Racial Attitude Change during the College Years

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Abstract

This research utilizes the Wabash National Study of Liberal Arts Education (WNS) to analyze changes in college students' racial attitudes over time. Findings from this analysis indicate that, contrary to expectation, the majority of students do not report more progressive racial attitudes at later points in college. We argue that students' differential experiences with diversity, in both informal and formal settings during the college years, can explain some of the variation in racial attitudes. Drawing on the social psychological literature and the empirical research on the impact of postsecondary education, we identify four key experiences associated with an increased commitment to promote racial understanding: interracial friendship formation, discussions with other-race peers, discussions with faculty members whose views differ from the respondent, and taking courses focusing on diverse cultures or perspectives. The main implications of this study are: first, that a college education does not automatically bestow more open attitudes on issues of race and ethnicity, and second, that postsecondary institutions can take actionable steps to create campus environments that foster more positive racial attitudes.

Purpose of the Study

Half a century of research on racial attitudes has led to conflicting conclusions on the role of postsecondary education in ameliorating prejudice. While numerous studies of racial attitudes indicate that higher levels of education are associated with lower levels of racial prejudice (Coenders and Scheepers 2003; Hello et al. 2006; Quinley and Glock 1979), some argue that the college-educated remain prejudiced but are more sophisticated in how they express their views (Jackman 1978). Missing from many of these studies is a careful evaluation of the day-to-day experiences of college students and an understanding of the mechanisms that drive differences in attitude change within and between institutions of higher education. In an effort to move beyond models that do not fully account for educational environments, the present study focuses on the postsecondary experiences most closely associated with racial attitude change. This study improves upon previous research by applying insights from both the social psychological and higher education literatures to model racial attitude change among a diverse, national sample of college students.

Review of Theory and Evidence

Many investigations into racial attitudes treat a college education as an independent variable that individuals either do or do not possess. Thus operationalized, acquiring a postsecondary degree appears to liberate individuals from their prejudiced views. The college-educated are less likely to make categorical statements about outgroups and more likely to espouse democratic ideals, such as racial/ethnic tolerance (Patchen et al. 1977). However, as others have noted, many studies do not adequately control for selection effects (i.e., the college-bound may be less prejudiced to begin with) (Jacob 1957), nor do they properly account for the

possibility that an education provides individuals with a more astute, more "politically correct" means of expressing racial views (Jackman 1978).

This study attempts to transcend this debate by assuming that "the college experience" is not monolithic: differences in students' college experiences within and between institutions may be associated with variation in racial attitudes over time (e.g., Astin 1993; Gurin et al. 2002; Pascarella and Terenzini 2005). Social psychological theory and college impact models provide clues as to which experiences are associated with (and may ultimately drive) the apparent liberalization or hardening of students' racial views during college.

Contact Hypothesis

In his oft-cited "contact hypothesis," Allport (1954) proposed that contact with outgroups (racial or otherwise) can dispel the misconceptions that fuel prejudice but added that four conditions must be met: equal status, pursuit of a common goal, cooperative interaction, and support from institutional authorities. In addition, subsequent scholarship suggests that when contact is intimate (Amir 1976) and sustained (Pettigrew 1997), it is more likely to result in positive attitudes about the outgroup. Numerous studies support the claim that when these conditions are met intergroup contact leads to prejudice reduction (Emerson, Kimbro, and Yancey 2002; Ford 1973; Pettigrew 1997; Pettigrew and Tropp 2000; Shook and Fazio 2008; Yancey 1999). However, the findings of other studies are inconclusive, leading some to question the utility of Allport's theory (Brown and Albee 1966; Hanssen 2001; Ng and Lindsay 1994; Robinson 1980; Robinson and Preston 1976).

Many researchers operating from the perspective of contact theory argue that friendship helps create the ideal conditions for prejudice reduction to by requiring sustained, intimate contact between individuals bound by social norms to treat each other as relative equals. Thus,

interracial friendship may induce individuals to give up their prejudices (Damico and Sparks 1986). However, it may be the case that non-prejudiced individuals select into cross-race friendships, and so any investigation into interracial friendship's effects on racial attitudes must carefully control for baseline attitudes.

College Impact

Studies on the impact of postsecondary education on students' attitudes and beliefs have shown, on the whole, that the net effects of college are toward more liberal, tolerant attitudes and values (see Pascarella and Terenzini 2005 for a detailed review). Critically, scholarship that tracks students' racial attitudes over time generally finds that more years of education – net of students' pre-college attitudes and characteristics – are associated with the development of more egalitarian views on issues of race and ethnicity (e.g., an increased commitment to promoting racial understanding, reductions in social distance, viewing racism as a continuing problem, etc.) (Astin 1993a, Astin 1993b, Loeb and McGee 1992). Furthermore, scholars of college impact have noted that these changes in attitudes, while not necessarily dramatic, are often evident within the first year of postsecondary education (Pascarella et al. 1996).

A number of mechanisms for racial attitude change during the college years have been proposed, and this research is generally consistent with the contact hypothesis. In particular, having a friend of another race has been shown to have positive effects on college students' racial attitudes (Antonio 2001), and interracial contact between roommates and teammates is shown to increase openness to diversity (Pascarella et al. 1996; Wolniak et al. 2001). In addition, interactions with faculty of other racial groups or with diverse views are shown to promote openness to racial diversity among students (Pike 2002). Beyond interpersonal contact with racial diversity, evidence suggests that exposure to multicultural curricula is associated with

an increased commitment to promoting racial understanding (Astin 1993b). For example, some studies find that the number of courses taken on issues of diversity is positively correlated with changes in racial attitudes over time (Astin 1993b; Gurin et al. 2002; Springer et al. 1997).

Research Questions

Building on the research outlined above, our study attempts to measure what changes in racial attitudes are evident during students' college years, and we attempt to isolate the factors associated with such changes. Our analyses address the following research questions:

> ***Question 1:*** Do students' racial attitudes become more positive over time during college? Specifically, do students' commitment to promoting racial understanding increase with more years of college education?
>
> ***Question 2:*** What factors are associated with the development of more positive racial attitudes during college? Specifically, what experiences with diversity during college – net of students' background characteristics – are correlated with an increased commitment to promoting racial understanding?

Based on a review of the literature, our expectations are that college students' racial attitudes do become more open over time, and that positive attitude shifts will be highly associated with interracial contact experiences and exposure to diversity both inside and outside the classroom.

Methods

Sample

Data resources for this study were part of the Wabash National Study of Liberal Arts Education (WNS). The WNS began in 2006 as a large-scale effort to collect information on a

variety of student characteristics prior to college, college experiences, educational and environmental conditions, as well as learning outcomes associated with liberal arts education. The longitudinal panel design of the WNS provides researchers the opportunity not only to examine the educational conditions that foster student learning, but also provides a rich tool for examining the factors that support student development and success at different times during the college experience (Center of Inquiry in the Liberal Arts, CILA, n.d.). The student sample for our study consists of full-time undergraduates attending one of 17 WNS-participating institutions, including six liberal arts colleges and 11 universities. Students attending the two community colleges in the original study were not included, as they lacked one of the three time points necessary for this analysis.

Students were surveyed at three points in time: at college entry (time 1), at the end of the first college year (time 2), and at the end of the fourth college year (time 3). We limit our analyses to cases with valid data at these three time points. For the first set of regressions (Table 3), the analytic sample includes the 2,508 cases with valid time 1 and time 2 responses. For the second set of regressions (Table 4), the analytic sample includes the 1,567 cases with valid responses for all three time points.

Analysis

Dependent Variables

Our main outcomes of interest are the respondent's views on the importance of helping to promote racial understanding, as measured at the end of the first and fourth years of college (time 2 and time 3):

- How important to you personally is helping to promote racial understanding? *(1 = Not Important, 2 = Somewhat Important, 3 = Very Important, 4 = Essential)*

This measure was chosen because, unlike scales that assess dimensions of individuals' "openness to diversity" or other more abstract notions of tolerance (cf., Miville et al. 1999), this is a relatively direct measure of the extent to which *helping to promote* racial understanding is important to respondents on a *personal* level. In other words, the measure attempts to capture respondents' personal commitment to improving racial understanding and may be less prone to social desirability bias.

We address our first research question on whether students' racial attitudes become more positive over time during college with a descriptive analysis of this measure. To address our second question on the factors associated with the development of more positive racial attitudes during college, we regress the racial attitudes measure on several independent variables suggested by the social psychological and college impact literatures. We have chosen to model separately the effects of the independent variables for times 2 and 3 in order to facilitate comparisons between outcomes in the first and fourth years. It may be the case that the factors influencing racial attitude change differ when examining one year versus four years of college. The college impact literature has typically shown that most changes in students' attitudes and beliefs (in several domains) occur during the first college year (Astin 1993b), and thus it can be fruitful to measure changes over this year separately. However, we are interested in examining change by the fourth year in order to assess the potential long-term impacts of college on racial views. The time 3 (fourth college year) measure allows us to model attitude change within what is, for the majority of students in our sample, the entire college enrollment period.

Independent Variables

In a series of linear regression models, we successively account for experiences with diversity at college. We examine four independent variables as key measures of experiences with diversity during the college years:

(1) How often the respondent has made friends with students of another race or ethnicity *(1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often)*;

(2) How often the respondent has had serious conversations with students of a different race or ethnicity *(1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often)*;

(3) How often the respondent has had serious discussions with faculty whose political, social, or religious opinions were different from his/her own *(1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often)*; and

(4) The number of courses focusing on diverse cultures and perspectives the respondent has taken *(0 = 0 courses, 1 = 1 course, 2 = 2 courses, 3 = 3 courses, 4 = 4 or more courses)*.

All four of these survey questions specify that the activity took place "during the current year," and each question was posed at both time 2 (the end of the first year) and time 3 (the end of the fourth year). The first two of these measures are included in our model in order to capture the informal and positive interracial contact experiences that Allport's (1954) contact theory suggests can help ameliorate prejudicial attitudes about the outgroup. The second two measures are included in order to capture the potential influence of the more formal, institutional experiences of taking courses on issues of diversity and interacting with faculty members, which the college impact models suggest may liberalize racial attitudes. In the second set of regression models (i.e., Table 4, predicting time 3 racial attitudes), the time 2 and time 3 responses to these four independent variables are added together. Therefore, in these models, "number of courses

taken on diversity," for example, refers to courses taken within the first and fourth years. We have taken this approach with the assumption that students' experiences with diversity during college are cumulative in nature.

Control Variables

Our analytic models include a host of student-level measures and two indicators of the racial composition of high schools and college attended to control for the broader context of cross-race contact. Student-level ccontrol variables include a parallel measure of racial attitudes at the start of the freshman year (the pretest), which is identical to the dependent variable and has been added to the models to measure the indirect effects of background (i.e., pre-college) characteristics. The background characteristics examined include demographic/socioeconomic, pre-college academic, and social and political measures, including: student demographic characteristics (gender, race/ethnicity, parents' education, and parents' income), academic achievement (as measured by ACT scores), and baseline views on politics and political/social involvement. Gender and race are included as dummy variables, where males and whites are the omitted groups. Parental education is also modeled as a dummy variable indicating whether either parent has at least a bachelor's degree. Parental income (as reported by the respondent) is operationalized as a nine-item measure, ranging from "Less than $14,999" to "Greater than $300,000." Educational performance prior to college was captured through a composite measure of ACT scores and SAT scores fit to the ACT scale. We control for pre-college political and social attitudes using a standard five-item measure of political attitudes (*"How would you characterize your political views? Far Left, Liberal, Middle-of-the-road, Conservative, or Far Right?"*), along with an 11-item mean scale measuring the importance to the respondent of being politically and socially involved (*GLPolSocInvolveScaleMeanT1*, alpha = 0.78). We also include

an additional time 1 measure of attitudes about diversity, which asks respondents whether they believe that contact with individuals whose backgrounds are different from their own is an essential part of college

Scholarship on cross-race contact suggests that such contact may be limited by the homophily bias – the tendency for individuals to associate with similar others (Joyner and Kao 2000). To help control for this effect, we include two measures: (1) To control for pre-college exposure to racial diversity, we include a five-item measure of high school racial composition (ranging from 1, "Almost all white students," to 5, "Almost all students of color"); (2) From the Integrated Postsecondary Education Data System (IPEDS), we calculate the proportion of students at the institution who belong to the same racial group as the respondent.

To control for the natural clustering of students within institutions, a set of 17 instrumental dichotomous variables was included in every model analyzed to account for the college or university attended. These coefficients are not presented in the models below, nor do we discuss between-college effects in the present study. Table 1 provides a list of descriptions and sample means for all variables included in the regression models. All of the descriptive statistics presented in the tables and figures are limited to the 1,567 students included in the second set of regression models (i.e., those who have valid data for all three time points).

Limitations

This study has at least two noteworthy limitations. First, our analytic sample is not fully representative of the national population of postsecondary students, as the WNS has been conducted mainly at four-year universities and liberal arts institutions. We specifically exclude cases from the participating two-year institutions in order to analyze racial attitudes at all three data points. Thus, we caution that the external validity of our findings may be limited. Second, it

is important to note that the institutional sample within the WNS data was not randomly selected, limiting the basis for employing multi-level analytic strategies. Because students are clustered within institutions, we included dummy variables for each of the institutions in the sample to take into account unobserved institutional effects. By estimating fixed-effects models in this way, we controlled for the average effects of each institution while focusing our analysis on student-level measures using multivariate regression techniques (Kreft 1996).

Results

Descriptive Analyses

Subtracting the time 1 response to the "racial understanding" measure from the time 2 and time 3 responses (the dependent variables) provides a descriptive measure of change over time (see Tables 2A and 2B, and Figure 1). Contrary to our expectations, the average change in racial attitudes during the first year and over the entire four-year period is in a negative direction. Limiting the cases to those that appear in all three waves of data, 479 (30.5 percent) rated helping to promote racial understanding at time 2 as less important than they did at time 1. Only 271 (17.3 percent) rated it as more important, and roughly half (52.1 percent) rated it at the same level. The time 1 to time 3 change is similarly negative overall, but the data suggest greater dispersion: compared to the time 1 to time 2 change, more students trend negative (33.8 percent) *and* more students trend positive (21.4 percent). Correspondingly, the mean responses dropped from 2.58 at time 1, to 2.43 at time 2, to 2.41 at time 3, where response option 2 is "somewhat important" and response option 3 is "very important." T-tests suggest that the differences in these means are not due to chance; however, we caution against drawing any conclusions on the "effects" of a college education on racial attitudes, as these calculations do not control for factors that may be confounded with racial attitude change.

While surprising, this finding parallels the trends witnessed in the independent variable in our models that controls for the extent to which respondents believe that contact with individuals whose backgrounds (e.g., race, national origin, sexual orientation) are different from their own is an essential part of their college education. The means for the three time periods drop from 3.88, to 3.61, to 3.60, where response option 3 is "neutral" and response option 4 is "agree." As with our dependent variables, the largest change occurs during the first year of college.

There are many possible causes for this dip in students' support for promoting racial understanding. One possibility is that students entering college are being surveyed at a time when they are more likely to espouse socially progressive ideals. If this were the case, we might expect students to report themselves as more politically liberal at time 1. Our descriptive analysis, however, indicates that the opposite is true. On the whole, students report more politically liberal attitudes at the end of the first and end of the fourth years of college, compared to the beginning of the first year. Another possibility is that many students are coming to college with positive racial attitudes that get challenged by negative experiences with diversity during college. The polarization in attitudes witnessed between time 2 and time 3 supports this hypothesis.

Regardless of the exact mechanisms behind the drop in support for promoting racial understanding, it is clear from the descriptive statistics that both background characteristics and college experiences shape the students' racial attitude trajectories. As shown in Figures 2 and 3, students come to college with a wide spectrum of racial views, and their on-campus experiences with diversity may play a large role in how these views evolve over time. Table 2C presents differences in the four main independent variables for students experiencing a positive attitude change and for those experiencing a negative attitude change (from time 1 to time 3). For

example, students experiencing a negative racial attitude change report taking 2.42 courses on issues of diversity, while those experiencing a positive racial attitude change report taking 2.94 of these courses, on average. Findings like these lend credence to the idea that college experiences with diversity are critical to the direction of racial attitude change.

To specify this relationship further, we turn to the multivariate analyses.

Multivariate Analyses

Background characteristics and other controls

The first set of models (see Table 3, Models A1 through A5) examines the effects of students' individual characteristics and college experiences on their racial attitudes at time 2 (the end of the first college year). Model A1 examines the effects of background characteristics and other controls on time 2 racial attitudes, prior to including the pretest in Model A2 (time 1 racial attitudes). Comparing Models A1 and A2 thus yields an analysis of the indirect effects of these controls on the change in racial attitudes from time 1 to time 2. The data indicate that female students and African American students are more likely than their male and white counterparts to rate the promotion of racial understanding as important at time 2, and these effects are somewhat diminished with the addition of the pretest. In particular, the size of the coefficient for African American students drops by more than one-third. Similarly, higher parental incomes are associated with less positive scores on our time 2 racial attitudes measure; however, the effect is negligible when time 1 attitudes are taken into account. These findings suggest that the time 2 racial attitudes of African Americans (relative to whites, the omitted category) and students from higher income families are largely a function of their time 1 attitudes.

Do these background characteristics predict racial attitudes at time 3 – the end of the fourth college year? Comparing Models A1 and A2 (Table 3) with Models B1 and B2 (Table 4),

we see a similar set of relationships overall. Note especially how the coefficient for African Americans loses magnitude and significance in Model B2, suggesting that time 3 attitudes are largely dependent on time 1 attitudes for black students. One notable difference between the two sets of models concerns the association between parental income and racial attitudes. While higher parental income is correlated with lower time 2 attitudes (prior to controlling for time 1 attitudes), this relationship is not evident at time 3.

Interestingly, Models A1 and B1 indicate a negative correlation between high ACT scores and positive racial attitudes. Each one-point increase on the ACT is associated with -0.08 and -0.10 unit decreases in our time 2 and time 3 measures of the importance of promoting racial understanding, respectively. These coefficients shrink considerably in Models A2 and B2, however, suggesting (as with the measures listed above) that much of effect is mediated by time 1 attitudes.

Respondents' characterization of their own political views (from "far left" to "far right") and their belief that diversity is an essential part of college are both highly predictive of racial attitudes at the end of the first year and the end of the fourth year. As expected, political conservatism is negatively correlated with more liberal racial attitudes, and assertion of the importance of diversity at college is positively correlated with the outcome. Yet much of the effects of these measures are indirectly funneled through the baseline racial attitudes measure. Note especially the drop in the beta coefficient for "importance of diversity" from 0.10 (Model B1) to 0.06 (Model B2), and the attendant drop in statistical significance. By far the best predictor of time 2 and time 3 racial attitudes in Models A1 and B1 is the time 1 scale measure of the respondent's belief in the importance of political and social involvement. This effect is more than halved once time 1 racial attitudes are included (Models A2 and B2), but remains the largest

predictor of attitudes at the end of the first and fourth years, aside from the pretest attitude measure.

Key independent measures of experiences with diversity

Models A3 – A5 and B3 – B5 test our proposal that both informal and institutional experiences with diversity during college are associated with the development of more positive racial attitudes. In Models A3 and B3, we present the effects of interracial friendships and discussions with other-race peers – our two measures of informal interactions on campus. In Models A4 and B4, we present the effects of discussions with faculty members with views that differ from the respondent and the number of courses taken related to issues of diversity – our two measures of institutional influence. In the final models (A5 and B5), we present the combined effects, net of all other student and institutional characteristics.

Broadly speaking, all four independent variables are positively correlated with a belief in the importance of promoting racial understanding, as predicted. The addition of the peer interaction measures in Models A3 and B3 boosts the magnitude of the female, black and Asian coefficients, suggesting an interaction between the frequency of interracial friendships/discussions and membership in these groups. Note similarly the growth in the political views coefficient. By contrast, the effect of the importance of diversity measure on time 3 attitudes loses statistical significance once peer interactions are taken into account, suggesting that those who value diversity at college are selecting into diverse relationships. In the time 2 models (compare the R-squares of A3 and A4 in Table 3), the peer interaction measures are better predictors of liberal racial attitudes than the institutional experience measures. In the time 3 models (Table 4), however, the reverse is true. This may indicate that interactions with peers have more immediate effects on racial attitudes, while institutional experiences may influence

racial attitudes in a more cumulative manner. Alternatively, course taking behavior at time 2 (the freshman year) is more likely to be a function of college requirements rather than individual preferences, compared with course taking behavior at time 3. Thus, taking a course related to diversity at time 3 may be a better indicator of a shift in attitudes.

The full models (A5 and B5) lend support to this possibility, at least when comparing the effects of the frequency of interracial friendship and the number of courses taken related to diversity. At time 2, the interracial friendship coefficient is comparatively larger than those of the three other independent variables, especially the diversity courses measure. At time 3, the effect of friendship is relatively small, especially compared with the large and statistically robust diversity courses coefficient: each additional course taken that focuses on diverse cultures or perspectives is associated with a 0.14 unit increase in the racial attitudes measure.

Taken together, the descriptive and multivariate analyses paint a more nuanced picture of racial attitude change during the college years than is commonly supposed. Our findings indicate that many students leave postsecondary education with less charitable views on the importance of promoting racial understanding than when they first matriculated. Indeed, at the beginning of their freshman years, over half of the respondents indicated that helping to promote racial understanding was "very important" or "essential." By the end of their first and fourth years, only 43.7 and 42.7 percent of students, respectively, held these attitudes. We posit that students' experiences with diversity during college may help explain the variation in racial attitudes one and four years after the original survey, and in fact, our multivariate analyses help to support this conclusion. Students who succeed in making friends and having discussions with classmates whose racial/ethnic background differs from their own are more likely to espouse more liberal racial attitudes, particularly at the end of their freshman year. Likewise, students who are

exposed to college courses that focus on diverse cultures and perspectives and who engage in discussions with faculty members whose perspectives differ from their own are more likely to rate the promotion of racial understanding as important. These institutional measures are particularly salient when examining attitudinal changes over the entire four-year period.

Discussion

Drawing on data from the Wabash National Study, our research examines whether college students' racial attitudes become more positive or "liberal" during their time in college, and it attempts to discern the factors associated with the development of such attitudes. Specifically, our first research question asks whether students express an increased commitment to promoting racial understanding during their tenure in college (i.e., within the first year of college, and from the first to the fourth year of college). Our second research question asks what experiences during college are associated with racial attitude change with these timeframes. Specifically, we attempt to isolate those experiences that, net of students' pre-college characteristics and attitudes, correlate with an increased commitment to promoting racial understanding.

Although scholars have found that higher education is associated with the liberalization of racial attitudes (e.g., Astin 1993b, Loeb and McGee 1992), most freshmen in our sample did not experience a positive change in their attitudes within one year or even within four years. Descriptive analyses show that, for about half of the students surveyed, the commitment to helping to promote racial understanding did not change. Among those who experienced a change, more students reported a downgrading of their commitment. These findings cast doubt on research and conventional wisdom that argues for the liberalizing effects of higher education

on racial attitudes. Instead, it suggests that some experiences or conditions may actually challenge the relatively progressive racial views held by students when they enter college.

Our research indicates that whether college students experience a liberalization or hardening of their racial attitudes during their time in college is partly conditioned by their college experiences. Those who have opportunities to make friendships and have discussions with classmates that cross racial lines, those who engage in serious discussions with faculty members whose opinions differ from their own, and those who take courses on diversity issues are more likely to express an increased commitment to promoting racial understanding. These effects are significant, even when factoring out baseline political and racial attitudes and controlling for a wide variety of background characteristics.

The implication of these findings for scholarship is that contact with diversity – both within the classroom and especially in informal campus settings – may have an effect on racial attitudes even within the relatively short span of one year, lending support to both the contact hypothesis and to scholarship on curricular effects (e.g., Astin 1993b; Damico and Sparks 1986; Gurin et al. 2002; Pike 2002; Springer et al. 1997). However, more research is required to identify the reasons that some students are afforded such opportunities for positive contact experiences while others are not. An implication of these findings for postsecondary institutions is that efforts to broaden students' racial views should extend beyond multicultural course requirements. Colleges that can take steps that promote environments conducive for cross-race friendship and discussion may have the greatest impact on students' racial attitudes.

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Figure 1: Change in Racial Attitudes fom T1 to T2, and T1 to T3 (number of students)

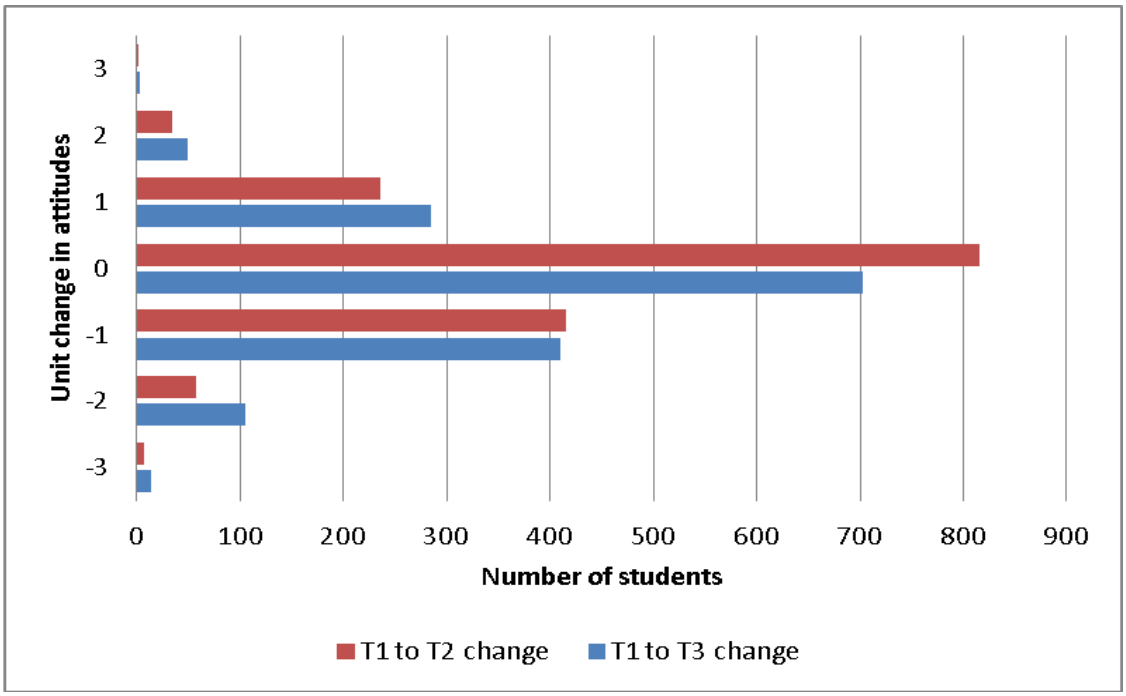

Figure 2: Importance of Helping to Promote Racial Understanding (T1 – T3 means by demographic group)

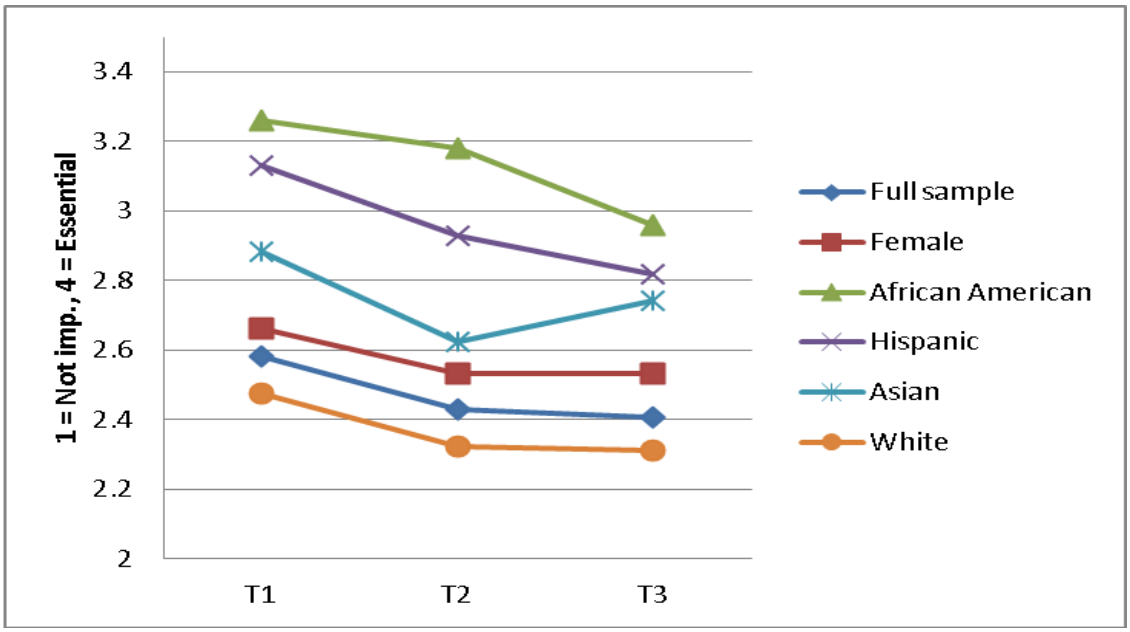

Figure 3: Importance of Helping to Promote Racial Understanding (T1 – T3 means by selected groups)

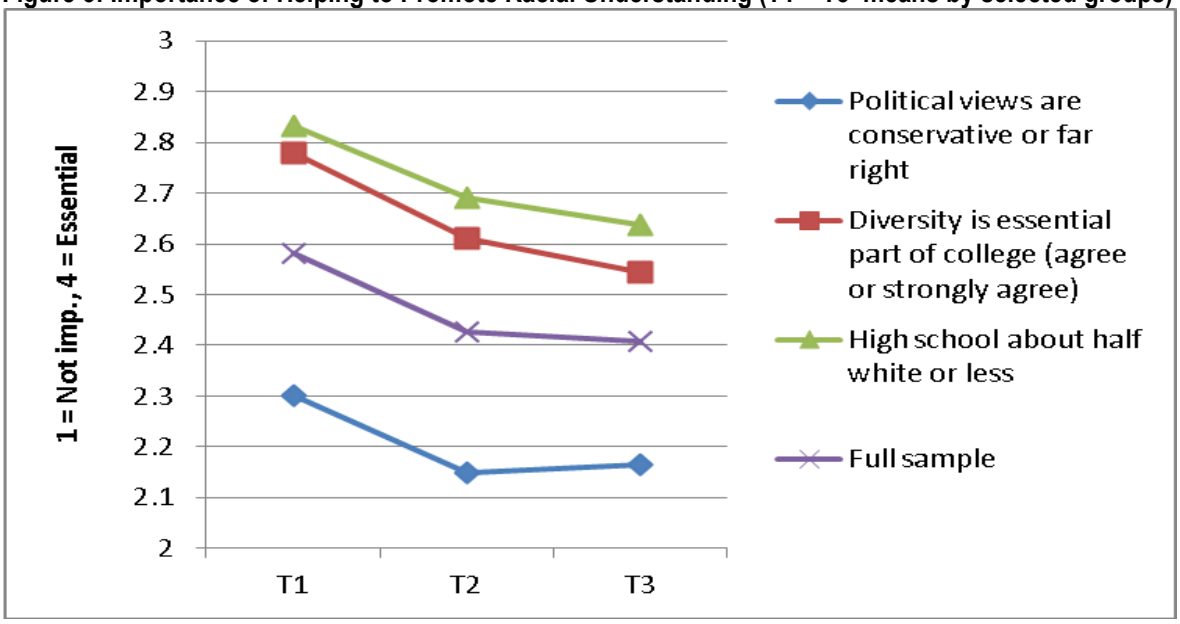

Table 1: Measures Included in the Models

Variable	Name in WNS dataset / Description	Min	Max	Mean	SD	Alpha
Female	DemMaleT1 = 0	0	1	0.64	0.48	
Black	DemRaceT1 = 2	0	1	0.05	0.21	
Hispanic	DemRaceT1 = 5	0	1	0.05	0.22	
Asian	DemRaceT1 = 4	0	1	0.07	0.26	
Other	DemRaceT1 = 1, 3, 7, or 9 (nonresident alien, American Indian, or unknown/invalid)	0	1	0.02	0.13	
One of R's parents has at least a BA	DemMomEdT1 or DemDadEdT1 is greater than or equal to 16	0	1	0.76	0.42	
R's report of parents' income	DemParentIncomeT1 (1 = less than $14,999; 9 = greater than $300,000)	1	9	5.66	1.88	
Precollege academic ability (ACT score)	HSACTAbilityT1X (common metric of ACT and SAT with imputations)	14	36	27.38	4.17	
Racial composition of R's high school	HSRaceCompT1 (1 = Almost all white students; 5 = Almost all students of color)	1	5	2.00	1.04	
R's political views (T1)	PoliticalViewsT1 (1 = Far left; 5=Far Right)	1	5	2.86	0.91	
R believes contact with diversity is essential part of college (T1)	DivOContactDiffOwnT1 (1 = Strongly Disagree; 5 = Strongly Agree)	1	5	3.88	0.96	
Importance to R of being politically and socially involved (T1)	GLPolSocInvolveScaleMeanT1 (11-item scale: 1 = Not Important; 4 = Essential)	1.09	4	2.70	0.50	.784
Proportion of student body with same race as R	Constructed from data imported from IPEDS	0	91	63.69	27.76	
Importance to R to help promote racial understanding (T1)	GLPromoteRacialUnderstandingT1 (1 = Not Important; 4 = Essential)	1	4	2.58	0.89	
Importance to R to help promote racial understanding (T2)	GLPromoteRacialUnderstandingT2	1	4	2.43	0.94	
Importance to R to help promote racial understanding (T3)	GLPromoteRacialUnderstandingT3	1	4	2.41	0.96	
Frequency of interracial friendship (T2)	FriendsWithStudRaceDiffThanOwnT2 (1 = Never; 5 = Very Often)	1	5	3.63	1.08	.703
Frequency of interracial friendship (T3)	FriendsWithStudRaceDiffThanOwnT3	1	5	3.65	1.08	
Frequency of discussions with other-race peers (T2)	NSSEdivrstudT2 (1 = Never; 5 = Very Often)	1	4	2.71	1.00	.654
Frequency of discussions with other-race peers (T3)	NSSEdivrstudT3	1	4	2.80	0.97	
Frequency of discussions with faculty with different views (T2)	DiscussFacOpinDiffOwnT2 (1 = Never; 5 = Very Often)	1	5	2.31	1.16	.565
Frequency of discussions with faculty with different views (T3)	DiscussFacOpinDiffOwnT3	1	5	2.59	1.14	
Number of courses taken related to diversity (T2)	CourseDiversityT2 (1 = 1 course; 4 = 4 or more courses)	0	4	0.67	0.93	.430
Number of courses taken related to diversity (T3)	CourseDiversityT3	0	4	1.97	1.36	

Note: All values limited to analytic sample in Table 4 (N=1,567).

Table 2A: Change in Racial Attitude Measure from Time 1 to Time 2

T1 to T2 Change	Frequency	Percent
-3	7	0.4
-2	57	3.6
-1	415	26.5
0	815	52.1
1	235	15
2	34	2.2
3	2	0.1
Observations	1,565	

Table 2B: Change in Racial Attitude Measure from Time 1 to Time 3

T1 to T3 Change	Frequency	Percent
-3	14	0.9
-2	105	6.7
-1	410	26.2
0	702	44.8
1	284	18.1
2	49	3.1
3	3	0.2
Observations	1,567	

Table 2C: Descriptive statistics for four main independent variables among students experiencing positive racial attitude change and students experiencing negative racial attitude change (T1 to T3)

	Positive attitude change (N=336)				**Negative attitude change** (N=529)			
	Min	Max	Mean	SD	Min	Max	Mean	SD
Interracial friendships (T2+T3)	2	10	7.46	1.86	2	10	7.14	1.87
Discussion with other-race peers (T2+T3)	2	8	5.74	1.62	2	8	5.40	1.69
Discussion with faculty (T2+T3)	2	10	5.15	1.90	2	10	4.68	1.89
Courses on diversity (T2+T3)	0	8	2.94	1.90	0	8	2.42	1.77

Table 3 – Linear Regression of Racial Attitudes at Time 2 (Standardized Coefficients)

	(A1)	(A2)	(A3)	(A4)	(A5)
Background characteristics and other controls					
Female	**0.067*** **	**0.061*** **	**0.071*** **	**0.072*** **	**0.077*** **
	(3.761)	**(3.619)**	**(4.260)**	**(4.277)**	**(4.601)**
Black	**0.097*** **	**0.059***	**0.072****	**0.069****	**0.077****
	(3.505)	**(2.251)**	**(2.792)**	**(2.661)**	**(3.017)**
Hispanic	0.029	0.007	0.023	0.008	0.020
	(1.016)	(0.251)	(0.867)	(0.290)	(0.782)
Asian	0.028	0.007	0.017	0.015	0.020
	(0.943)	(0.236)	(0.601)	(0.525)	(0.737)
Other	0.010	0.010	0.019	0.011	0.019
	(0.481)	(0.466)	(0.967)	(0.529)	(0.929)
One of R's parents has at least a BA	-0.005	-0.006	-0.008	-0.007	-0.008
	(-0.269)	(-0.315)	(-0.445)	(-0.393)	(-0.472)
R's report of parents' income	**-0.043***	-0.028	-0.020	-0.021	-0.016
	(-2.205)	(-1.528)	(-1.098)	(-1.150)	(-0.900)
Precollege academic ability (ACT score)	**-0.079*** **	**-0.049***	**-0.044***	**-0.047***	**-0.043***
	(-3.535)	**(-2.306)**	**(-2.097)**	**(-2.253)**	**(-2.090)**
Racial composition of R's high school	0.022	0.016	0.013	0.015	0.013
	(1.123)	(0.876)	(0.697)	(0.830)	(0.706)
R's political views (T1)	**-0.096*** **	**-0.054****	**-0.059*** **	**-0.054****	**-0.058*** **
	(-5.131)	**(-3.038)**	**(-3.374)**	**(-3.081)**	**(-3.324)**
R believes contact with diversity is essential part of college (T1)	**0.194*** **	**0.126*** **	**0.099*** **	**0.120*** **	**0.098*** **
	(10.300)	**(6.960)**	**(5.453)**	**(6.681)**	**(5.476)**
Importance to R of being politically and socially involved (T1)	**0.355*** **	**0.141*** **	**0.130*** **	**0.103*** **	**0.103*** **
	(19.732)	**(6.732)**	**(6.314)**	**(4.873)**	**(4.944)**
Proportion of student body with same race as R	-0.073	-0.061	0.000	-0.045	0.001
	(-1.600)	(-1.405)	(-0.011)	(-1.047)	(0.016)
Pretest measure					
Importance to R to help promote racial understanding (T1)		**0.389*** **	**0.379*** **	**0.395*** **	**0.384*** **
		(17.575)	**(17.369)**	**(18.039)**	**(17.703)**
Independent variables					
Frequency of interracial friendship (T2)			**0.103*** **		**0.085*** **
			(5.230)		**(4.294)**
Frequency of discussions with other-race peers (T2)			**0.084*** **		**0.070*** **
			(4.415)		**(3.669)**
Frequency of discussions with faculty with different views (T2)				**0.108*** **	**0.077*** **
				(6.571)	**(4.601)**
Number of courses taken related to diversity (T2)				**0.072*** **	**0.061*** **
				(4.391)	**(3.725)**
R-squared	0.330	0.404	0.425	0.420	0.433
Observations	2,508	2,508	2,508	2,508	2,508

* p < .05, ** p < .01, *** p < .001; t-statistics presented in parentheses. Dummy variables for each institution included in all models but not presented.

Table 4 – Linear Regression of Racial Attitudes at Time 3 (Standardized Coefficients)

	(B1)	(B2)	(B3)	(B4)	(B5)
Background characteristics and other controls					
Female	**0.111*** **	**0.107*** **	**0.121*** **	**0.113*** **	**0.118*** **
	(4.661)	**(4.635)**	**(5.300)**	**(4.919)**	**(5.188)**
Black	**0.085***	0.061	**0.073***	0.065	**0.072***
	(2.218)	(1.622)	**(1.986)**	(1.768)	**(1.991)**
Hispanic	0.054	0.037	0.051	0.031	0.041
	(1.435)	(1.020)	(1.402)	(0.862)	(1.145)
Asian	**0.098***	**0.086***	**0.092***	**0.080***	**0.083***
	(2.356)	**(2.098)**	**(2.296)**	**(2.009))**	**(2.102)**
Other	0.043	0.044	0.045	0.041	0.042
	(1.451)	(1.518)	(1.556)	(1.438)	(1.498)
One of R's parents has at least a BA	0.012	0.008	0.012	0.001	0.006
	(0.474)	(0.331)	(0.525)	(0.043)	(0.245)
R's report of parents' income	-0.011	0.001	0.008	0.006	0.009
	(-0.436)	(0.032)	(0.313)	(0.247)	(0.383)
Precollege academic ability (ACT score)	**-0.104*** **	**-0.082** **	**-0.078** **	**-0.075** **	**-0.072***
	(-3.496)	**(-2.838)**	**(-2.701)**	**(-2.651)**	**(-2.556)**
Racial composition of R's high school	0.032	0.023	0.017	0.021	0.018
	(1.212)	(0.873)	(0.673)	(0.836)	(0.719)
R's political views (T1)	**-0.097*** **	**-0.067** **	**-0.071** **	**-0.067** **	**-0.068** **
	(-3.861)	**(-2.714)**	**(-2.925)**	**(-2.747)**	**(-2.839)**
R believes contact with diversity is essential part of college (T1)	**0.104*** **	**0.060***	0.027	**0.048***	0.026
	(4.131)	**(2.378)**	(1.090)	**(1.958)**	(1.030)
Importance to R of being politically and socially involved (T1)	**0.320*** **	**0.168*** **	**0.156*** **	**0.117*** **	**0.124*** **
	(13.169)	**(5.764)**	**(5.434)**	**(3.960)**	**(4.213)**
Proportion of student body with same race as R	0.026	0.038	0.102	0.040	0.084
	(0.398)	(0.597)	(1.627)	(0.647)	(1.359)
Pretest measure					
Importance to R to help promote racial understanding (T1)		**0.275*** **	**0.255*** **	**0.268*** **	**0.252*** **
		(8.965)	**(8.447)**	**(8.899)**	**(8.412)**
Independent variables					
Frequency of interracial friendship (T2+T3)			**0.102*** **		**0.077***
			(3.333)		**(2.523)**
Frequency of discussions with other-race peers (T2+T3)			**0.107*** **		**0.079** **
			(3.627)		**(2.650)**
Frequency of discussions with faculty with different views (T2+T3)				**0.102*** **	**0.060***
				(4.294)	**(2.421)**
Number of courses taken related to diversity (T2+T3)				**0.156*** **	**0.139*** **
				(6.663)	**(5.900)**
R-squared	0.260	0.296	0.321	0.328	0.340
Observations	1,567	1,567	1,567	1,567	1,567

* p < .05, ** p < .01, *** p < .001; t-statistics presented in parentheses. Dummy variables for each institution included in all models but not presented.