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Diversity and Higher Education: Theory and Impact on Educational Outcomes



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Educators in U.S. higher education have long argued that affirmative action policies are justified because they ensure the creation of the racially and ethnically diverse student bodies essential to providing the best possible educational environment for students, white and minority alike. Yet until recently these arguments have lacked empirical evidence and a strong theoretical rationale to support the link between diversity and educational outcomes. As Jonathan Alger, former counsel for the American Association of University Professors, argues: "The unfinished homework in the affirmative action debate concerns the development of an articulated vision — supported by a strong evidentiary basis — of the educational benefits of racial diversity in higher education" (1998, p. 74). This suggests not only that educators must clarify the conceptual link between diversity and learning in educational practice, but also that educational researchers play a key role in providing evidence on whether diversity contributes to achieving the central goals of higher education. The purpose of this article is both to provide a theory of how diversity can be linked to educational outcomes in higher education and to test this theory using national data and data from students at the University of Michigan — an institution that has faced affirmative action legal challenges.

In the 1978 case *Regents of the University of California v. Bakke*, U.S. Supreme Court Justice Lewis Powell wrote the pivotal opinion, arguing that the "atmosphere of 'speculation, experiment and creation' — so essential to the quality of higher education — is widely believed to be promoted by a diverse student body. . . . It is not too much to say that the nation's future depends upon leaders trained through wide exposure to the ideas and mores of students as diverse as this Nation of many peoples"

(p. 2760).¹ Since the *Bakke* decision, the educational benefits of diversity as a compelling governmental interest have provided the primary justification for affirmative action at selective institutions across the country.² However, the diversity argument has not been supported in all lower court cases since the original *Bakke* decision. For example, in *Hopwood v. University of Texas*, the Fifth Circuit Court of Appeals denied that diversity has any impact on educational experience: "The use of race, in and of itself, to choose students simply achieves a student body that looks different. Such a criterion is no more rational on its own terms than would be choices based upon the physical size or blood type of applicants" (*Hopwood*, 1996, p. 950). If this statement were true, there would be no basis for arguing that there was a compelling interest in a racially/ethnically diverse student body. However, such a conclusion flies in the face of the role that race and ethnicity have played in our polity and society. As Victor Bolden, David Goldberg, and Dennis Parker point out, "No constitutional compromise was required over blood type; no civil war was fought and no Southern Manifesto signed over physical size" (1999, p. 27).

Since the *Hopwood* decision, courts across the country have produced conflicting rulings on diversity as a compelling governmental interest. In *Smith v. University of Washington Law School* (2001), the Ninth Circuit Court of Appeals affirmed the district court's ruling that *Bakke* is still good law and stands for the proposition that educational diversity can be a compelling governmental interest that justifies race-sensitive admissions programs. In *Johnson v. Board of Regents of the University of Georgia* (2001), the Eleventh Circuit Court of Appeals declined to rule on the question of whether diversity is a compelling governmental interest but struck down the University of Georgia's admissions policy on the grounds that it was not "narrowly tailored" to that interest. In two cases involving the University of Michigan, one challenging its undergraduate admissions and the other its law school admissions, two different rulings on diversity as a compelling governmental interest were given at the district court level. In *Gratz v. Bollinger, et al.* (2000), the court ruled on summary judgment in favor of the University of Michigan, upholding its current undergraduate admissions policy and finding that diversity was a compelling governmental interest that justified the policy. In *Grutter v. Bollinger, et al.* (2002), the court held that the educational benefits of diversity were not a compelling state interest, and even if they were, the law school's policy was not "narrowly tailored" to the interest of diversity. Both cases were appealed to the Sixth Circuit Court of Appeals, which heard arguments in December 2001. This court overturned the lower court decision in *Grutter*, deciding in favor of the university and setting the stage for an appeal to the U.S. Supreme Court.³ It is clear from these now-famous higher education cases that the question of whether *Bakke* is still good law and whether diversity is a compelling state interest justifying the use of race-sensitive admissions policies remains controversial. It is also clear that diversity is the primary basis for arguing the constitutionality of using race as one of many factors in college admission, and thus research on *whether* and *how* diversity might affect education is of crucial legal and practical importance.

It is important to explain how higher education might expose students to racial and ethnic diversity, since they may experience it in several ways. First, students at-

tend colleges with different levels of racial/ethnic diversity in their student bodies. This has been termed *structural diversity*, or the numerical representation of diverse groups (Hurtado, Milem, Clayton-Peterson, & Allen, 1999). Although structural diversity increases the probability that students will encounter others of diverse backgrounds, given the U.S. history of race relations, simply attending an ethnically diverse college does not guarantee that students will have the meaningful intergroup interactions that social psychologist Gordon Allport (1954) suggested in his classic book, *The Nature of Prejudice*, are important for the reduction of racial prejudice. For this reason, a second definition of racial/ethnic diversity is important, one that involves both the *frequency* and the *quality* of intergroup interaction as keys to meaningful diversity experiences during college, or what we term *informal interactional diversity*. Although these informal interactions with racially diverse peers can occur in many campus contexts, the majority of them occur outside of the classroom. Such interactions may include informal discussions, daily interactions in residence halls, campus events, and social activities (Antonio, 1998; Chang, 1996). Finally, a third form of diversity experience includes learning about diverse people (content knowledge) and gaining experience with diverse peers in the classroom, or what we term *classroom diversity*. We contend that the impact of racial/ethnic diversity on educational outcomes comes primarily from engagement with diverse peers in the informal campus environment and in college classrooms. Structural diversity is a necessary but insufficient condition for maximal educational benefits; therefore, the theory that guides our study is based on students' actual engagement with diverse peers.

Recent reviews of educational research, as well as summaries of new studies, present an emerging body of scholarship that speaks directly to the benefits of a racially/ethnically diverse postsecondary educational experience (Hurtado et al., 1999; Milem & Hakuta, 2000; Orfield, 2001; Smith, 1997). The evidence for the diversity rationale for affirmative action has come from four approaches to research:

1. students' subjective assessments of the benefits they receive from interacting with diverse peers (e.g., Orfield & Whitley, 1999);
2. faculty assessments about the impact of diversity on student learning or on other outcomes related to the missions of their universities (e.g., Maruyama, Moreno, Gudeman, & Marin, 2000);
3. analyses of monetary and nonmonetary returns to students and the larger community in terms of graduation rates, attainment of advanced and professional degrees that prepare students to become leaders in underserved communities, personal income or other postcollege attainment that results from attending highly selective institutions where affirmative action is critical to achieving diversity (e.g., Bowen & Bok, 1998; Bowen, Bok, & Burkhart, 1999; Komaromy et al., 1997);
4. analyses tying diversity experience during the college years to a wide variety of educational outcomes (Astin, 1993a, 1993b; Chang, 1996; Chang, Witt-Sandis, & Hakuta, 1999; Hurtado, 2001; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996; Terenzini, Rendon et al., 1994; Terenzini, Springer, Pascarella, & Nora, 1994).

It is important to note that, across these different approaches and different samples of students and faculty, researchers have found similar results showing that a wide variety of individual, institutional, and societal benefits are linked with diversity experiences.

The research reported here is an example of the fourth approach in which we compare how different types of diversity experiences are associated with differences in educational outcomes among students from different racial and ethnic backgrounds. We first present the theoretical foundation for the educational value of racial/ethnic diversity, and then we examine the effects of two kinds of diversity experiences — diversity in the formal classroom and in the informal campus environment — on different educational outcomes.

THEORETICAL FOUNDATIONS FOR THE EFFECT OF DIVERSITY

Racial and ethnic diversity may promote a broad range of educational outcomes, but we focus on two general categories. Learning outcomes include active thinking skills, intellectual engagement and motivation, and a variety of academic skills. Democracy outcomes include perspective-taking, citizenship engagement, racial and cultural understanding, and judgment of the compatibility among different groups in a democracy. The impact of diversity on learning and democracy outcomes is believed to be especially important during the college years because students are at a critical developmental stage, which takes place in institutions explicitly constituted to promote late adolescent development.

The Critical Importance of Higher Education

In essays that profoundly affected our understanding of social development, psychologist Erik Erikson (1946, 1956) introduced the concept of identity and argued that late adolescence and early adulthood are the unique times when a sense of personal and social identity is formed. Identity involves two important elements: a persistent sameness within oneself and a persistent sharing with others. Erikson theorized that identity develops best when young people are given a psychosocial moratorium — a time and a place in which they can experiment with different social roles before making permanent commitments to an occupation, to intimate relationships, to social and political groups and ideas, and to a philosophy of life. We argue that such a moratorium should ideally involve a confrontation with diversity and complexity, lest young people passively make commitments based on their past experiences, rather than actively think and make decisions informed by new and more complex perspectives and relationships.

Institutions of higher education can provide an opportunity for such a psychosocial moratorium, thus supporting young adults through this identity development stage. Residential colleges and universities provide many students with an opportunity to experiment with new ideas, new relationships, and new roles. Peer influences play a

normative role in this development, and students are able to explore options and possibilities before making permanent adult commitments. Yet not all institutions of higher education serve this developmental function equally well (Pascarella & Terenzini, 1991). Higher education is especially influential when its social milieu is different from students' home and community background and when it is diverse and complex enough to encourage intellectual experimentation and recognition of varied future possibilities. We maintain that attending college in one's home environment or replicating the home community's social life and expectations in a homogeneous college that is simply an extension of the home community impedes the personal struggle and conscious thought that are so important for identity development.

Sociologist Theodore Newcomb's classic study of students at Bennington College (1943) supported Erikson's assertion that late adolescence is a time to determine one's relationship to the sociopolitical world and affirmed the developmental impact of the college experience. Newcomb's study demonstrated that political and social attitudes — what Erikson would call one aspect of social identity — are quite malleable in late adolescence and that change occurred particularly in those students to whom Bennington presented new and different ideas and attitudes. Peer influence was critical in shaping the attitudinal changes that Newcomb documented. Follow-ups with these students showed that the attitudes formed during the college experience were quite stable, even twenty-five (Newcomb, Koenig, Flacks, & Warwick, 1967) and fifty years later (Alwin, Cohen, & Newcomb, 1991).

Developmental theorists emphasize that discontinuity and discrepancy spur cognitive growth. Jean Piaget (1971, 1975/1985) termed this process *disequilibrium*. Drawing on these theories, psychologist Diane Ruble (1994) offers a model that ties developmental change to life transitions such as going to college. Transitions are significant because they present new situations about which individuals know little and in which they will experience uncertainty. The early phase of a transition, what Ruble calls construction, is especially important, since people have to seek information in order to make sense of the new situation. Under these conditions individuals are likely to undergo cognitive growth unless they are able to retreat to a familiar world. Ruble's model gives special importance to the first year of college, since it is during this time that classroom and social relationships discrepant from students' home environments become especially important in fostering cognitive growth.

Writing long before the controversies about diversity and affirmative action became politically important or were studied academically, Erikson, Newcomb, and Piaget were not making an explicit case for racial/ethnic diversity. Nonetheless, their arguments about the significance of discontinuity and the power of a late adolescence/early adulthood moratorium provide a strong theoretical rationale for the importance of bringing students from varied backgrounds together to create a diverse and complex learning environment.

Campus environments and policies that foster interaction among diverse students are discontinuous from the home environments of many American students. Because of the racial separation that persists in this country, most students have lived in segregated communities before coming to college. The work of Gary Orfield and associ-

ates documents a deepening segregation in U.S. public schools (Orfield, 2001; Orfield, Bachmeier, James, & Eitle, 1997; Orfield & Kurlaender, 1999; Orfield & Miller, 1998). This segregated precollege educational background means that many students, White and minority alike, enter college without experience with diverse peers. Colleges that diversify their student bodies and institute policies that foster genuine interaction across race and ethnicity provide the first opportunity for many students to learn from peers with different cultures, values, and experiences. Genuine interaction goes far beyond mere contact and includes learning about difference in background, experience, and perspectives, as well as getting to know one another individually in an intimate enough way to discern common goals and personal qualities. In this kind of interaction — in and out of the classroom — diverse peers will learn from each other. This can be viewed as extending the traditional conception of a liberal education as one “intended to break down the narrow certainties and provincial vision with which we are born” (Association of American Colleges and Universities, 1985, p. 22).

Learning Outcomes

As educators, we might expect that a curriculum that deals explicitly with social and cultural diversity and a learning environment in which diverse students interact frequently with one another would affect the content of what is learned. However, based on the recent social psychological research that we discuss below, we consider the less obvious notion that features of the learning environment affect students’ modes of thought. In this study we hypothesize that a curriculum that exposes students to knowledge about race and ethnicity acquired through the curriculum and classroom environment and to interactions with peers from diverse racial and ethnic backgrounds in the informal college environment will foster a learning environment that supports active thinking and intellectual engagement.

Research in social psychology over the past twenty years has shown that active engagement in learning and thinking cannot be assumed (Bargh, 1997). This research confirms that much apparent thinking and thoughtful action are actually automatic, or what psychologist Ellen Langer (1978) calls mindless. To some extent, mindlessness is the result of previous learning that has become so routine that thinking is unnecessary. Instead, scripts or schemas that are activated and operate automatically guide these learned routines. Some argue that mindlessness is necessary because there are too many stimuli in the world to which to pay attention. It is more efficient for us to select only a few stimuli or, better still, to go on automatic pilot — to be what some people call cognitive misers (Fiske, 1993; Hilton & von Hippel, 1996).

Psychologist John Bargh (1997) reviews both historical and recent research evidence showing that automatic psychological processes play a pervasive role in all aspects of everyday thinking. He concludes that automatic thinking is evident not only in perceptual processes (such as categorization) and in the execution of perceptual and motor skills (such as driving and typing), but that it is also pervasive in evaluation, emotional reactions, determination of goals, and social behavior itself. Bargh uses the term *preconscious* to describe processes that act as mental servants to take

over from conscious, effortful thinking. One of our tasks as educators is to interrupt these automatic processes and facilitate active thinking in our students.

In one early study indicating the pervasiveness of automatic thinking, Langer (1978) described the many positive psychological benefits that people derive from using active, effortful, conscious modes of thought. She also argued that such thinking helps people develop new ideas and ways of processing information that may have been available to them but were simply not often used. In several experimental studies, she showed that such thinking increases alertness and greater mental activity, which fosters better learning and supports the developmental goals of higher education.

What are the conditions that encourage effortful, mindful, and conscious modes of thought? Langer (1978) contends that people will engage in such modes of thought when they encounter a situation for which they have no script or when the environment demands more than their current scripts provide, such as an encounter discrepant with their past experience. These conditions are similar to what sociologist Rose Coser (1975) calls complex social structures — situations where we encounter people who are unfamiliar to us, when these people challenge us to think or act in new ways, when people and relationships change and thus produce unpredictability, and when people we encounter hold different expectations of us. Coser shows that people who function within complex social structures develop a clearer and stronger sense of individuality and a deeper understanding of the social world.⁴

The specific environmental features that Langer and Coser suggest will promote mental activity are compatible with cognitive-developmental theories. In general, those theories posit that cognitive growth is fostered by discontinuity and discrepancy (as in Piaget's notion of disequilibrium). To learn or grow cognitively, individuals need to recognize cognitive conflicts or contradictions, situations that, as psychologist Diane Ruble (1994) argues, then lead to a state of uncertainty, instability, and possibly anxiety (see also Acredolo & O'Connor, 1991; Berlyne, 1970; Doise & Palmonaari, 1984). Ruble states:

Such a state may occur for a number of reasons. . . . It may be generated either internally via the recognition of incompatible cognitions or externally during social interaction. The latter is particularly relevant to many types of life transitions, because such transitions are likely to alter the probability of encountering people whose viewpoints differ from one's own. (1994, p. 171)

Racial and ethnic diversity in the student body and university efforts to foster opportunities for diverse students to interact and learn from each other in and out of the classroom offer college students who have grown up in the racially segregated United States the very features that these theories suggest will foster active thinking and personal development. These features include:

- novelty and unfamiliarity that occurs upon the transition to college
- opportunities to identify discrepancies between students with distinct pre-college social experiences
- diversity as a source of multiple and different perspectives⁵

A White student, evaluating a course on intergroup relations that one of the authors taught at the University of Michigan, conveys the importance of these facets of diversity:

I come from a town in Michigan where everyone was white, middle-class and generally pretty closed-down to the rest of the world, although we didn't think so. It never touched us, so I never questioned the fact that we were "normal" and everyone else was "different." Listening to other students in the class, especially the African American students from Detroit and other urban areas just blew me away. We only live a few hours away and yet we live in completely separate worlds. Even more shocking was the fact that they knew about "my world" and I knew nothing about theirs. Nor did I think that this was even a problem at first. I realize now that many people like me can go through life and not have to see another point of view, that somehow we are protected from it. The beginning for me was when I realized that not everyone shares the same views as I, and that our different experiences have a lot to do with that.

One of our primary goals was to discover whether such encounters with diversity contribute to learning outcomes, not only among students at the University of Michigan but also among those attending a variety of four-year institutions across the country. A second key goal was to understand the extent to which these same diversity experiences contribute to the development of the skills and dispositions that students will need to be leaders in a pluralistic democracy.

Democracy Outcomes

From the time the founding fathers debated what form U.S. democracy should take — representational or directly participatory — education has been seen as the key to achieving an informed citizenry. In the compromise they reached involving both representation and broad participation, education was the mechanism that was to make broad participation possible. Benjamin Barber (1998) argues that it was Jefferson, certainly no advocate of diversity, who most forcefully argued that broad civic participation required education: "It remained clear to Jefferson to the end of his life that a theory of democracy that is rooted in active participation and continuing consent by each generation of citizens demands a civic pedagogy rooted in the obligation to educate all who would be citizens" (p. 169). To be sure, Jefferson was talking about education for those he defined as the body of citizens and not for the many who were not citizens at that time.

If education is the very foundation of democracy, how do experiences with racial/ethnic diversity affect the process of learning to become citizens? We contend that students educated in diverse institutions will be more motivated and better able to participate in an increasingly heterogeneous and complex society. In *Democratic Education in an Age of Difference*, Richard Guarasci and Grant Cornwell (1997) concur, claiming that "community and democratic citizenship are strengthened when undergraduates understand and experience social connections with those outside of their often parochial 'autobiographies,' and when they experience the way their lives are necessarily shaped by others" (p. xiii).

debates over the extent to which American democracy can survive increasing heterogeneity and group-based social and political claims. Yet, it is clear that an ethnic hierarchy or one-way assimilation, both of which call for muting differences and cultural identities, is much less likely to prevail than in the past (Fredrickson, 1999).

The theories of Aristotle and Piaget both suggest that difference and democracy can be compatible. The conditions deemed important for this compatibility include the presence of diverse others and diverse perspectives, equality among peers, and discussion according to rules of civil discourse. We hypothesize that these conditions foster the orientations that students will need to be citizens and leaders in the postcollege world: perspective-taking, mutuality and reciprocity, acceptance of conflict as a normal part of life, capacity to perceive differences and commonalities both within and between social groups, interest in the wider social world, and citizen participation.

METHOD

Samples

We tested our theory using two longitudinal databases — one from the University of Michigan and one from a national sample of college students — that would allow us to parallel our analysis as closely as possible. The Michigan Student Survey (MSS) was initiated to monitor students' response to the University of Michigan's diversity focus. This focus was the result of the Michigan Mandate, a major initiative designed both to reaffirm the centrality of diversity to the university's institutional mission and to directly address racial concerns that arose on campus during the late 1980s. The MSS database is a single-institution survey of students who entered the University of Michigan in 1990 and a follow-up survey four years later. The Michigan sample examined here included 1,129 White students, 187 African American students, and 266 Asian American students. (Native American and Latino/a students were not included due to their small sample sizes.) The MSS concluded its data collection three years before the affirmative action lawsuits were filed against the University of Michigan.

The Michigan data were particularly useful in examining the effects of experiences with racial/ethnic diversity on student outcomes. For most of its students the University of Michigan's racial and ethnic diversity create the discrepancy, discontinuity, and disequilibrium that may produce the active thinking and intellectual engagement that educators demand. At the time the MSS was conducted, 92 percent of White students and 52 percent of African American students came to the University of Michigan from segregated communities. As groups, only Asian American and Latino/a students came to the University having lived and gone to school in environments where they were not in the majority. Thus, the university's conscious effort to help students experience diversity in and out of the classroom provide the very features that foster active, conscious, and effortful thinking.

The second dataset came from the Cooperative Institutional Research Program (CIRP), a national survey conducted by the Higher Educational Research Institute at

However, the compatibility of diversity and democracy is not self-evident. Current critics of multicultural education worry that identities based on race, ethnicity, gender, class, and other categorizations are inimical to the unity needed for democracy. Yet the tension between unity and diversity, however politically charged, is not new in the United States.

In *Fear of Diversity*, Arlene Saxonhouse (1992) describes how the pre-Socratic playwrights as well as Plato and Aristotle dealt with the fear that “differences bring on chaos and thus demand that the world be put into an orderly pattern” (p. x). While Plato envisioned a city in which unity and harmony would be based on the shared characteristics of a homogeneous citizenry, Aristotle recognized the value of heterogeneity and welcomed the diverse. Saxonhouse writes: “Aristotle embraces diversity as the others had not. . . . The typologies that fill almost every page of Aristotle’s *Politics* show him uniting and separating, finding underlying unity and significant differences” (p. 235). Aristotle advanced a political theory in which unity could be achieved through differences and contended that democracy based on such a unity would be more likely to thrive than one based on homogeneity. What makes democracy work, according to Aristotle, is equality among citizens (admittedly, in his time only free men, not women or slaves) who hold diverse perspectives and whose relationships are governed by freedom and rules of civil discourse. It is a multiplicity of perspectives and discourses in response to the inevitable conflicts that arise when citizens have differing points of view, not unanimity, that help democracy thrive (Pitkin & Shumer, 1982).

Diversity, plurality, equality, and freedom are also implied in Piaget’s theory of intellectual and moral development. He argues that children and adolescents can best develop a capacity to understand the ideas and feelings of others — what he calls perspective-taking — and move to a more advanced stage of moral reasoning when they interact with peers who have different points of view. Both differing perspectives and equality in relationships are important for intellectual and moral development (Piaget, 1965). In a homogeneous environment in which young people are not forced to confront the relativity or limitations of their point of view, they are likely to conform to a single perspective defined by an authority. In a hierarchical environment in which young people are not obliged to discuss and argue with others on an equal basis, they are not likely to do the cognitive and emotional work that is required to understand how other people think and feel. These cognitive and emotional processes promote the moral development needed to make a pluralistic democracy work.

In the United States, however, common conceptions of democracy do not treat difference as being compatible with unity. In general, popular understandings of democracy and citizenship take one of two forms: 1) a liberal individualist conception in which citizens participate by voting for public servants to represent them and by other individual acts, and 2) a direct participatory conception in which people from similar backgrounds who are familiar with each other come together to debate the common good, as in the New England town meeting. Both of these conceptions privilege individuals and similarities rather than groups and differences.

The increasingly heterogeneous U.S. population challenges these popular conceptions of democracy. Consequently, we are now facing cultural, academic, and political

UCLA. The CIRP included 11,383 students from 184 institutions who were surveyed upon entering college in 1985 and again four years later (see Astin, 1993b, for administration details). The national sample included 216 African American, 496 Asian American, 206 Latino/a, and 10,465 White students attending predominantly White, four-year institutions. (Native Americans were not included due to their small sample size.) In order to parallel important controls and analyses of the CIRP with those of the Michigan dataset, we selected only students in their fourth year (1989) who participated in the four-year follow-up and in a subsequent nine-year follow-up survey. This was done to control for the level of segregation of the students' neighborhood before they entered college (a key retrospective question included only in the nine-year follow-up). The CIRP is the largest national dataset that incorporates questions about diversity that can be used to study students' educational outcomes longitudinally. The survey was conducted during an era when there were numerous racial incidents on college campuses and racial climates were highly variable according to student reports (Hurtado, 1992).

Although developed for a wide range of educational purposes, the CIRP longitudinal study was the closest national parallel to data collected locally at the University of Michigan. By examining these two datasets, we were able to identify broad patterns of educational benefits both within a single institution and across varying institutional contexts. These patterns suggest that our findings at the University of Michigan were not an anomaly but generalizable to many types of campuses. In both the national and institutional studies we used parallel controls for student demographic characteristics that could influence involvement in diversity experiences and the learning and democracy outcomes, as well as controls for pretest measures of most of the educational outcomes. Therefore, we focus here on the effects of diversity experiences on student outcomes, controlling for relevant student background characteristics and institutional characteristics, which are pertinent in the national, multi-institutional analyses.

Measures

Tables 1 and 2 show the independent and dependent measures employed in both the multi- and single-institution analyses. These are described as control variables, institutional characteristics (for the multi-institutional sample), diversity experiences, and educational outcomes. Many of the measures were constructed as indices, with alpha reliabilities shown in these tables.

Control Variables Table 1 shows that the two studies included comparable measures of control variables: ethnic/racial composition of the high school and of the precollege neighborhood, gender, high school cumulative grade point average, total SAT scores, and parental education as a measure of the student's socioeconomic background.⁶ While these are not of primary substantive interest, they are important considerations in the analyses because they represent the previous choices, preferences, and experiences of students that, unless taken into account, could have influenced the outcomes and caused an overestimation of the effects of experiences with diversity. In instances where the measures of the expected outcomes were also avail-

able on the entrance questionnaire, the entrance measures were included as control variables.

In the national study we also controlled for institutional features that might foster classroom and informal diversity experiences and/or the educational outcomes of interest in this study. In all multi-institutional analyses, we controlled for the percentage of minority enrollments in order to distinguish the effects of classroom and informal diversity interactions from the mere presence of diverse students on campus. We also controlled for two additional diversity-related institutional features obtained from faculty responses. One is an index of academic emphasis on diversity, obtained by asking faculty to assess how much they emphasize diversity in their teaching, research, and writing. The second index represents institutional emphasis on diversity, measured by faculty perceptions of the priority the institution placed on diversity. These measures have been used in previous studies (for reliability indices see Astin, 1993b; Dey, 1991; Hurtado, 1992). Finally, in *all* analyses of the national data we controlled for characteristics of institutions that are typically controlled for in multi-institutional studies such as the CIRP: whether the school is private or public, a university or a four-year college, and the selectivity of the institution (Pascarella & Terenzini, 1991).⁷

Diversity Experiences Although different questions were asked in the two studies, each provided measures of both classroom and informal interactional diversity. In the Michigan Student Study, classroom diversity was measured in the 1994 fourth-year survey using two questions. One question asked students to assess the extent to which they had been exposed in classes to “information/activities devoted to understanding other racial/ethnic groups and inter-racial ethnic relationships.” The other asked students if they had taken a course during college that had an important impact on their “views of racial/ethnic diversity and multiculturalism.”

Classroom diversity involves more than just exposure to content about racial and ethnic groups. In the MSS, students’ answers likely referred to classes that exposed them to racially/ethnically diverse students as well as to curriculum content. In 1994, when these students were seniors, they had to have taken a course that met the Race and Ethnicity Requirement (R&E) for which the Literature, Sciences, and Arts College had approved 111 courses. We obtained the racial/ethnic distribution of students in those courses for 1993–1994, the year that the MSS gathered senior data. Two-thirds of these courses had enrolled between 20 percent and 80 percent students of color. Consequently, there is a strong probability that the majority of classes White students were referring to in the MSS measure of classroom diversity included at least 20 percent students of color.

The CIRP asked fourth-year students if they had taken an ethnic studies course in college. Enrollment data for these courses were not available; however, there is no reason to believe that the ethnic studies courses attracted fewer students of color than the R&E courses did at the University of Michigan, unless one of the institutions fell into the group of colleges with very little diversity — a factor that we controlled for using institutional enrollment data.

TABLE 1 Measures of Independent Variables in the Analysis

<i>Control Variables</i>	<i>CIRP Data</i>	<i>Michigan Student Study (MSS)</i>
<i>Student Background:</i>		
Gender (female)	Dichotomous measure	Dichotomous measure
SAT scores	Obtained on entrance survey	Obtained from Michigan Registrar
Cumulative high school GPA	Obtained on entrance survey	Obtained from Michigan Registrar
Parents' education level	Obtained on entrance survey	Measured on entrance/senior survey
Racial composition of the high school	Not available at entrance, but similar items captured on the 9-year follow-up survey	Measured on entrance survey
Racial composition of the neighborhood	Not available at entrance, but similar items captured on the 9-year follow-up survey	Measured on entrance survey
Pretests on selected measures*	Measured on entrance survey	Measured on entrance survey
<i>Institutional Characteristics:</i>		
Selectivity of the college	Average SAT of entering freshmen	Not applicable—institutional characteristics are a constant for all students
Private/public control	Dichotomous measure	
University/four-year college	Dichotomous measure	
Percentage students of color (African Americans, Latino/as, Native Americans, and Asian Americans)	Derived from IPEDS data on student enrollment for each institution	
Faculty diversity emphasis	Aggregate measure of faculty incorporation of information on women and racial/ethnic groups into research, readings for courses, and writing**	No faculty level data were collected
Institutional emphasis on diversity	Aggregate measure of faculty responses to institutional diversity priorities**	No faculty level data were collected
<i>Diversity Experiences:</i>		
Informal interaction	Index of items ($\alpha = .561$): attended cultural awareness workshop, discussed racial issues, and socialized with a person of a different race	Index of four items ($\alpha = .780$): amount of contact with students from other racial groups, proportion of six best friends from other racial groups, positive interaction with diverse peers
Classroom diversity	Enrollment in an ethnic studies course	Index of two items ($\alpha = .507$): exposure in classes to information/activities devoted to understanding other racial groups, and enrollment in a course that had an impact on views on racial/ethnic diversity
Diversity events/dialogues	Not available	Index of six items ($\alpha = .612$): number of multicultural events attended and participation in a dialogue group

* Dependent measures with pretests at entrance shown in Table 2

** Derived from faculty survey at participating institutions, reported in Astin (1993b)

Exposure to diverse peers, however, does not only occur in college classrooms. For this reason, experiences with informal interactional diversity were measured in both studies. In the CIRP, this experience was measured by an index summarizing responses to three questions asked in 1989 about the extent to which students, over their college years, had socialized with someone from a different racial/ethnic group, had discussed racial issues, and had attended a racial/cultural awareness workshop. In the MSS, an index summarizing responses to several questions asked in 1994 was used to measure informal interaction. Two questions probed the positive quality of interracial/interethnic interactions in college, asking students how much such interactions had involved "meaningful and honest discussions about race and ethnic relations" and "sharing of personal feelings and problems." Another asked students to describe the gender, geographical home residency, and race/ethnicity of their "six closest friends at Michigan." For this measure we coded for the number of friends who were not of the students' own racial/ethnic group. The last question focused on quantity rather than quality, asking how much contact they had at Michigan with racial/ethnic groups other than their own. For White students we included contact with African American, Asian American, and Latino/a students, and for African American and Asian American students we included contact with White students in this measure of informal interactional diversity.⁸

In the Michigan Student Study, we also assessed experience with diversity through the number of multicultural campus events students had attended and whether they had participated in intergroup dialogues during college. The multicultural campus events were Hispanic Heritage Month, Native American Month, the annual Pow Wow, Asian American Awareness Week, a Martin Luther King Jr. Symposium, and Black History Month. Intergroup dialogues are also offered on the Michigan campus within various courses. These dialogues involve weekly sessions of structured discussion between an equal number of members (usually seven or eight) from each of two identity groups (Arab/Jewish, Anglo/Latino/a, men/women, African American/White, Native American/Latino/a, and others). The students discuss contentious issues that are relevant to their particular groups. The goals of the dialogues are four-fold: 1) to discern differences and commonalities in perspectives between and within the groups; 2) to incorporate readings on intergroup relations in their discussions; 3) to learn how to deal with conflict; and 4) to define one action that the two groups can take in coalition with each other. Participation in these multicultural events and intergroup dialogues comprise an index that includes both knowledge content and interaction with diverse others.

Learning Outcome Table 2 shows the outcome measures in the study. The theory linking diversity to learning outcomes led us to focus on measures of active thinking and engagement in learning. In the CIRP, intellectual engagement included self-rated aspirations for postgraduate education, the drive to achieve, intellectual self-confidence, and the importance placed on original writing and creating artistic works. The other learning outcome in the CIRP, academic skills, included self-rated academic ability, writing ability, and listening ability, as well as self-reported change in general knowledge, analytic and problem-solving skills, ability to think critically, writing skills, and foreign language skills.

TABLE 2 Measures of Dependent Variables

	<i>CIRP Data</i>	<i>Michigan Student Study (MSS)</i>
<i>Learning Outcomes:</i>		
Active thinking	Not available	Index ($\alpha = .797$) of four complex thinking items and three socio-historical thinking items based on Fletcher's measure of Attributional Complexity (1986, 1990), correlated with total scale .81. *
Intellectual engagement and motivation	Index of items ($\alpha = .613$): self-ratings of drive to achieve and self-ratings of intellectual self-confidence; degree aspirations in 1989; interest in attending graduate school; importance of writing original works and creating artistic works *	Index of two items ($\alpha = .650$): gained a broad, intellectually exciting education at Michigan, and satisfaction with intellectual quality and challenge of classes.
Academic skills	Index of items ($\alpha = .657$): self-change assessments in general knowledge, analytical/problem-solving skills, ability to think critically, writing skills, foreign language skills, and self-ratings of academic ability, writing, and listening ability *	Not available
<i>Democracy Outcomes:</i>		
Citizenship engagement	Index of items ($\alpha = .752$): importance of influencing the political structure, influencing social values, helping others in difficulty, involvement in cleaning up the environment, and participation in community action programs *	Not available
Compatibility of difference and democracy	Not available	Index of five items ($\alpha = .583$): belief that diversity is non-divisive; perceived commonality in life values with groups other than one's own *
Perspective-taking	Not available	Index ($\alpha = .684$) of four items of Davis's scale (1983), correlated with total scale .85 *
Racial/cultural engagement	Index of items: self-change in cultural awareness and appreciation, and acceptance of persons from different races ($\alpha = .700$)	Single item: learned about other racial/ethnic groups during college

* Pretest also available used as control at entrance to college

In the MSS, we had available a measure that directly represented the active thinking that we hypothesize is promoted by experiences with diversity. This measure includes seven items from a longer scale, which is correlated with this seven-item measure at .81 (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). They define their scale as the motivation to understand human behavior, a preference for complex rather than simple explanations, and the tendency to think about underlying processes involved in causal analysis. It has both discriminant and convergent validity and is not related to the tendency to answer questions in a socially desirable way. It is related, as it should be, to a measure of a similar construct developed by John Cacioppo and Richard Petty (1982) of an individual need for cognition, defined as the need to understand and explain the world and the enjoyment of thinking. Examples of the items in our seven-item measure are: "I take people's behavior at face value" (reverse coding), "I enjoy analyzing reasons for behavior," and "I prefer simple rather than complex explanations" (reverse coding). Because the same questions were included in the entrance questionnaire and used as controls in our regression analyses, diversity effects can be construed as affecting active thinking. The other learning outcome measure in the MSS, intellectual engagement and motivation, asked students to assess the extent to which they had "gained a broad, intellectually exciting education at Michigan" and how satisfied they were with "the intellectual quality and challenge of classes."

Democracy Outcomes According to the theory outlined here, students who had the most experience with diversity during college would be more motivated and better able to participate in an increasingly heterogeneous democracy. To participate effectively, students need to understand and consider multiple perspectives that are likely to exist when people of different backgrounds interact, to appreciate the common values and integrative forces that incorporate differences in the pursuit of the broader common good, and to understand and accept cultural differences that arise in a racially/ethnically diverse society.

In the CIRP data, citizenship engagement is a measure of students' motivation to participate in activities that affect society and the political structure. These activities include "influencing the political structure," "influencing social values," "helping others in difficulty," "being involved in programs to clean up the environment," and "participating in a community action program." Racial and cultural understanding is assessed by students' self-ratings of how much they had changed in "cultural awareness and appreciation" and "acceptance of persons from different races/cultures" since entering college.

The MSS included three measures of democracy outcomes. One outcome, perspective-taking, refers directly to the tendency to consider other people's points of view. This four-item index comes from a longer scale of empathy that was developed by Mark Davis (1983), with which the MSS index is correlated at .85. An example is "I sometimes find it difficult to see things from the other person's point of view" (reversed). The Davis scale is internally reliable and has both discriminant and convergent validity. The second MSS measure, racial/cultural engagement, is a one-item

question asking students how much they have learned during college "about the contributions to American society of other racial/ethnic groups."

A third MSS democracy measure was developed to ascertain student views about the compatibility of difference and democracy. Critics of diversity and multicultural education assert that an emphasis on groups rather than individuals and on differences between groups creates division on college campuses and threatens the very fabric of democracy. If that were true, students who had experienced the most classroom and informal interactional diversity would perceive only differences rather than commonalities and would believe that difference is inimical to democracy. Our questions directly challenged these beliefs. Commonality in values was assessed at the time of entrance to the University of Michigan and again four years later by asking students how much difference in "values in life — like values about work and family" they perceived between their own racial/ethnic group and other groups. Perception of nondivisiveness was measured by asking how much students agreed/disagreed with four statements (also used in Gurin, Peng, Lopez, & Nagda, 1999). Examples are: "The University's commitment to diversity fosters more intergroup division than understanding" and "The University's emphasis on diversity means I can't talk honestly about ethnic, racial, and gender issues." These items were scored so that high scores indicate that difference is nondivisive. The commonality in values and perception of nondivisiveness measures were combined into a compatibility of difference and democracy index (see Table 2 for construction of measures for different groups).

Self-Assessments All of these measures required students to assess themselves. Self-assessments are credible and widely accepted methods of measuring educational outcomes. For example, in a review of the research on a variety of possible indicators of college outcomes, the National Center for Higher Education Management Systems concluded that self-reported data on academic development and experiences have moderate to high potential as proxies for a national test and as possible indicators for decisionmaking in higher education (Ewell & Jones, 1993). In addition, in their major review of over 2,600 studies on the impact of college on students, Ernest Pascarella and Patrick Terenzini (1991) found that self-assessments are positively correlated with standard tests of achievement and serve quite well as indicators of college outcomes.⁹

GRE scores were not used as a measure of learning outcomes for two reasons: 1) student performance on the SAT (already in the analysis as a control variable) was correlated at .85 with the GRE, and 2) including only students who had taken the GRE in their fourth year of college would have substantially reduced the sample of students within each of the racial/ethnic groups and skewed the analytical sample with extremely high-ability students. College grades were not selected as a measure of learning primarily because grades inadequately capture the active thinking and intellectual engagement we were attempting to test. The meaning of grades also varies substantially from institution to institution, major to major, and course to course. This was particularly evident in the institution with which we were most familiar, where some departments grade on a curve and other departments have no standard method.

ANALYSES

Multiple regression analyses were performed using the two datasets. We conducted regression analyses on the multi-institutional CIRP data to explore the relationships between two types of diversity (classroom and informal interactional diversity) and the four dependent variables (intellectual engagement, academic skills, citizenship engagement, and racial/cultural engagement). Separate regressions were fit for African American, Asian American, Latino/a, and White students in the national study. Regressions were also conducted on the MSS data to explore the relationships between three types of diversity experiences (interactional diversity, classroom diversity, and events/dialogues) and the five dependent variables (active thinking, intellectual engagement, compatibility of differences, perspective-taking, and racial/cultural engagement). Again, separate regressions were run for three student groups in the MSS: African American, Asian American, and White.

Given our primary interest in the effects of informal interaction and classroom diversity measures on the outcomes described above, the regressions were structured in a blocked hierarchical regression to provide information on how these variables relate to the outcome measures after first controlling for student background characteristics (including entrance pretest measures where available) and institutional characteristics found in the CIRP data. After these statistical controls were applied, the effect of each diversity experience variable was first considered as the sole diversity predictor and then simultaneously with other diversity experiences in the entire predictive model.¹⁰ We conducted both kinds of analyses because students who have the most experience with diversity also tend to have the most informal interaction with peers from different backgrounds. We were interested in *both* the total and net effects of each type of diversity experience. Finally, variation in sample size of each of the groups necessitated reporting a wide range of significance tests — using the traditional significance levels (.05, .01, and .001) to evaluate results for the very large sample of White students, and adding the significance level of .10 for the much smaller samples of students of color.

RESULTS

As noted in the methods section, we examined the effects of each type of diversity experience in two ways — its individual impact, ignoring the other kinds of diversity experiences, and its net impact, controlling for the other kinds of diversity experiences. In the national study and the Michigan study, both sets of analyses show that diversity experiences had robust effects on educational outcomes for all groups of students, although to varying degrees.

Learning Outcomes

Table 3 summarizes the results for both the Michigan and the national study of the effects of diversity experiences on learning outcomes. The first set of columns (Model

1) provides the zero-order correlations showing the size of the maximal possible effect of diversity experiences. Model 1 also shows the standardized betas for each diversity experience when it is entered as the sole diversity predictor, along with the various control variables. The second set of columns (Model 2) gives the standardized betas for each diversity experience when it is entered simultaneously with the other diversity experience(s), again, after statistically removing the effects of the various control variables. Finally, the third set of columns gives the amount of variance that is explained by the entire model, including the control variables and the amount of variance that is attributable specifically to all the diversity experiences.

We predicted that diversity experiences would have a positive relationship with the learning outcomes. In both the national study and the MSS, this prediction was consistently supported. As shown in Table 3 and described in more detail below, one kind of diversity experience or another was significantly related to each of the learning outcomes, even after adjusting for individual students' differences upon entering college that might have predisposed them to participate, or not, in diversity experiences on their campuses. Moreover, with all but one exception, when there was a statistically significant relationship between diversity experience and learning outcomes, the observed effect was universally positive for each of the groups of students we studied.

In the national study, informal interactional diversity was especially influential in accounting for higher levels of intellectual engagement and self-assessed academic skills for all four groups of students (Table 3). The impact of classroom diversity was also statistically significant and positive for White students and for Latinos/as. The effects of classroom diversity disappeared for Asian American students when we examined the net effect, controlling for the simultaneous effect of informal interaction. One statistically significant negative result emerged for African American students in the analyses that tested the net effect of classroom diversity on self-assessed academic skills.

It is important to note in Table 3 that, when both types of diversity were simultaneously used as predictors with the national data, the effect of informal interactional diversity was nearly always maintained and was considerably larger than the effect of classroom diversity. This was true for all four groups of students, except in the comparative effects of the two kinds of diversity on intellectual engagement among Latino/a students.

A reason for the relatively greater effects of informal interactional diversity in the national data might come in part from the fact that it was measured by three indicators, while classroom diversity was represented by only one question that asked about enrollment in an ethnic studies course. Conclusions about relative importance are affected by properties of particular measures of various concepts. Still, at the very least, these analyses show that actual interaction with diverse others was an influential aspect of the educational experiences of the students in the national sample.

The Michigan study provided both a broader measure of classroom diversity and two types of informal interactional diversity measures. One measure, the amount and quality of interaction with diverse peers, was conceptually comparable to the informal interactional measure in the national study. It is important to point out, however,

TABLE 3 Effect of Diversity Experiences on Learning Outcomes

	Model 1		Model 2		Percent variance explained	
	As sole diversity predictor		Informal interaction controlling for diversity	Classroom diversity controlling for informal interaction		Whole model
	Informal interaction	Classroom diversity	Beta	Beta		
	Zero-order correlation	Zero-order correlation	Beta	Beta	Attributable to both diversity measures	
A. CIRP National Study						
Whites						
Intellectual engagement	.230	.095	.130***	.123***	26.2%	
Academic skills	.243	.115	.168***	.159***	14.7%	
African American						
Intellectual engagement	.149	.014	.146**	-.083	24.0%	
Academic skills	.196	-.021	.175**	-.126*	16.1%	
Asian American						
Intellectual engagement	.218	.044	.170***	.161***	28.9%	
Academic skills	.199	.078	.134**	.124**	15.4%	
Latino						
Intellectual engagement	.147	.116	.138*	.126*	31.7%	
Academic skills	.241	.178	.258***	.135*	21.5%	
					2.8%	
					7.0%	

B. Michigan Student Study

Model 1

Model 2

As sole diversity predictor

	Interactional diversity		Classroom diversity		Events/ Dialogues		Informal interaction controlling for classroom diversity and Events/ Dialogues		Classroom diversity controlling for informal interaction and Events/ Dialogues		Events/ dialogues controlling for informal interaction and classroom diversity		Percent variance explained
	Zero-order correlation	Beta	Zero-order correlation	Beta	Zero-order correlation	Beta	Beta	Beta	Beta	Beta	Beta	Whole model	
White students													
Active thinking	.174	.100***	.348	.196***	.321	.176***	.054*	.158***	.130***	.43.2%	5.3%		
Intellectual engagement	.053	.084	.121	.112***	.119	.108***	.018	.090**	.086***	3.2%	1.9%		
African American students													
Active thinking	.064	.019	.258	.211*	.086	-.052	.022	.227**	.227**	42.3%	5.1%		
Intellectual engagement	.157	.117	.151	.169*	.121	.126**	.166*	.168*	.168*	9.3%	6.6%		
Asian American students													
Active thinking	.179	.077	.374	.256***	.207	.060	.102*	.291***	.291***	48.9%	8.1%		
Intellectual engagement	.093	.086	.158	.156**	.002	.001	.087	.361**	.161**	4.3%	3.0%		

Note: In the MSS, Betas shown control for student characteristics; in the CIRP, the Betas shown control for student characteristics, institutional characteristics, and (where available) for measures of the outcomes taken at time of entrance to college. p < .10 = ~, p < .05 = *, p < .01 = **, and p < .001 = ***

that the Michigan measure is unique in that it assesses both the quality and the quantity of interaction with diverse peers. It includes students' assessments of how many positive personal interactions they had with peers from racial/ethnic backgrounds different from their own. The other, a measure of participation in multicultural events and intergroup dialogues, takes advantage of our knowledge of diversity experiences within the student environment at the University of Michigan.

In the Michigan study, all three kinds of diversity experiences were influential for at least one of the groups, and for at least one measure of learning outcomes. This may simply indicate that students of color respond differently to opportunities for diversity experiences and have distinct interaction patterns that affect different outcomes. The most consistent effects were found for White students. All three kinds of diversity experiences were significantly related to higher levels of active thinking scores in the senior year, controlling for levels of active thinking in the freshman year among White students. In addition, both classroom diversity and events/dialogues were significantly related to intellectual engagement for this group. The results show clearly that the largest effects came from campus-facilitated diversity activities, namely classroom diversity and multicultural events, and intergroup dialogues held on campus (the dialogues facilitate interaction among an equal number of diverse peers). For Asian American students, classroom diversity also fostered both of the learning outcomes.

For African American students in the Michigan study, classroom diversity was the only predictor that had a statistically significant effect on both learning outcomes. The other two diversity experiences were related to one of each of these learning outcomes: events/dialogues participation was statistically related to intellectual engagement in the Model 1 regression; informal interaction was statistically related to intellectual engagement in Model 2.

Democracy Outcomes

We also predicted that diversity experiences would help students develop the skills to participate and lead in a diverse democracy. The results of both studies support this prediction for all groups of students. Some kind of diversity experience was related to each of the democracy outcomes, even after adjusting for individual differences on measures of most of these outcomes at the time students entered college. (See Table 4 and the description of results that follows.)

In the national study, informal interactional diversity was significantly related to both citizenship engagement and racial/cultural engagement for all four groups. This was also true of the effect of classroom diversity on democracy outcomes for White students. In contrast, the effects of classroom diversity were more group-specific for students of color and, on the whole, classroom diversity had less consistent effects for these students. The major finding, however, is that informal interaction was the key for fostering democracy outcomes for all groups in the national study.

In the Michigan study all three types of diversity experiences had significant positive effects on the compatibility of difference and the racial/cultural engagement outcomes for White students. White students who had the greatest amount of informal

interactional diversity and experience with diversity in the classroom most frequently believed that difference is compatible with democracy and were the most engaged with racial/cultural issues. These two diversity experiences also significantly affected White students' perspective-taking.

For African American and Asian American students in the Michigan study, the impact of the three diversity experiences was less consistent. Among both groups, informal interaction with diverse peers was associated with an understanding that difference and democracy can be compatible. Further, classroom diversity had a positive effect on racial and cultural engagement for both groups. Participation in multicultural events and intergroup dialogues only had a significant effect on perspective-taking among African Americans. Among Asian Americans these activities were related to two of the democracy outcomes (Model 1), although the net effect of this kind of diversity was no longer statistically significant when the other kinds of diversity were taken into account (Model 2).

Summary

Several conclusions can be drawn from these results. First, an important feature of our analyses is the consistency of results across both the national and Michigan studies. Second, in the national study informal interactional diversity was influential for all groups and more influential than classroom diversity. Third, of the many analyses we conducted, all but one that had a significant effect confirmed our prediction of a positive relationship between diversity experiences and educational outcomes as posited in our theory. Fourth, with few exceptions, the separate diversity effects remained statistically significant after controlling for the other diversity experiences in Model 2.¹¹

Finally, Tables 3 and 4 show that the whole models (including the precollege background controls, initial measures of senior-year outcomes, where available, diversity experience measures, and, in the national study, measures of institutional characteristics) explain between 3 percent and 49 percent of the variance across both studies, across the various groups of students, and across the various outcome measures. More important, however, is the amount of variance that is attributable to diversity experiences. In the national study, the two diversity experiences explained between 1.5 percent and 12.6 percent of the variance in the different educational outcomes for the four groups. In the Michigan study, the three diversity experiences explained between 1.9 percent and 13.8 percent of the variance across the educational outcomes of the three groups.

The size of these effects is commonly viewed in social science as highly consequential for policy, especially when outcomes and predictors are likely to be measured with substantial random error, as they typically are in studies of college impact. It is widely known that the kinds of processes and outcomes of interest here are difficult to measure with high precision and that measurement error diminishes effect size. Given that the dependent variables in the CIRP analyses were multiple-item scales with calculated reliability estimates, we replicated the analyses for each of the racial/ethnic groups in the national study after applying the standard attenuation correction. In

TABLE 4 Effect of Diversity Experiences on Democracy Outcomes

	Model 1		Model 2		Percent variance explained			
	As sole diversity predictor		Classroom diversity					
	Informal interaction	Classroom diversity	Informal interaction controlling for classroom diversity	Classroom diversity controlling for informal interaction				
	Zero-order correlation	Beta	Beta	Beta				
<i>Whites</i>								
Citizenship engagement	.372	.301***	.211	.138***	.282***	.070***	20.2%	7.8%
Racial/cultural engagement	.350	.337***	.200	.164***	.314***	.083***	4.3%	10.2%
<i>African American</i>								
Citizenship engagement	.335	.328***	.138	.121**	.319***	.035	25.1%	9.3%
Racial/cultural engagement	.269	.251***	.097	.040	.258***	-.027	5.4%	5.6%
<i>Asian American</i>								
Citizenship engagement	.342	.272***	.138	.066	.271***	.001	18.8%	6.3%
Racial/cultural engagement	.375	.365***	.211	.185***	.341**	.100*	8.5%	12.6%
<i>Latino</i>								
Citizenship engagement	.383	.311***	.334	.214***	.270***	.134*	28.1%	9.1%
Racial/cultural engagement	.330	.313***	.175	.142*	.298***	.044	5.3%	8.5%

Model 1 Model 2

B. Michigan Student Study

	Model 1		Model 2		Percent variance explained	Attributable to the three diversity measures	
	As sole diversity predictor	Events/Dialogues	Informal interaction controlling for diversity and interaction and	Classroom diversity controlling for informal interaction and			Events/dialogues controlling for informal interaction and
	Zero-order correlation	Beta	Zero-order correlation	Beta	Beta	Whole model	
<i>White Students</i>							
Compatibility of differences	.178	.156***	.142	.129***	.082*	.195***	7.4%
Perspective-taking	.167	.090*	.185	.123***	.117**	.003	2.0%
Racial/cultural engagement	.172	.172***	.316	.300***	.261***	.096***	11.1%
<i>African American Students</i>							
Compatibility of differences	.230	.270*	.279	.251***	.233*	-.098	11.2%
Perspective-taking	.158	.138	.088	-.052	-.072	.212*	6.1%
Racial/cultural engagement	.049	.107	.338	.352***	.365***	-.026	13.8%
<i>Asian American Students</i>							
Compatibility of differences	.198	.193*	.087	.088	.056	.142	6.2%
Perspective-taking	.061	.056	.040	.069	.085	-.024	0.8%
Racial/cultural engagement	-.009	-.047	.359	.350***	.320***	.071	11.8%

Note: In the MSS, Betas shown control for student characteristics; in the CIRP, the Betas shown control for student characteristics, institutional characteristics, and (where available) for measures of the outcomes taken at time of entrance to college. $p < .10 = *$, $p < .05 = **$, $p < .01 = ***$, and $p < .001 = ****$

each instance, the results were consistent with those presented here, but with larger regression coefficients and an enhanced level of explained variance. For example, the coefficients and degree of predictability associated with the White student analyses were roughly one-third larger in the attenuation-corrected analyses.

DISCUSSION

The results of these longitudinal analyses show, as our theory predicts, that the actual experiences students have with diversity consistently and meaningfully affect important learning and democracy outcomes of a college education. Diversity experiences explain an important amount of variance in these outcomes. These effects are quite consistent across the various outcomes, across the national and single institutional studies, and across the different groups of students.

Is Curriculum Enough?

Some opponents of affirmative action advance the view that the educational benefits of diversity can be achieved without the presence of racially/ethnically diverse peers (Hopwood, 1996). Since content about race/ethnicity can be introduced into courses even at institutions with minimal student diversity, it was especially important for our research to explore whether informal interaction with diverse peers had significant effects independent of the effects of classroom diversity. In the national study, informal interaction remained statistically significant in all but one test when classroom diversity was added as a control. We also found that informal interaction with diverse peers was consistently influential on all educational outcomes for all four groups of students and, with one exception, that the effect of informal interaction was larger than that of classroom diversity.

In the Michigan study, the unique contribution of significant informal interaction effects remained on democracy outcomes when the other diversity experiences were added as controls, and were actually more consistent on learning outcomes in Model 2 than in Model 1. The results for White students show that the effects of the three different kinds of diversity experiences are more comparable to each other than was true in the national study, and the results for African American and Asian American students show a fairly differentiated picture of effects. While classroom diversity carried greater weight in some cases and informal interactional diversity or events/dialogues in others, we could not conclude that the presence of racially/ethnically diverse peers is irrelevant to the diversity benefits for any of these groups of students. Moreover, as pointed out earlier, classroom diversity at the University of Michigan nearly always involves the presence of diverse students as well as exposure to curriculum content addressing diversity. The success of these curricular initiatives is facilitated by the presence of diverse students and a pedagogy that facilitates learning in a diverse environment. In conclusion, we find that education is enhanced by extensive and meaningful informal interracial interaction, which depends on the presence of significantly diverse student bodies.

In the introduction to this article, we laid out a theoretical rationale for why actual experience with diversity provides the process through which the presence of diverse peers affects the education of all students. The results of our research support this rationale across both studies and for all groups of students. Still, in the months immediately following the *Gratz v. Bollinger* and *Grutter v. Bollinger* trials in district court, opponents of affirmative action began to argue that diversity experience is irrelevant legally and that the only evidence relevant to these cases would have to show that the percentage of minority students on a campus has a direct effect on educational outcomes. An *amicus* brief filed on behalf of the plaintiffs in these Michigan lawsuits claims that Justice Powell defined diversity in his opinion in the *Bakke* case simply as the percentage of minority students on a campus. While the interpretation of what Justice Powell said is, of course, up to the courts, his statement includes a long passage quoting William Bowen, then president of Princeton University, on how "a great deal of learning occurs informally . . . through interactions among students" (*Regents*, 1978, p. 312). Justice Powell's use of Bowen's statement indicates that Powell understood that actual interaction with diverse peers is a major component of the effects of diversity.

The conclusion that the racial diversity of a campus operates *through* students' experiences is powerfully supported by the research reported here. It is also supported by a developing body of research on diversity that demonstrates the significant impact of interactions with diverse peers (Chang, 1999; Hurtado, 2001; Pascarella et al., 1996). At a more general level, higher education researchers have noted the critical importance of students' college experiences in their personal development. In a review of the impact of college on students, Pascarella and Terenzini (1991) note that structural features of institutions (size, control, selectivity, percentage of minority students, etc.) generally have only an indirect influence on students — their effects being mediated through the experiences students have in the institution's general environment. If it were true that increasing the number of minority students on a campus must *by itself be sufficient* for achieving desired educational outcomes, then having good buildings, high faculty salaries, and good libraries would all be sufficient to ensure a good education. No one with the responsibility for educating students would make such an argument, precisely because the nature of educational activities and the extent to which the students make use of these resources are crucial for achieving an excellent education. Thus, a diverse student body is clearly a resource and a necessary condition for engagement with diverse peers that permits higher education to achieve its educational goals.

Diversity enables students to perceive differences both within groups and between groups and is the primary reason why significant numbers of students of various groups are needed in the classroom. The worst consequence of the lack of diversity arises when a minority student is a token in a classroom. In such situations, the solo or token minority individual is often given undue attention, visibility, and distinctiveness, which can lead to greater stereotyping by majority group members (Kanter, 1977). These effects of the solo or token situation are well-documented in the research literature (Lord & Saenz, 1985; Mellor, 1996; Sekaquaptewa & Thompson, 2002; Spangler, Gordon, & Pipkin, 1978; Thompson & Sekaquaptewa, 2002; Yoder,

1994). Research shows that individuals become more aware of within-group variability when the minority group is not too small relative to the majority group (Mullen & Hu, 1989; Mullen & Johnson, 1993), and that individuals have more complex views of members of other groups when relative group size is not greatly imbalanced (Mullen, Rozell, & Johnson, 2000).

The results of our research also support the conclusion of an *amicus* brief filed on behalf of the University of Michigan by General Motors:

Diversity in academic institutions is essential to teaching students the human relations and analytic skills they need to thrive and lead in the work environments of the twenty-first century. These skills include the abilities to work well with colleagues and subordinates from diverse backgrounds; to view issues from multiple perspectives; and to anticipate and respond with sensitivity to the needs and cultural differences of highly diverse customers, colleagues, employees, and global business partners. (Brief of General Motors, 2000, p. 2)

Significant Features of the Research

Four features of this research give it particular importance in the continuing debate about education and diversity. First, we have offered a theoretical rationale for the impact of diversity, whereas much of the testimony offered in previous court cases in higher education has been largely anecdotal. Second, the consistency of the results across both a national study of multiple institutions and a single institution provides significant support for our theoretical rationale. This kind of cross-validation is not always possible and in this instance increases confidence in our conclusions. Third, having both a national and a single institutional study protects against inappropriate generalizations that might have been made had only one study been available for this research. For example, we might have generalized from the national study that informal interactional diversity is always more important than classroom diversity, whereas the Michigan study calls for a more nuanced conclusion. Fourth, the longitudinal nature of both studies, in which many of the same measures were taken at entrance to college and four years later, made it possible to talk about an effect of diversity with some assuredness. In most of the analyses reported here it was possible to control for students' scores on the outcome measures when they entered college. This is a traditional method of assessing effects in studies of college students and allows us to conclude that diversity experiences had an impact on active thinking and intellectual engagement and on the orientations and sentiments that students will need to become leaders in a diverse democracy.

Other control variables that we employed in all analyses also address, at least partially, the selectivity problem — that certain kinds of students might be predisposed to take courses that deal with race and ethnicity and to interact with students from varied backgrounds. For example, it is plausible that students who entered college with greater exposure to diverse peers because they lived in racially heterogeneous neighborhoods and attended heterogeneous high schools might seek diversity experiences in college. We were able to control for this because we had measures of neighborhood and high school racial composition in both studies. The control for initial

position on the outcome measures also minimizes selectivity to some extent. It adjusts for the possibility that students already intellectually engaged and motivated to be active thinkers — or students already committed to participate in citizenship activities and to understand the perspectives of other people when they enter college — might choose to take diversity courses and to seek relationships with diverse students. A careful reader will know, however, that the controls for these predisposing influences do not remove all sources of selection bias. Our approach does not control for correlated error in the predisposing and outcome measures, and correlated error may bring about selection bias. This is a limitation in the study, although in the Michigan data we have attempted to further reduce selection bias in another way. We were able to demonstrate an effect of classroom diversity for students who did not choose to take race and ethnicity courses but were required to do so for college graduation. As we have already noted, undergraduates in the College of Literature, Sciences, and the Arts, who comprise 70 percent of the Michigan study sample, are required to take at least one course that addresses issues of race/ethnicity. This requirement significantly decreases the likelihood that selection bias could explain the effects of experience with classroom diversity in the Michigan study results.

Implications for Practice

In the post-civil rights era and beyond, higher education leaders set the vision to create in their institutions a microcosm of the equitable and democratic society we aspire to become. The admission of a more racially/ethnically diverse student body is an important starting point in realizing this vision. Classroom diversity, diversity programming, opportunities for interaction, and learning across diverse groups of students in the college environment now constitute important initiatives to enhance the education of all students.¹² The results of this research not only support the curricular initiatives that introduce diversity into college courses, but also suggest that more attention should be given to the types of experiences students have with diverse peers inside and outside the classroom. Both the theory and findings indicate that individual students benefit when they are engaged with diverse peers; however, as a society we have provided no template for interaction across racial/ethnic groups and such interaction cannot be taken for granted in the college environment. Helping faculty develop a pedagogy that makes the most of the diverse perspectives and student backgrounds in their classrooms can foster active thinking, intellectual engagement, and democratic participation. In addition, colleges and universities should provide a supportive environment in which disequilibrium and experimentation can occur by increasing interaction among diverse peers and help faculty and students manage conflict when individuals share different points of views. (See Gurin, Nagda, and Lopez, in press; Lopez, Gurin, and Nagda, 1998; and Nagda, Gurin, and Lopez, in press, for analyses of the effects of the Intergroup Relations, Community and Conflict Program, a program at the University of Michigan explicitly designed to accomplish these pedagogical and learning goals.) Given the evidence from higher education research on the impact of peer groups (Astin, 1993b; Kuh, 1993; Pasacarella & Terenzini, 1991), student affairs administrators may understand best the power of peer group interaction for student

learning and development. However, in order to foster citizenship for a diverse democracy, educators must intentionally structure opportunities for students to leave the comfort of their homogeneous peer group and build relationships across racially/ethnically diverse student communities on campus.

NOTES

1. Justice Lewis Powell is quoting, in part, the U.S. Supreme Court's decision in *Keyshian v. Board of Regents* (1967).
2. The Supreme Court has not acted on affirmative action in higher education admissions since the *Bakke* case in 1978. In that case, Justice Powell wrote the defining opinion. Controversy exists with respect to how many justices joined him in arguing that race could be used as one of many factors in admissions provided that the institution could show that it was being used to achieve racial/ethnic diversity, that diversity was a compelling governmental interest, and that the method of achieving diversity was "narrowly tailored" to meet that interest. Narrow tailoring means that race is used no more than is necessary to achieve diversity and that it is only one of many factors being used. Justice Powell argued that diversity is a compelling interest, though of course there are debates about what he meant by diversity. These arguments are part of the legal dispute now being heard in the courts in two cases involving the University of Michigan (*Gratz v. Bollinger, et al.*, 2002; *Grutter v. Bollinger, et al.*, 2002).
3. As of this writing, the Court has not ruled in *Gratz*. The Center for Individual Rights, representing the plaintiff, Barbara Grutter, has appealed the Sixth Circuit Court decision in the law school case to the U.S. Supreme Court.
4. Similar ideas have been offered by sociologists Melvin Kohn and Carmi Schooler (1978) in a series of classic papers delineating features of work environments that produce "intellectual flexibility." They found that work that involves tasks requiring workers to think and make judgments is an important determinant of intellectual flexibility. Workers who are less closely supervised and thus have to think about what they are doing demonstrate more thoughtful response patterns.
5. Connecting racial and ethnic diversity to multiple perspectives does not mean that students from a particular group have identical perspectives. Our point is not to argue that all members of a particular racial/ethnic group are the same due to some inherent, essential, and probably biological quality. Our argument is the exact opposite of such a group-based and stereotypical assumption. As Jonathan Alger (1998) stresses, the import of diversity comes from the range of similarities and differences within and among racial groups.
6. Parental education level was the only socioeconomic status (SES) proxy common to both the national and Michigan datasets. It is important to note that measures of parental education have been used in previous CIRP studies as part of a latent SES construct in confirmatory factor analyses using samples of diverse students, with father's education loading at .79 and mother's education loading at .86 (Hurtado, Dey, & Trevino, 1994).
7. We ran preliminary analyses using a Hierarchical Linear Modeling (HLM) approach, but the results obtained were not substantially different from those produced by models based on a traditional linear model approach. Moreover, an analysis of diagnostic statistics (such as the intraclass correlation coefficient) did not suggest that it would be productive to consistently employ the HLM approach. Therefore, we proceeded with the multiple regression analysis.
8. The MSS queried students of color about their interactions with other groups of color, but in this article we emphasize the major racial divide in the United States between Whites and groups of color. The complexities of interactions among different groups of color require separate treatment because they cannot be given the depth of analysis they deserve within this one paper.
9. Further evidence for the validity of using self-reports comes from a study (Anaya, 1999) that analyzed data from a subsample of the students who had taken the GRE, drawn from the CIRP co-

- hort analyzed here. Anaya's results show that similar substantive conclusions can be made using GRE scores and using students' self-assessments of their learning.
10. Analyses testing for statistical interaction effects among the diversity experiences and outcomes did not produce a significant increase in the variance explained in the additive regression model. Therefore, we focus here on the main effects of the diversity experiences.
 11. In the national study, 82 percent of the separate diversity effects were still statistically reliable when the two diversity experiences were considered simultaneously. When the three diversity experiences were considered simultaneously in the Michigan Student Study data, three of the separate diversity effects were no longer statistically reliable, and two additional net effects were statistically significant.
 12. Over 60 percent of institutions have added some type of diversity course requirement to their general education program.

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