report, Washington: DC. Retrieved from http://eric.ed.gov.proxy.lib.umich.edu/?id=ED430514

Jensen, L. A. (2003). Coming of age in a multicultural world: Globalization and adolescent cultural identity formation. *Applied Developmental Science, 7*(3), 189–196. doi:10.1207/S1532480XADS0703_10.

KewalRamani, A., Gilbertson, L., Fox, M. & Provasnik, S. (2007). Status and trends in the education of racial and ethnic minorities (NCES 2007-039). Washington, DC: National Center for Education Statistics, US Department of Education. Retrieved from http://nces.ed.gov/pubsearch.

Langeheine, R., Pannekoek, J., & Van de Pol, F. (1996). Bootstrapping goodness-of-fit measures in categorical data analysis. *Sociological Methods & Research, 24,* 492–516. doi:10.1177/0049124196024004004.

Lewis, J. A., Mendenall, R., Harwood, S. A., & Huntt, M. B. (2013). Coping with gendered racial microaggressions among Black women college students. *Journal of African American Studies, 17*(1), 51–73. doi:10.1007/s12111-012-9219-0.

Long, J. S., & Freese, J. (2001). *Regression models for categorical dependent variables*. Texas: A Stata Press Publication. Retrieved from https://scholar-google-com.proxy.lib.umich.edu/scholar?q=Long%2C+J.+S.%2C+%26+Freese%2C+J.+%282001%29.+Regression+models+for+categorical+dependent+variables.+Texas%3A+A+Stata+Press+Publication.&btnG=&hl=en&as_sdt=0%2C23

Magidson, J., & Vermunt, J. K. (2004). Latent class models. In D.W. Kaplan (Ed.), *The Sage handbook of quantitative methodology for the social sciences* (pp. 175–198). Thousand Oaks, CA: Sage. Retrieved from https://books.google.com/books?hl=en&lr=&id=k1M34kAj4VwC&oi=fnd&pg=PA175&dq=+Latent+class+mo

dels&ots=cfaxV9Qk2L&sig=offPCV-AxYnvVAQTy24tXtasWaw#v=onepage&q=Latent%20class%20models&f=false

Neblett, E. W., White, R. L., Ford, K. R., Philip, C. L., Nguyên, H. X., & Sellers, R. M. (2008). Patterns of racial socialization and psychological adjustment: Can parental communications about race reduce the impact of racial discrimination? *Journal of Research on Adolescence, 18*(3), 477–515. doi:10.1111/j.1532-7795.2008.00568.x.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (Vol. 2). San Francisco, CA: Jossey-Bass.

Perry, W. G., Jr. (1981). Cognitive and ethical growth: The making of meaning. In A. W. Chickering (Ed.), *The modern American college: Responding to the new realities of diverse students and a changing society* (pp. 76–116). San Francisco, CA: Jossey-Bass. Retrieved from http://www.josseybass.com

Perry, W. G., Jr. (1999). *Forms of intellectual and ethical development in the college years: A scheme*. San Francisco, CA: Jossey-Bass. Retrieved from http://www.josseybass.com

Phinney, J. S. (1989). Stages of ethnic identity development in minority group adolescents. *The Journal of Early Adolescence, 9*(1–2), 34–49. doi:10.1177/0272431689091004.

Seaton, E. K., Yip, T., Morgan-Lopez, A., & Sellers, R. M. (2012). Racial discrimination and racial socialization as predictors of African American adolescents' racial identity development using latent transition analysis. *Developmental Psychology, 48*(2), 448–458. doi:10.1037/a0025328.

Seaton, E., Yip, T., & Sellers, R. (2009). A longitudinal examination of racial identity and racial discrimination among African American adolescents. *Child Development, 80*(2), 406–417. doi:10.1111/j.1467-8624.2009.01268.x.

Sellers, R. M., Rowley, S. A., Chavous, T. M., Shelton, J. N., & Smith, M. A. (1997). Multidimensional inventory of Black identity: A preliminary investigation of reliability and construct validity. *Journal of Personality and Social Psychology, 73*(4), 805–815. doi:10.1037/0022-3514.73.4.805.

Sellers, R. M., & Shelton, J. N. (2003). The role of racial identity in perceived discrimination. *Journal of Personality and Social Psychology, 84*(5), 1079–1092. doi:10.1037/0022-3514.84.5.1079.

Sellers, R. M., Smith, M. A., Shelton, J. N., Rowley, S. A., & Chavous, T. M. (1998). Multidimensional model of racial identity: A reconceptualization of African American racial identity. *Personality and Social Psychology Review, 2*(1), 18–39. doi:10.1207/s15327957pspr0201_2.

Shelton, J. N., & Richeson, J. A. (2006). Ethnic minorities' racial attitudes and contact experiences with white people. *Cultural Diversity and Ethnic Minority Psychology, 12*(1), 149–164. doi:10.1037/1099-9809.12.1.149.

Smedley, B., Myers, H., & Harrell, S. (1993). Minority-status stresses and the college adjustment of ethnic minority freshman. *The Journal of Higher Education, 64*(4), 434–452. doi:10.2307/2960051.

Solórzano, D., Ceja, M., & Yosso, T. (2000). Critical race theory, racial microaggressions, and campus racial climate: The experiences of African American college students. *Journal of Negro Education, 69*(1/2), 60-73. Retrieved from http://www.jstor.org.proxy.lib.umich.edu/stable/2696265

Spencer, M. B., Fegley, S. G., & Harpalani, V. (2003). A theoretical and empirical examination of identity as coping: Linking coping resources to the self-processes of African American youth. *Applied Developmental Science, 7*(3), 181–188. doi:10.1207/S1532480XADS0703_9.

Steele, C. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52*(6), 613–629. doi:10.1037/0003-066X.52.6.613.

Stryker, S., & Serpe, R. T. (1982). Commitment, identity salience, and role behavior: Theory and research example. *Personality, Roles, and Social Behavior,* 199-218. doi: 10.1007/978-1-4613-9469-3_7

Swim, J. K., Hyers, L. L., Cohen, L. L., Fitzgerald, D. C., & Bylsma, W. H. (2003). African American college students' experiences with everyday racism: Characteristics of and responses to these incidents. *Journal of Black Psychology, 29,* 38–67. doi:10.1177/0095798402239228.

Syed, M., & Azmitia, M. (2009). Longitudinal trajectories of ethnic identity during the college years. *Journal of Research on Adolescence, 19*(4), 601–624. doi:10.1111/j.1532-7795.2009.00609.x.

Syed, M., & Azmitia, M. (2010). Narrative and ethnic identity exploration: a longitudinal account of emerging adults' ethnicity-related experiences. *Developmental Psychology, 46*(1), 208–219. doi:10.1037/a0017825.

Torres, V. (2003). Influences on ethnic identity development of Latino college students in the first two years of college. *Journal of College Student Development, 44*(4), 532–547. doi:10.1353/csd.2003.0044.

Torres, V., Jones, S. R., & Renn, K. A. (2009). Identity development theories in student affairs: Origins, current status, and new approaches. *Journal of College Student Development, 50*(6), 577–596. doi:10.1353/csd.0.0102.

Tsai, K. M., & Fuligni, A. J. (2012). Change in ethnic identity across the college transition. *Developmental Psychology, 48*(1), 56–64. doi:10.1037/a0025678.

Vermunt, J. K., & Magidson, J. (2002). Latent class cluster analysis. *Applied latent class analysis*, *11*, 89-106. Retrieved from https://books.google.com/books?hl=en&lr=&id=-0xrbRao0SsC&oi=fnd&pg=PA89&dq=Vermunt,+J.+K.,+%26+Magidson,+J.+(2002).+Latent+class+cluster+analysis.+Applied+latent+class+analysis,+11,+89-106.&ots=Ou4w384gnR&sig=BRsSeSdhdKaP6dHGMHDTrjo4TkU#v=onepage&q&f=false

White-Johnson, R. (2012). Prosocial involvement among African American young adults: Considering racial discrimination and racial identity. *Journal of Black Psychology, 38*(3), 313–341. doi:10.1177/0095798411420429.