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Promoting Participation in a Diverse Democracy: A Meta-Analysis of College Diversity Experiences and Civic Engagement

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In recent years, American colleges and universities have seen greater diversity among their undergraduate students and greater civic interest and action among these students. In fact, many have argued that meaningful engagement with diversity constitutes an important means of preparing college graduates to participate and flourish in a globalized and rapidly changing society. The current study explores this assertion by conducting a meta-analysis of the relationship between college diversity experiences and civic engagement. The results show that diversity experiences are associated with increases in civic attitudes, behavioral intentions, and behaviors, and the magnitude of this effect is greater for interpersonal interactions with racial diversity than for curricular and cocurricular diversity experiences. The strength of the relationship between diversity and civic engagement also depends on the type of civic outcome and whether changes in that outcome are assessed through self-reported gains versus longitudinal methods.

Keywords: diversity, civic engagement, race/ethnicity, college students, meta-analysis.

The success of American democratic society relies heavily on the civic and political engagement of its citizens. Putnam (2000) famously argued that, during the last three decades of the 20th century, Americans became much less engaged in terms of political participation, charitable contributions, involvement in community organizations, and even participation in social activities. Some of these trends were also apparent among college students: Entering first-year students were much less politically engaged than their predecessors, but they were simultaneously more likely to have done volunteer work and to continue doing so during college (Astin, 1998). After the tragedy of 9/11, many young Americans have become more civically active. Teenagers and young adults are now highly involved in a variety of civic activities (Zukin, Keeter, Andolina, Jenkins, & Delli Carpini, 2006), and college students have become increasingly engaged in politics and community service since 2001 (Pryor, Hurtado, DeAngelo, Palucki Blake, & Tran, 2010; Sander & Putnam, 2010).

Also during the past several decades, American colleges and universities—not to mention American society—have become much more diverse in terms of students' race/ethnicity, socioeconomic background, and gender ("College Enrollment," 2009; Nettles & Perna, 1997). This diversification has led to some challenges on college campuses (e.g., promoting a positive racial climate), but it also holds substantial promise for improving the civic learning and development of all students. College students will ultimately work and live in an increasingly heterogeneous society, so students who are exposed to diverse people and perspectives may be more motivated and prepared to participate fully in civic life. Whether students experience diversity inside or outside of the classroom, these interactions have the potential to introduce students to new ideas and to challenge their preexisting views (e.g., Gurin, Dey, Hurtado, & Gurin, 2002). As a result, students' attitudes toward civic issues—particularly those related to inequality and social justice—may shift in substantial ways, and students may become more involved in community service and political activities.

This meta-analytic review investigates the relationship between college diversity experiences and civic engagement. Although one large-scale research project has provided a detailed examination of this relationship (see Hurtado, 2004, 2005), many important questions still remain. To what degree do the civic benefits associated with interpersonal interactions with racial diversity differ from interactions with nonracial diversity? Do these effects vary depending on whether the civic outcome is attitudinal or behavioral? And to what degree is the size of the relationship the product of sample characteristics or other aspects of the study design? Below, a discussion of the literature is organized in terms of three broad factors that may moderate the link between diversity and civic engagement: type of civic outcome, type of diversity experience, and study design characteristics.

Type of Civic Outcome

In his influential book, Ehrlich (2000) defines civic engagement as

> working to make a difference in the civic life of our communities and developing the combination of knowledge, skills, values and motivation to make that difference. It means promoting the quality of life in a community, through both political and non-political processes. (p. vi)

This definition is operationalized through the Civic Engagement VALUE Rubric of the Association of American Colleges and Universities (2010). According to this rubric, civic engagement includes not only civic behaviors (e.g., service and political activities) but also commitment to and valuation of social action, social justice orientation, leadership skills, perspective taking, and intercultural knowledge and understanding. The breadth of this construct is also evident in M. B. Smith, Nowacek, and Bernstein's (2010) definition of the word *citizenship* and in Hurtado's (2001, 2005) use of the terms *civic* and *democratic* to describe a range of student outcomes. However, an important distinction must be made between intercultural awareness and understanding versus intergroup bias. The former category involves gaining a cognizance and appreciation of group differences; Ehrlich and others argue that this constitutes an important attribute of civic-minded individuals. On the other hand, the latter category includes prejudice, stereotyping, discrimination, and negative affect directed toward a particular group; the link

between intergroup interactions and intergroup bias has already been examined in several quantitative meta-analyses (Denson, 2009; Pettigrew & Tropp, 2006; Tropp & Pettigrew, 2005). Although increased intercultural knowledge and awareness may ultimately contribute to decreased bias, these are clearly distinct outcomes (Dovidio et al., 2004).

Several studies of civic engagement have examined college student attitudes and values using the same five to seven items from the Cooperative Institutional Research Program's (CIRP; 2009) Freshman and Senior Surveys; these items include the importance placed on "participating in a community service program," "influencing social values," and "helping others who are in difficulty." Previous studies have provided several different names for the corresponding construct, such as "civic engagement" (Herrmann, 2005), "citizenship engagement" (Gurin et al., 2002), "importance of social action engagement" (Nelson Laird, Engberg, & Hurtado, 2005), "social agency" (Nelson Laird, 2005), "prosocial orientation" (Brandenberger, Bowman, Hill, & Lapsley, 2010), and "commitment to activism" (Vogelgesang, 2001). Although essentially the same items were used to gauge this outcome, the impact of diversity experiences varies considerably within and across studies, which suggests that the type of diversity experience and/or other study design characteristics may at least partly account for the divergent results.

Although most research on college diversity and civic engagement has focused on nonbehavioral outcomes (i.e., attitudes, knowledge, and skills), a few studies have predicted student behaviors (Gurin, Nagda, & Lopez, 2004; Hurtado, 2005; Johnson & Lollar, 2002; Umbach & Kuh, 2006) and behavioral intentions (Zuniga, Williams, & Berger, 2005). These studies have demonstrated fairly consistent, positive effects of diversity experiences on behaviors and intentions, particularly when predicting a continuous dependent variable (DV; e.g., time spent volunteering). Current theoretical perspectives posit that college diversity experiences have their most immediate effects on student attitudes and perceptions (Bowman & Brandenberger, in press-a; Gurin et al., 2002), which implies that the resulting attitudinal shifts may or may not ultimately translate into social action. By this logic, the average effect size should be larger for nonbehavioral outcomes than for behaviors and behavioral intentions.

Among the nonbehavioral civic outcomes, diversity experiences might be more strongly related to some attitudes and skills than others. Intuitively, diversity experiences would seem to have a greater impact on civic outcomes that are diversity related than those that are not. In contrast, diversity experiences would not seem to be closely linked to leadership skills, particularly when these skills are measured very broadly. For example, some research has used simply a single item of self-reported leadership skills (Hurtado, 2001), and others also include one or two additional items about public speaking ability, social self-confidence, or communication skills (Antonio, 2001; Hurtado, 2005; Jayakumar, 2008; Kotori, 2009). Diversity experiences may strongly influence tendencies or skills that are highly relevant to effective leadership (e.g., perspective taking, acceptance of diverse others), but these are not included within most college student leadership measures. Indeed, several studies with diversity-related civic outcomes have substantial effect sizes (Gurin et al., 2002, 2004; Hu & Kuh, 2003; Luo & Jamieson-Drake, 2009; Umbach & Kuh, 2006), whereas leadership abilities seem to be associated

with fairly weak effects (Antonio, 2001; Hurtado, 2001, 2005; Jayakumar, 2008; VanHecke, 2006).

Type of Diversity Experience

College diversity experiences can generally be classified into one of three categories (e.g., Hurtado, Milem, Clayton-Pedersen, & Allen, 1999). First, structural diversity describes the representation of diverse people with a larger group, which is often operationalized as the proportion of students of color attending a particular college or university. As Gurin (1999) and others have argued, structural diversity does not directly yield educational benefits, but it serves to increase the opportunities for interactions with diverse peers to occur. Consistent with this perspective, Denson and Chang (2009) did not find a direct link between structural diversity and civic outcomes. However, the proportion of students of color at an institution does have an indirect, positive effect on civic interest and engagement that is mediated by the frequency of interracial interactions (Chang, Astin, & Kim, 2004; Gurin, 1999).

Second, "classroom diversity" consists of not only diversity-related courses (e.g., ethnic studies, women's studies) but also involvement with a structured cocurricular activity (e.g., cultural awareness workshops, identity-based student organizations, multicultural campus events). To emphasize the fact that some of these "classroom diversity" experiences do not occur in traditional classroom settings, Denson (2009) has referred to these as "curricular/co-curricular diversity experiences." Research on this form of diversity and civic outcomes has largely focused on the impact of courses and workshops, but some studies have found generally positive (yet inconsistent) effects for participation in student organizations and events (Antonio, 2001; Engberg, 2007; Johnson & Lollar, 2002; Kotori, 2009; Vogelgesang, 2001; Zuniga et al., 2005). Another important form of curricular or cocurricular diversity is intergroup dialogue (Schoem & Hurtado, 2001). These dialogue programs, which vary in duration and academic emphasis across campuses, typically involve small groups of students who are from two social groups that have a tradition of disagreement or conflict (e.g., Jews and Muslims). Through the use of a trained peer moderator, readings, and focused reflections, students interact within a safe space to discuss and reconsider their views on controversial intergroup topics. In some ways, intergroup dialogue is the most structured form of college diversity experiences. Some research has found that participation in intergroup dialogue has a sizable positive impact on civic outcomes (Gurin et al., 2004; Mayhew & Fernandez, 2007), whereas Hurtado (2005) found that these effects were generally minimal.

Third, informal interactional diversity includes the frequency and quality of interactions with diverse peers that occur outside of a formal curricular or cocurricular context. Most research has specifically examined interactions across racial diversity, but others have explored interactions with multiple forms of diversity (Hu & Kuh, 2003; Kendall Brown, 2007; VanHecke, 2006; Zuniga et al., 2005). In a meta-analysis of college diversity experiences and cognitive development, Bowman (2010c) found that interactions with racial diversity are associated with greater cognitive gains than interactions with nonracial diversity, diversity course work, and diversity workshops. Bowman suggested that this pattern was the product of both the salience of racial diversity (relative to some other forms of diversity)

and the importance of interpersonal contact in challenging students' preexisting worldviews. Consistent with this view, a meta-analysis by Pettigrew and Tropp (2008) found that increased empathy and perspective taking are key mediators of the relationship between intergroup contact and prejudice, and Dovidio et al. (2004) suggest that intergroup empathy is primarily promoted by interpersonal contact (as opposed to diversity workshops or course work). Because a similar process is likely responsible for shaping civic attitudes and behaviors, it was expected that informal interactions with racial diversity would also be more positively related to civic outcomes than would diversity course work, involvement with multicultural student organizations and events, and interactions with nonracial diversity. However, because intergroup dialogue involves substantial challenge, support, and intergroup interactions, these programs were expected to be as strongly related to civic outcomes as are interpersonal interactions with racial diversity.

Study Design Characteristics

The sampling, measurement, and analyses used within a study often have some impact on the observed effect size. In previous meta-analyses of diversity and college student outcomes, Denson (2009) found that the use of control variables and/or matched samples was associated with smaller effects on racial bias, and Bowman (2010c) found that controlling for at least one college experience was related to smaller effects on cognitive development. These findings suggest studies that do not use such control variables may overestimate the relationship between diversity and subsequent outcomes. Students who are involved with one meaningful form of college engagement (e.g., a multicultural student organization) are more likely to be involved with other educationally beneficial activities (Cruce, Wolniak, Seifert, & Pascarella, 2006; Kuh et al., 2001), which implies that regression models predicting college student outcomes will be underspecified if only one college experience is used as an independent variable (see Cohen, Cohen, West, & Aiken, 2003). Therefore, it is reasonable to expect a similar relationship between the inclusion of other college experience variables and effect size to be evident in the current study.

Moreover, the way in which the DV is measured may also have an effect. Many studies ask college students to report their own gains in learning and development (i.e., retrospective estimates of how one has changed over time). For example, the National Survey of Student Engagement (NSSE) solicits students' perceptions regarding the extent to which "your experience at this institution contributed to your knowledge, skills, and personal development" on numerous outcomes (NSSE, 2010, p. 3), and the CIRP College Senior Survey asks students to report to what extent their skills and abilities are stronger or weaker "compared with when you first entered this college" (CIRP, 2009, p. 1). In recent years, the validity of these self-reported gain measures has come under increased scrutiny. The correlations between longitudinal measures of student growth (i.e., those that involve outcome data from multiple assessments) and self-reported gains that purportedly gauge the same construct are startlingly low (Bowman, 2010b; Bowman & Brandenberger, in press-b; Gosen & Washbush, 1999), and regression analyses that predict the same construct using both self-reported and longitudinal gains find substantially divergent results depending on how the outcome is measured (Anaya,

1999; Bowman, 2010b; Bowman & Brandenberger, in press-b; Whitt, Edison, Pascarella, Nora, & Terenzini, 1999). Therefore, the effect of college diversity experiences may also depend on whether civic engagement is assessed via self-reported versus longitudinal gains.

Decades of psychological research suggests that people's attempts at introspection about their own attitudinal and developmental changes are often not based on true access to their own mental states but instead on their lay causal theories of change and development (Nisbett & Wilson, 1977; Ross, 1989; Wilson, 2002). For example, if college students believe that experiences with diversity tend to promote greater civic engagement, then they will likely report that their own diversity experiences have led to their becoming more civically engaged, regardless of whether this is the case. Because college diversity experiences are often associated with a conscious questioning of one's beliefs and values (Bowman & Brandenberger, in press-a; Eyler & Giles, 1999; Luo & Jamieson-Drake, 2009), diversity experiences should be positively related to self-reported gains in civic engagement. In fact, given that college students view the traditional-age college years as a time of substantial attitude change, development, and improvement (Ross, 1989), the link between diversity and self-reported civic growth may overestimate the actual relationship between diversity and civic outcomes (relative to longitudinal measures of civic engagement).

Finally, two other study attributes may be related to effect size. Publication bias constitutes a potential concern when attempting to discern the true relationship between two variables through meta-analytic techniques. Published studies tend to have larger effect sizes than unpublished studies (Lipsey & Wilson, 1993; M. L. Smith, 1980), and the decision for authors to submit—and for editors to accept—a manuscript is associated with the article's containing statistically significant results (Coursol & Wagner, 1986). However, the two previous meta-analyses of college diversity experiences and student outcomes have shown no significant relationship between whether a study is published and its effect size (Bowman, 2010c; Denson, 2009). In addition, the amount of time over which a given study occurs may also be related to the effect size. For example, the effect of interacting frequently with students from a different racial background over a 4-year period may differ from having these frequent interactions during a semester or an academic year; however, Bowman (2010c) did not find a significant relationship between this attribute and the effect size for college diversity experiences and cognitive growth.

Theoretical Framework

Figure 1 provides an overview of the conceptual framework for this study, which draws on Dovidio et al.'s (2004) framework for understanding the impact of diversity programs and Ajzen's (1985, 1991) theory of planned behavior. According to Dovidio and colleagues, college diversity experiences can lead to cultural knowledge or awareness and intergroup empathy, which then lead to subsequent outcomes. Although their model focuses on structured diversity interventions (e.g., intergroup dialogue, multicultural education), Gurin et al. (2002) proposed a similar model for explaining the impact of curricular and interpersonal experiences with racial diversity, and Pettigrew and Tropp (2008) empirically demonstrated that intergroup knowledge and empathy mediate the link between

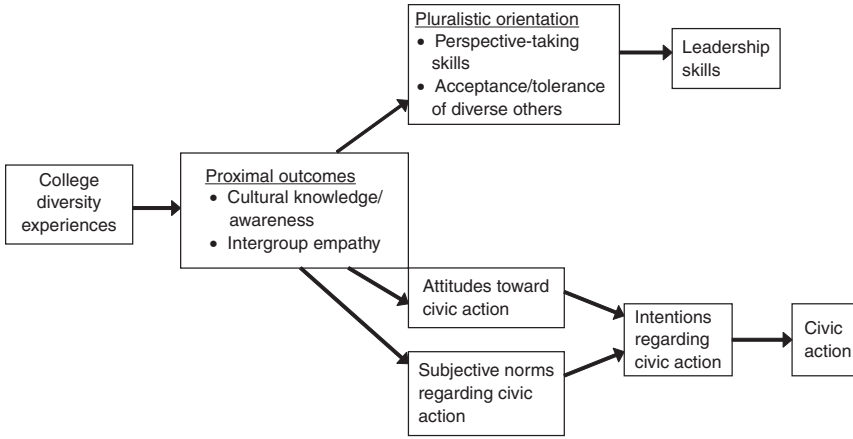

FIGURE 1. *Conceptual framework of the relationship between college diversity experiences and civic outcomes.*

intergroup interactions and reduced prejudice. Therefore, cultural knowledge or awareness and intergroup empathy may be seen as "proximal" outcomes (i.e., they are direct and immediate products of interactions with diversity), whereas attitudes and behaviors that are not related to diversity are relatively "distal" outcomes. In addition, the influence of diversity experiences on leadership skills likely occurs via changes in pluralistic orientation, as perspective taking and the ability to work with diverse others constitute important components of effective leadership (Astin et al., 1996).

In his theory of planned behavior, Ajzen (1985, 1991) proposed that behavioral intentions are shaped by three forces: attitudes toward the behavior, subjective norms regarding the behavior, and perceived controllability of the behavior. Of these three factors, diversity experiences may be most likely to shape attitudes toward civic behavior, particularly by influencing students' perceptions regarding the need for civic action. That is, college students who engage in diversity experiences may become more aware of issues of difference, inequality, and/or discrimination (Case, 2007a, 2007b; Kernahan & Davis, 2007), which could then lead to greater importance placed on personal involvement in civic action. In addition, students who have diverse peer groups and who engage in diversity-related activities may also perceive and experience subjective norms that more strongly promote civic action. (Because diversity experiences do not have any obvious connection with the perceived controllability of civic engagement, this third component is not included in the conceptual figure.) Ajzen suggests that behavioral intentions ultimately lead to the planned behavior unless there are extenuating circumstances.

Finally, it should be noted that some of these processes summarized in Figure 1 are related to (though clearly distinct from) those associated with other changes in attitudes, skills, and behaviors (see Bowman, 2009, 2010c; Dovidio et al., 2004; Pettigrew, 1998; Pettigrew & Tropp, 2008). Therefore, the findings from research on diversity experiences and other outcomes are relevant to this study only to the extent that similar dynamics occur for diversity and civic outcomes.

Present Study

The present study examined the relationship between college diversity experiences and civic engagement through a quantitative meta-analysis. The following three research questions were addressed: (a) Does an overall relationship exist between college diversity experiences and civic engagement? (b) Is there significant variation in this relationship across studies? (c) To what extent are study characteristics (i.e., type of civic outcome, type of diversity experience, and study design) associated with the magnitude of this relationship?

Several hypotheses were made. It was expected that there would be an overall positive relationship between college diversity experiences and civic engagement and that the magnitude of this effect would vary significantly across studies. As described earlier, it was hypothesized that the relationship between diversity experiences and civic engagement would be stronger when the civic outcome was attitudinal and diversity related. It was also anticipated that interpersonal interactions with racially diverse peers would be associated with a greater average effect size than interpersonal interactions with nonracial diversity (e.g., interactions across differences in social class, gender, religion, and political ideology). This prediction follows both from the results of a previous meta-analysis on the impact of college diversity (Bowman, 2010c) and from the substantial novelty and challenge of interactions across race and with the role of novelty and challenge in promoting student growth (Bowman & Brandenberger, in press-a). Moreover, consistent with previous meta-analyses on college diversity experiences (Bowman, 2010c; Denson, 2009), studies that included other college experiences in their statistical models were expected to have a smaller average effect size than those that did not. Finally, because students likely perceive a positive relationship between diversity experiences and civic engagement, it was hypothesized that studies that used student self-reported gains as the outcome variable would have a greater average effect size than those that used longitudinal methods.

Method

Data Sources and Sampling Procedure

Several criteria were used to select studies for inclusion in the sample: (a) participants were undergraduate students or were reporting about their previous undergraduate experiences in the United States, (b) at least one independent variable measured a college diversity experience, (c) the DV measured some form of civic engagement, and (d) statistics regarding the magnitude of the effect were provided. Potential civic outcomes of these studies included volunteering and political behavior, attitudes toward civic involvement and social change, leadership skills, and orientations toward pluralism and social justice, among others. Research that specifically examined the impact of service learning or study abroad experiences was not included because the extent to which students interacted with diversity in these contexts is unclear.

Literature searches of the Educational Resources Information Clearinghouse, PsycINFO, and Dissertation Abstracts Online were conducted to find eligible studies. Using the broadest categories available (e.g., "all text" or "keywords"), the following search criteria were used:

("divers*" or "ethnic studies" or "women's studies" or "African American studies" or "Latin* studies" or "Asian American studies" or "multicultural studies" or "cross-rac*" or "intergroup contact" or "interracial contact")
AND
("volunteer*" or "civic" or "citizenship" or "prosocial" or "helping" or "democra*" or "community engagement" or "perspective-taking" or "social change" or "cultural awareness" or "leadership skills")
AND
("college student*" or "undergraduate student*" or "university student*")

In addition, a hand search of every article in *Journal of College Student Development*, *Research in Higher Education*, *Review of Higher Education*, *Journal of Higher Education*, and *Journal of Diversity in Higher Education* from January 1996 to February 2010 was performed to supplement the electronic literature search. A search of the electronic program for the annual meeting of the 2010 American Educational Research Association (which was held soon after the initial literature search) was also conducted. To identify additional published or unpublished studies, an e-mail was sent to numerous higher education scholars who had conducted work on this topic. Finally, the literature reviews from the obtained articles, chapters, conference presentations, and dissertations were examined to identify any published or unpublished studies that had not been found via the other searches. Two studies were excluded from the meta-analysis because they analyzed subsamples of the Preparing College Students for a Diverse Democracy data set (Hurtado & Ponjuan, 2005; Kotori, 2009); other research had already examined the relationship between the same diversity experiences and civic outcomes using the full sample of this data set (Engberg, 2007; Hurtado, 2005). Two additional studies were excluded because the diversity experiences occurred in high school (Engberg, Meader, & Hurtado, 2003; Malaney & Berger, 2005). Another study was excluded because it reported only unstandardized coefficients and there was not sufficient information in the article to calculate standardized effects (Yamamura & Denson, 2005).[1] Thus, the final data set for the meta-analysis contained 27 eligible works: 20 journal articles, 1 book chapter, 3 conference papers, and 3 dissertations.

Within the meta-analytic sample, three studies contained analyses conducted among all participants and then separate analyses by racial group (Bowman, 2010d; Hu & Kuh, 2003; Kendall Brown, 2007), and several others contained analyses conducted only within each racial group (Gurin et al., 2002, 2004; Lopez, 2004; Vogelgesang, 2001). Preliminary analyses of these studies were conducted, which indicated that the relationships between diversity experiences and civic outcomes were fairly similar for White students and for students of color. As a result, when analyses for all participants were conducted, the coefficients for the full-sample analyses were used in the meta-analysis. For studies that conducted only subgroup analyses, a weighted average of the relevant beta coefficients (based on the number of students in each racial group) was computed to create a single coefficient for all students. This same technique was used to compute total effect sizes for studies that contained analyses performed separately by academic major (Engberg, 2007), by demographics of participants' close friends (Antonio, 2001), and by segregation within participants' precollege neighborhoods (Jayakumar, 2008).

Five of the works (Engberg, 2007; Hurtado, 2005; Kendall Brown, 2007; Mayhew & Fernandez, 2007; Nelson Laird, 2005) used negative diversity interactions as one of several predictors of civic engagement. Because the other diversity interactions in the meta-analytic sample were not inherently positive,[2] the inclusion of negative experiences would likely bias the overall results. Therefore, the negative interactions were excluded from the overall sample. In addition, Hurtado (2005) examined three outcomes that were gauged via dichotomous variables (whether participants voted in federal or state elections, voted in student government elections, and helped others in the community to vote). Because the odds ratios associated with these analyses cannot be transformed into a standardized ordinary least squares regression coefficient, these figures were excluded. The final sample for the meta-analysis consisted of 180 separate effect sizes from 27 works with a total of 175,950 undergraduate students. An overview of these studies is provided in the appendix.

Computing Effect Sizes

Several scholars have noted that regression coefficients can be used as effect-size metrics (e.g., Becker & Wu, 2007; Farley, Lehmann, & Sawyer, 1995; Raju, Fralicx, & Steinhaus, 1986; Rosenthal & DiMatteo, 2001). Peterson and Brown (2005) compared the accuracy of several equations that translate standardized beta coefficients (β) to correlation coefficients (r). When betas are reasonably close to zero ($|r| \leq .12$), their analyses showed that the best equation for estimating correlation coefficients is simply $r = \beta$. Moreover, in a sample of more than 1,500 studies in the social sciences, they found that the number of predictors in a regression equation was not significantly related to the difference between r and β. In other words, β corresponds to r equally well, regardless of the number of covariates in the regression equation. As a result, the current study substituted directly beta coefficients for correlation coefficients.[3]

Although the majority of studies in the sample reported standardized betas, one reported partial correlations (Hurtado, 2001), which were also substituted directly for r. Standardized coefficients were computed for two studies that reported only unstandardized coefficients (Bowman, 2010d; Denson & Chang, 2009) and for studies that reported results from t test analyses (Gurin et al., 2004), analyses of variance (Luo & Jamieson-Drake, 2009; Nagda, Gurin, Sorensen, Gurin-Sands, & Osuna, 2009), or analyses of covariance (Engberg & Mayhew, 2007). Moreover, two studies used multiple groups to examine the effect of a given diversity experience on a particular outcome; specifically, Bowman (2010d) used multiple dummy-coded variables to reflect the number of diversity courses taken, and Engberg and Mayhew (2007) compared civic outcomes for students enrolled in a diversity course to those enrolled in two separate nondiversity courses, reporting adjusted means for each of the three courses. For these studies, coefficients were computed to compare students who participated in some level of the relevant diversity experience to those who did not (e.g., in Engberg & Mayhew, comparing students who took the diversity-related course to those who took either of the nondiversity courses).

Some studies reported coefficients for multiple analyses examining the relationship between a particular independent variable predicting a particular DV within the same sample; this occurred most frequently when blocked hierarchical

TABLE 1
Summary of independent variables and coding

Category of study characteristic	Predictor variables
Type of civic outcome (Level 1)	Civic attitudes (referent group)
	Civic behavior
	Civic behavioral intentions
	Diversity-related civic outcome
	Leadership-related civic outcome
Type of diversity experience (Level 1)	Interpersonal interactions with racial diversity (referent group)
	Diversity course work
	Cocurricular diversity
	Intergroup dialogue
	Interpersonal interactions with nonracial diversity
	Multiple forms of diversity
Study design characteristics (Level 2)	Longitudinal gains (referent group)
	Self-reported gains
	Cross-sectional assessment
	Unpublished study
	Multiple institutions within sample
	Students' year in final data collection
	Included other college experiences in the model
	Included multiple diversity experiences in the model

Note. With the exception of students' year in final data collection, all independent variables are dichotomous. For analyses predicting type of civic outcome, the referent group is civic attitudes that are not related to diversity or leadership. Furthermore, to provide an appropriate ratio of cases to Level 2 variables, several smaller analyses were conducted for study design characteristics. Thus, longitudinal gains are the referent group for analyses examining the measurement of the dependent variable, which included self-reported gains and cross-sectional assessment as predictors.

multiple regressions were conducted. The coefficient or coefficients from the most fully identified model were used in this study, except when a proposed mediator had been added to the model; in these cases, the most complete model without the mediator was used. In Engberg's (2007) article, all models contained hypothesized mediators, so the coefficients representing the total effects (direct plus indirect) were used.

Independent Variables and Coding

Study characteristics served as predictors of effect sizes, and a summary of these independent variables is provided in Table 1. The categories in the left-hand column also served as a means of categorizing predictors for the initial analyses. A series of dummy variables indicated the type of civic outcome. Two variables indicated whether the outcome gauged behaviors or behavioral intentions, with attitudes as the referent group.[5] Two additional variables examined whether the outcome was diversity related (e.g., cultural knowledge or understanding) or leadership related (e.g., leadership skills), and numerous civic variables were not directly related to diversity or leadership (e.g., importance of social action engagement).

Another set of dummy variables was used to indicate the type of diversity experience: diversity course work (e.g., women's studies or ethnic studies courses), cocurricular diversity (e.g., attending a multicultural awareness workshop or multicultural event), intergroup dialogue, interpersonal interactions with nonracial diversity (e.g., social class, gender, religion, and political ideology),[4] and interactions with multiple forms of diversity (e.g., a single variable that combined interactional and curricular diversity). The year in college in which the final data collection occurred (1 = *freshman* to 4 = *senior*) and the length of time over which the gains presumably occurred (0.5 = *less than 1 year* to 4 = *4 years*) were included as continuous variables. Because these two variables were very highly correlated and the variable for the length of time did not make sense for some studies (i.e., when a onetime cross-sectional assessment is used), only the college year variable was used in the analyses. To investigate other elements of the study design, several dummy variables (0 = *no*, 1 = *yes*) were computed: DV assessed through self-reported gains, DV assessed through cross-sectional design (i.e., one-time measure of current civic engagement), study sample included multiple institutions, study was an unpublished dissertation or conference presentation (as opposed to a journal article or chapter), study included multiple diversity experiences in the regression model, and study included other college experiences in the regression model. The predictor variables were independently coded by at least one of two trained raters, and the overall interrater reliability was high (Cohen's $\kappa = .89$).

Analyses

Hierarchical linear modeling (HLM) was used to perform the meta-analysis.[6] HLM is well suited for meta-analytic purposes because participants are nested within studies and the relevant effects can occur within and across studies (Raudenbush & Bryk, 2002). For example, a single article may examine multiple civic outcomes or include multiple types of diversity experiences as predictors; differences in the effect size across civic outcomes and diversity type would be considered within-study effects (i.e., at Level 1). Other attributes, such as the measurement of the DV (e.g., self-reported gains vs. longitudinal methods) and whether the relevant analyses included control variables, vary across studies (i.e., at Level 2). All dichotomous independent variables were modeled as uncentered, which means that the intercept represents the effect size for the referent group or groups (Luke, 2004; Raudenbush & Bryk, 2002). This centering decision is important because it enables the HLM analysis to determine simultaneously whether the effect size for the referent group differs significantly from zero and whether the predictor variables are significantly related to the effect size. The lone continuous variable (students' year of study during the final data collection) was centered at its grand mean.

One of the primary strengths of using HLM is that it can obviate the issue of nonindependence of observations by modeling each study as a Level 2 group. For the purposes of meta-analysis, a "study" is not synonymous with an article or research report; instead, "a study consists of a set of data collected under a single research plan from a designated sample of participants" (Lipsey & Wilson, 2001, p. 76). In other words, the Level 2 groups should be created to distinguish among samples, not articles. This distinction is often not meaningful in meta-analyses of

college student outcomes because the vast majority of articles contain only one sample. However, some of the articles in this meta-analytic sample contained multiple samples (e.g., Gurin et al., 2002), and a single sample was occasionally used in multiple articles (e.g., Kendall Brown, 2007, and VanHecke, 2006, both analyzed pilot data from the Wabash National Study of Liberal Arts Education). Therefore, 29 distinct studies (i.e., samples) were modeled at Level 2.

Limitations

Some limitations should be mentioned. A reasonably small number of samples was included at Level 2, which makes it difficult for relevant predictors to reach statistical significance. However, as described below, multiple Level 2 predictors were significant, even when controlling for other between- and within-sample variables. In addition, only two of the samples (Gurin et al., 2004, Study 1; Nagda et al., 2009) used an experimental manipulation to assign students to varying levels of diversity exposure. As a result, in the vast majority of the studies, students were generally self-selecting into (or out of) college diversity experiences. In a meta-analysis of intergroup contact and prejudice (Pettigrew & Tropp, 2006), experimental studies tended to yield larger effect sizes than observational studies, but further experimental research on diversity and civic outcomes is needed before any such conclusions can be drawn.

Results

Descriptive Statistics and Preliminary Analyses

Summary statistics for the 180 unweighted effect sizes are presented in Table 2. Both the mean (M = .105) and the median (Q2 = .083) suggest that there is generally a positive relationship between college diversity experiences and civic engagement. As summarized in Figure 2, only 7 out of the 180 effect sizes (4%) are negative, 78 effect sizes (43%) are at least .10, and 22 effect sizes (12%) are greater than .20.

Before performing inferential analyses, the data were examined for potential publication bias (Begg, 1994). Statistical tests have more power when examining larger samples, which means that an effect of a certain magnitude may be statistically significant within a large sample but nonsignificant within a small sample. Because articles are more likely to be accepted for publication when they contain significant results (Coursol & Wagner, 1986), studies with small samples and relatively small effect sizes (and therefore nonsignificant results) are less likely to be published, so they are unlikely to be included in a meta-analytic sample. Therefore, a funnel graph was created to informally assess any potential association between sample size and effect size (Light & Pillemer, 1984), but the shape of this graph suggested that publication bias was not a concern.

HLM Analyses

The unconditional HLM analysis indicated that college diversity experiences are significantly and positively related to increased civic engagement (as denoted by the intercept, B = .160, SE = .021, $p < .001$). The 95% confidence interval for this estimate is [.119, .200]. Moreover, substantial heterogeneity in effect sizes exists across studies, $\chi^2(28) = 11{,}845.36$, $p < .001$, which suggests that additional

TABLE 2
Summary statistics for the 180 unweighted effect sizes

Min	Quartile 1	*Mdn*	Quartile 3	Max	*M*	*SD*
–.083	.048	.083	.140	.450	.105	.092

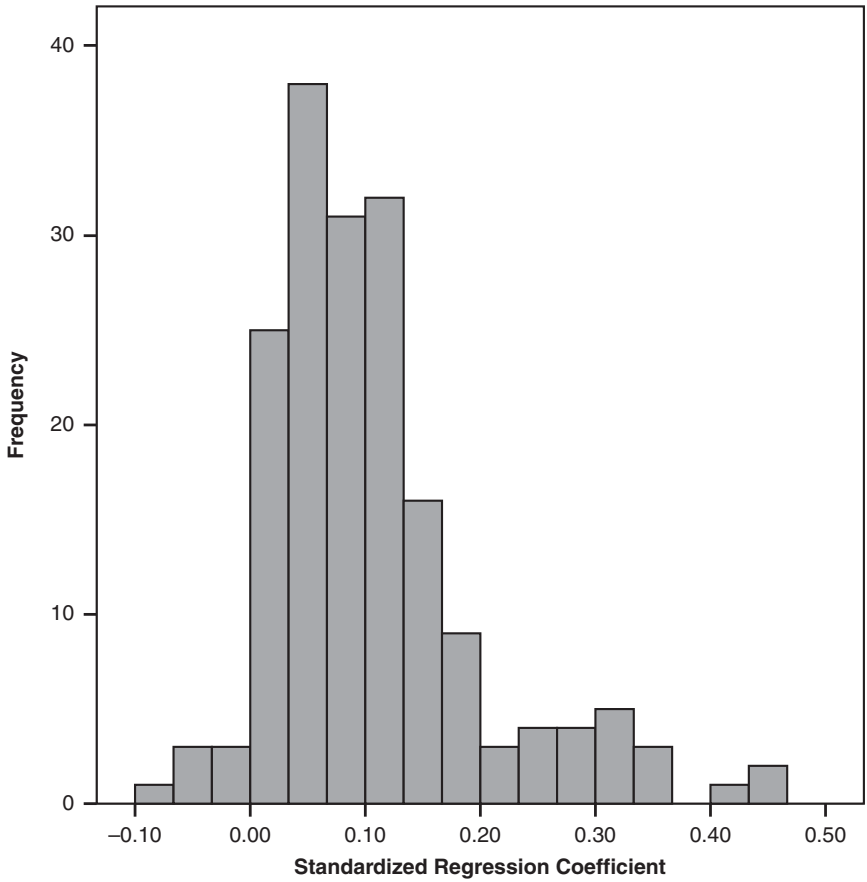

FIGURE 2. *Histogram summarizing the 180 unweighted effect sizes.*

models are necessary to explain this variance. To avoid issues of multicollinearity, several HLM analyses with a limited number of predictors were conducted to determine which variables should be entered into the final model.

The first analysis examined whether the effect size depended on the type of civic outcome. As shown in Table 3, the significant value for the intercept (B = .138, $p < .001$) indicates that diversity experiences are positively related to civic attitudes that are not diversity or leadership related. This relationship is marginally

TABLE 3

Unstandardized coefficients for hierarchical linear modeling analysis of civic outcome type predicting effect size

Independent variable	Coeff.	*SE*	*df*	*t* ratio
Intercept	.138***	.021	28	6.61
Civic behavior	–.014	.008	175	–1.74
Civic behavioral intentions	–.094	.112	175	–0.84
Diversity-related civic outcome	.052***	.003	175	18.42
Leadership-related civic outcome	–.025***	.005	175	–5.00

Note. Civic attitudes that were not related to diversity or leadership served as the referent group.
***$p < .001$.

significantly smaller for behaviors than for attitudes ($B = –.014$, $p < .09$), and no significant difference exists between the effect size for attitudes and that for behavioral intentions ($B = –.094$, $p = .40$). The link between diversity experiences and civic outcomes is stronger when the civic outcome variable is related to diversity issues ($B = .052$, $p < .001$) and weaker when it measures leadership skills ($B = –.025$, $p < .001$). To determine whether diversity experiences are positively related to civic behaviors and behavioral intentions, the analyses were reconducted several times using each outcome type as the intercept and then with the diversity and leadership variables excluded from the models. In all analyses, the intercept was significantly greater than zero (Bs ≥ .083, ps < .001), which suggests that diversity experiences are positively associated with each of the three types of civic outcomes.

In the second analysis, the type of diversity experience was modeled with several predictor variables, with interpersonal interactions with racial diversity as the referent group. As shown in Table 4, the significant intercept indicates that interpersonal interactions with racial diversity are positively associated with civic growth ($B = .176$, $p < .001$). The average effect size for racial interactions is significantly stronger than those of most of the other diversity experiences, including diversity course work ($B = –.047$, $p < .02$), cocurricular diversity ($B = –.046$, $p = .001$), and intergroup dialogue ($B = –.049$, $p < .001$). The average effect sizes for interpersonal interactions with nonracial diversity ($B = –.031$, $p = .32$) and for diversity variables that included multiple forms of diversity ($B = .053$, $p = .50$) do not differ significantly from that of racial diversity. As with the type of civic outcome, the analyses were reconducted with each type of diversity experience as the referent group. The intercept was significantly greater than zero for all models (Bs ≥ .128, ps ≤ .001), which suggests that each of these experiences is positively related to civic growth.

Several analyses were conducted to explore Level 2 study characteristics predicting effect size (see Table 5). Unpublished studies have a smaller average effect size than published studies ($B = –.092$, $p < .01$), but no significant effects are observed for whether a sample contains multiple institutions ($B = .032$, $p = .42$) or for the year in college in which participants complete the final survey ($B = –.001$, $p = .96$). In addition, studies that measured civic growth through self-reported gains have larger average effect sizes than those that used longitudinal gains

TABLE 4

Unstandardized coefficients for hierarchical linear modeling analysis of diversity experience type predicting effect size

Independent variable	Coeff.	*SE*	*df*	*t* ratio
Intercept	.176***	.025	28	6.90
Diversity course work	–.047*	.020	174	–2.39
Cocurricular diversity	–.046**	.014	174	–3.31
Intergroup dialogue	–.049***	.008	174	–6.30
Nonracial diversity interactions	–.031	.031	174	–1.00
Multiple forms of diversity	.053	.078	174	0.68

Note. Interpersonal interactions with racial diversity served as the referent group.
*$p < .05$. **$p < .01$. ***$p < .001$.

TABLE 5

Unstandardized coefficients for hierarchical linear modeling analyses of Level 2 characteristics predicting effect size

Independent variable	Coeff.	*SE*	*df*	*t* ratio
Intercept	.155***	.020	25	7.81
Unpublished study	–.092**	.031	25	–3.03
Multiple institutions within sample	.032	.039	25	0.82
Students' year in final data collection	–.001	.022	25	–0.06
Intercept	.094***	.014	26	6.86
Self-reported gains	.175***	.039	26	4.48
Cross-sectional assessment	.004	.034	26	0.11
Intercept	.198***	.018	27	10.95
Included other college experiences in the model	–.049	.051	27	–0.96
Intercept	.212***	.033	27	6.37
Included multiple diversity experiences in the model	–.105*	.037	27	–2.80

Note. Lines distinguish separate analyses.
*$p < .05$. **$p < .01$. ***$p < .001$.

($B = .175$, $p < .001$), but there is no significant difference between studies that used longitudinal gains and those that used a single cross-sectional measurement of civic engagement ($B = .004$, $p = .92$). Furthermore, because the variables that assessed whether a study included other college experiences and whether it included multiple diversity experiences were somewhat highly correlated, each predictor was examined in a separate model. Including other college experiences is not significantly related to civic growth ($B = –.049$, $p = .14$), whereas including multiple diversity experiences is negatively associated with effect size ($B = –.105$, $p = .01$).

The full HLM analysis contained diversity course work, cocurricular diversity experiences, intergroup dialogue, multiple forms of diversity, nonracial diversity interactions, diversity-related civic outcome, and leadership-related civic outcome

TABLE 6

Unstandardized coefficients for hierarchical linear modeling analysis of Level 1 and Level 2 independent variables predicting effect size (full model)

Independent variable	Coeff.	*SE*	*df*	*t* ratio
Intercept	.140***	.030	25	4.76
Self-reported gains	.103**	.035	25	2.93
Unpublished study	–.015	.033	25	–0.44
Included multiple diversity experiences in the model	–.057*	.027	25	–2.10
Diversity course work	–.049*	.019	169	–2.53
Cocurricular diversity	–.047**	.014	169	–3.48
Intergroup dialogue	–.047***	.008	169	–6.27
Nonracial diversity interactions	–.030	.030	169	–0.98
Multiple forms of diversity	.054	.077	169	0.70
Diversity-related civic outcome	.055***	.007	169	7.45
Leadership-related civic outcome	–.025**	.007	169	–3.45

Note. Interpersonal interactions with racial diversity and civic attitudes that were not related to diversity or leadership served as the referent groups for type of diversity experience and type of civic outcome, respectively.
*$p < .05$. **$p < .01$. ***$p < .001$.

at Level 1, along with publication status, self-reported gains, and controlling for diversity variables at Level 2. Although the variables for multiple forms of diversity and interpersonal interactions with nonracial diversity were not significant in the original model, they were included in this final model so that interactions with racial diversity would be the referent group. As shown in Table 6, self-reported gains and including multiple diversity experiences are still significant predictors of effect size ($B = .103$, $p < .01$ and $B = –.057$, $p < .05$, respectively), but publication status is no longer significant ($B = –.015$, $p = .67$). The same Level 1 predictors that were significant in the earlier models remain significant in the full model. That is, the average effect sizes for diversity course work ($B = –.049$, $p < .02$), cocurricular diversity ($B = –.047$, $p = .001$), and intergroup dialogue ($B = –.047$, $p < .001$) are smaller than those for interpersonal interactions with racial diversity, whereas the average effect sizes for multiple forms of diversity ($B = .054$, $p = .48$) and interpersonal interactions with nonracial diversity ($B = –.030$, $p = .33$) do not differ from that of interactions with racial diversity. In addition, diversity-related outcomes are associated with greater effect sizes ($B = .055$, $p < .001$), and leadership outcomes generally have smaller effect sizes ($B = –.025$, $p = .001$).

A follow-up analysis was conducted to further explore the impact of measuring civic outcomes via self-reported gains. The Level 1 slope for diversity-related outcomes was allowed to vary, and the use of self-reported gains was added as a predictor of this slope. This analysis can be depicted in a 2 × 2 graph, in which each bar represents a combination of outcome measurement (self-reported gains vs. other forms of measurement) and type of civic outcome (diversity-related outcome vs. other outcome types). These relationships are illustrated in Figure 3. Among studies that use longitudinal and cross-sectional assessments of civic engagement, diversity-related outcomes are associated with a greater effect size than non-diversity-related outcomes ($B = .050$, $p < .001$). In addition, the effect of

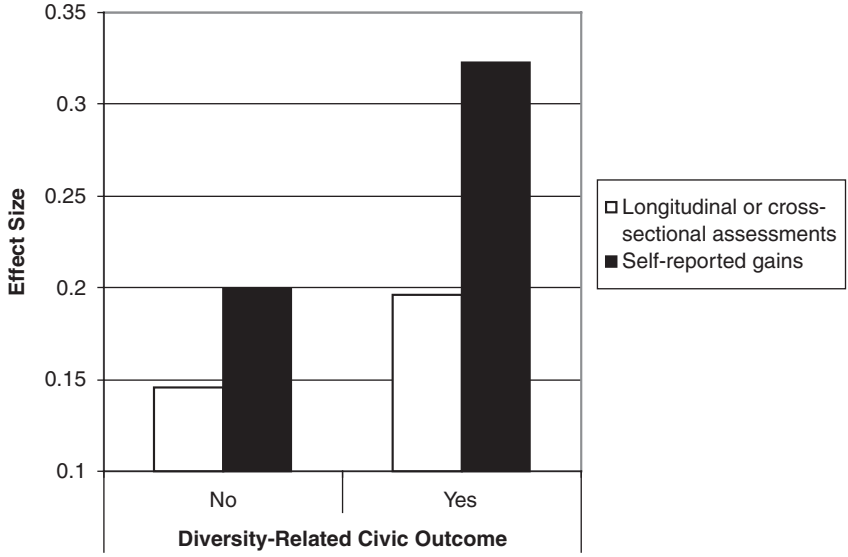

FIGURE 3. *Effect size as a function of outcome type and measurement of outcome.*

diversity-related outcomes is significantly greater when civic engagement is assessed via self-reported gains than via other forms of measurement ($B = .074$, $p < .005$).

Discussion

The overall results indicate that college diversity experiences are related to increased civic engagement. This relationship is significant for several types of civic outcomes (attitudes or skills, behaviors, and behavioral intentions) and several types of diversity experiences (curricular, cocurricular, and interpersonal interactions). The consistency of these effects is quite remarkable: More than 96% of the effect sizes in this study are positive. Comparing this finding with those of other meta-analyses, the link between college diversity experiences and civic engagement appears to be substantially stronger than that for diversity and cognitive growth (see Bowman, 2010c) yet weaker than that for diversity and racial bias (see Denson, 2009). Because many college diversity programs and courses are specifically designed to reduce racial bias (Dovidio et al., 2004) and because individual differences in cognitive skills are reasonably stable during college (e.g., Bowman, 2010b), this pattern across outcomes is not surprising. The average effect size for civic engagement would be considered small or small to medium by Cohen's (1988) general guidelines. However, a standardized regression coefficient of .16 is by no means trivial in college student development, especially given the large number of predictors and the inclusion of a civic engagement "pretest" in many of these studies.

Interpersonal interactions with racial diversity appear to be more effective at promoting civic engagement than are curricular and cocurricular diversity experiences, and this pattern persists even when controlling for other within- and

between-sample characteristics in the full model. This finding is consistent with Bowman's (2010c) meta-analysis of diversity and cognitive development. As Bowman argued, the heightened educational impact of racial diversity is likely the product of multiple factors. First, racial diversity is more salient than some other forms of diversity (e.g., social class, religion) both as a topic of discourse on many college campuses and through its greater visibility in interpersonal interactions. That is, people often know whether an interpersonal interaction is cross-racial, whereas they are much less likely to know whether it occurs across most other demographic and social categories. Therefore, people may be prone to make meaning of interactions with racial diversity in a way that they typically do not or cannot for interactions with other types of diversity. The current study does not find a significant difference in the impact of interpersonal interactions with racial versus nonracial diversity, but the observed pattern is in the expected direction, and the nonsignificant finding may have been the product of one very large study (Hu & Kuh, 2003) that found a substantial effect size for a composite of nonracial and racial interpersonal interactions. Second, empathizing with diverse people is associated with reduced prejudice (Pettigrew & Tropp, 2008) and increased academic learning (Brandenberger, 1998). It seems logical, then, that the empathic bonds that occur primarily through interpersonal interaction—as opposed to simply "engaging" with diversity abstractly through course work or workshops—would lead to a greater importance placed on social action engagement and, ultimately, to civic action.

Given this line of reasoning, it is somewhat surprising that the average effect size of intergroup dialogue is smaller than that of interpersonal interactions with racial diversity. Direct engagement with diverse peers is a salient and defining characteristic of intergroup dialogue, and these dialogues frequently lead to civic action (Schoem, Hurtado, Sevig, Chesler, & Sumida, 2001). Intergroup dialogues often exemplify Allport's (1954) frequently cited conditions for optimal intergroup contact—equal status, common goals, cooperation, and authority support—as well as Pettigrew's (1998) fifth condition of the potential to create lasting friendships. These dialogues have a structured format and are facilitated by a trained moderator; thus, it is possible that the organic and potentially sustained nature of informal interactions across race is important for promoting civic growth. Moreover, intergroup dialogues that focus on race may contribute more to civic engagement than those on other topics. These possibilities and other potential explanations should receive attention in future research.

The relationship between diversity experiences and civic engagement also varied as a function of the type of civic outcome. As expected, college diversity experiences are more strongly related to civic outcome when those outcomes are diversity related. This finding is consistent with previous research on attitude–behavior consistency, which suggests that the correspondence between a given attitude and behavior is directly related to the content overlap and specificity of the attitude and behavior (Ajzen & Fishbein, 1977). Moreover, leadership skills are associated with smaller effects than other types of skills (e.g., perspective taking) and attitudes (e.g., importance of social action engagement). However, this effect is fairly small, and there is no significant difference between behaviors or behavioral intentions and attitudes. Unfortunately, only one article in the study examined behavioral intentions (Zuniga et al., 2005), which resulted in the large standard

error and corresponding nonsignificant result; this relationship might have been significant if more studies examining behavioral intentions had been available. Taken together, the results for the type of civic outcome seem only somewhat consistent with the conceptual framework proposed earlier, which suggested that leadership skills and behaviors are relatively distal (or indirect) outcomes and should therefore be associated with smaller effect sizes.

Most of the sample characteristics (i.e., the inclusion of students from multiple institutions, the inclusion of other college experiences, students' year during the final data collection) are not significant predictors of the relationship between diversity and civic growth. The results from the initial analyses suggested that unpublished studies have a lower average effect size than published studies, but this effect is nonsignificant when controlling for other relevant variables. Although some of the broader literature has identified a relationship between publication status and effect size (Lipsey & Wilson, 1993; M. L. Smith, 1980), the nonsignificant finding observed in the full model is consistent with other research on college diversity outcomes (Bowman, 2010c; Denson, 2009). In contrast, the inclusion of multiple diversity experiences in the same model is consistently associated with smaller effect sizes. As discussed earlier, students who engage in one educationally beneficial experience are more likely to engage in other such experiences (Cruce et al., 2006; Kuh et al., 2001), so studies that include multiple diversity experiences and other college experiences should provide a more conservative (and more accurate) estimate of the impact of diversity interactions.

The most intriguing study-level findings are related to outcome measurement. The average effect size for self-reported gains in civic engagement is almost 3 times as large as the average effect size for longitudinal gains. In two articles (Hu & Kuh, 2003; Umbach & Kuh, 2006), even when controlling for precollege characteristics and other college experiences, a single diversity experience variable explained a massive 12% to 20% of the variance in self-reported civic gains. Given the presence of substantial biases within college student self-reported gains (Bowman & Hill, 2010; Pascarella, 2001; Pike, 1993, 1999) and a general lack of correspondence between longitudinal and self-reported gains (Bowman, 2010a, 2010b; Bowman & Brandenberger, in press-b; Gosen & Washbush, 1999), the effect size for self-reported gains may represent an overestimate of the actual impact of diversity experiences. This interpretation is bolstered by a follow-up analysis of the full model, which revealed that the slope for diversity-related outcomes is significantly stronger for predicting self-reported gains than for predicting longitudinal or cross-sectional assessments. As described earlier, people tend to make introspective errors that are consistent with their own lay theories of change and development (Nisbett & Wilson, 1977; Ross, 1989; Wilson, 2002). Therefore, errors in self-reported gains should be most pronounced when the outcome seems obviously related to the experience because students will perceive an overly strong link between seemingly related experiences and outcomes (in this case, diversity experiences and diversity-related civic outcomes). This pattern seems quite evident in the results of the follow-up analysis. Although some research has illustrated the divergence between regression analyses that predict the same constructs through longitudinal and self-reported gains, this analysis is the first to demonstrate a systematic difference that is consistent with theories of introspective bias. Scholars have suggested methods for reducing biases in college

self-reported gains, such as controlling for perceived gains during high school (Pascarella, 2001) and controlling for a social desirability index (Bowman & Hill, 2010), but these techniques are virtually never used (for an exception, see Asel, Seifert, & Pascarella, 2009).

Conclusion and Implications

Despite the recent proliferation of research illustrating a link between college diversity experiences and student outcomes, some researchers and commentators continue to question the educational benefits of diversity on college campuses (Herzog, 2010; Purdy, 2008). Therefore, one of the primary insights of this meta-analysis is to establish definitively the relationship between diversity experiences and civic growth across a wide range of studies. Importantly, a significant, positive relationship is observed regardless of the type of diversity experience, the type of civic outcome, and the measurement of civic growth. This consistency implies that even the most rigorous, conservative study will generally find a positive effect of college diversity interactions on civic outcomes. Along with other meta-analyses that show similar relationships for racial bias (Denson, 2009) and cognitive development (Bowman, 2010c), this study provides solid evidence for the benefits of diversity experiences. Therefore, higher education practitioners and administrators should endeavor to make diversity a key focus of the curriculum and cocurriculum, as this emphasis will likely lead to civic orientations and participation well after college graduation (Brandenberger, Bowman, Hill, & Lapsley, 2010; Jayakumar, 2008; Yamamura & Denson, 2005).

However, the impact of diversity experiences depends, to some degree, on the form of diversity. Interpersonal interactions with racial diversity are associated with greater civic gains than are diversity course work, cocurricular diversity, and intergroup dialogue. That is, structured diversity experiences are related to increased civic engagement, but interpersonal interactions with racially diverse peers are associated with even greater civic growth. As others have argued (e.g., Chang, 1999; Gurin, 1999; Gurin et al., 2002), the presence of racially diverse peers on campus is a necessary—but not sufficient—condition for realizing the educational benefits of college diversity. The current study further demonstrates that the civic benefits of racial diversity cannot be replaced by teaching about diversity abstractly in courses or workshops. Colleges and universities must work not only to maintain a racially diverse student body but also to facilitate meaningful interactions among students from different racial backgrounds. It should also be noted that the importance of achieving educational benefits is only one of several compelling arguments for promoting increased access and equity on college campuses; there is clearly also a moral argument to be made for inclusion efforts that work to remedy past and present discrimination against students of color (Chang, 2002; Moses, 2002).

The relationship between the measurement of civic growth and effect size also has important implications. Self-reported gains tend to show a greater relationship between diversity and civic growth than do longitudinal methods; as discussed earlier, this stronger link is likely the result of bias in college student self-reports. This bias is pernicious in that it occurs in what many people might consider to be a desirable direction. Relative to studies that examine growth longitudinally, those that rely on self-reported gains are more likely to contain significant and sizable

results, so reviewers and editors may be more inclined to accept papers that use inferior methods. Although some national data sets contain self-reported gains for large, multi-institutional samples of college students, issues of representativeness and generalizability are not important if the validity of the relevant outcome or outcomes is dubious. Given the high stakes associated with issues of diversity, equity, and affirmative action in American society, it is imperative that researchers use only the most valid and rigorous methodologies for examining diversity-related experiences and student outcomes.

Future research should focus on the conditional effects of college diversity experiences on civic (and other) outcomes. Numerous studies have examined the outcomes of diversity experiences separately by racial group (Tropp & Pettigrew, 2005), but researchers have only begun to examine differential relationships by gender or socioeconomic status (see Bowman, 2009, 2010d; Loes, 2009; Padgett et al., 2010; Pascarella, Palmer, Moye, & Pierson, 2001; Sax, 2008). Moreover, the impact of particular aspects of programs or interventions merit additional attention; such nuanced analyses may shed light onto the current findings for intergroup dialogue (e.g., dialogues may be more educationally effective if they focus on race or if part of the course involves action steps to improve intergroup relations). A better understanding of these specific conditions will help practitioners design interventions that are optimally effective at their institution.

Notes

I would like to thank Brianna Muller and Erin Rider for their research assistance and Anat H. Levtov for her helpful comments on an earlier version of this article.

[1]Consistent with the results for the included studies, the five excluded studies found a generally positive relationship between diversity experiences and civic engagement.

[2]Engberg (2007) and Hurtado (2005) used variables that they refer to as "positive interactions" with racially diverse peers (e.g., the frequency of studying or socializing with someone from a different racial background). Although the interactions that composed this construct are likely more meaningful than casual encounters, these are not inherently positive. In contrast, negative diversity experiences were defined with items that specifically asked about interactions that were perceived to be negative (e.g., the frequency of tense or guarded interactions across race).

[3]The basic effect size equation for the association between two variables is

$$ES_r = r,$$

where ES_r represents the effect size and r represents the correlation coefficient. As noted earlier, standardized beta coefficients and partial correlations were substituted for r. However, the product–moment correlation coefficient has some undesirable statistical properties (Alexander, Scozzaro, & Borodkin, 1989; Rosenthal, 1994). To ameliorate this problem, Hedges and Olkin (1985) recommend using a Fisher's Z_r transformation, which is defined as

$$ES_Z = .5 \log_e[(1 + r) / (1 - r)],$$

APPENDIX

Overview of studies and effect sizes included in the meta-analysis

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
Antonio (2001)	8,877	Diversity-related civic attitudes	Cocurricular diversity	Yes	.063
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.103
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.201
		Leadership skills	Cocurricular diversity	Yes	.010
		Leadership skills	Cocurricular diversity	Yes	.052
		Leadership skills	Interpersonal interactions with racial diversity	Yes	.030
Bowman (2010d)	3,081	Diversity-related civic attitudes	Diversity course work	No	.049
		Diversity-related civic attitudes	Diversity course work	No	.045
Brandenberger, Bowman, Hill, and Lapsley (2010)	416	Civic attitudes	Cocurricular diversity	Yes	.102
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.083
		Civic attitudes	Diversity course work	Yes	.124
Chang, Astin, and Kim (2004)	9,703	Civic attitudes	Interpersonal interactions with racial diversity	No	.110
		Civic attitudes	Interpersonal interactions with racial diversity	No	.100
		Civic attitudes	Interpersonal interactions with racial diversity	No	.110
		Civic attitudes	Interpersonal interactions with racial diversity	No	.100

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
Denson and Chang (2009)	20,178	Diversity-related civic attitudes	Multiple or other diversity experiences	Yes	.162
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.257
Engberg (2007)	4,332	Diversity-related civic attitudes	Cocurricular diversity	Yes	.054
		Diversity-related civic attitudes	Diversity course work	Yes	.065
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.196
Engberg and Mayhew (2007)	471	Civic attitudes	Diversity course work	No	.196
		Diversity-related civic attitudes	Diversity course work	No	.308
Gurin, Dey, Hurtado, and Gurin (2002)	11,383	Civic attitudes	Multiple or other diversity experiences	Yes	.282
		Civic attitudes	Diversity course work	Yes	.067
		Diversity-related civic attitudes	Multiple or other diversity experiences	Yes	.314
		Diversity-related civic attitudes	Diversity course work	Yes	.081
Gurin et al. (2002)	1,582	Civic attitudes	Interpersonal interactions with racial diversity	Yes	.081
		Civic attitudes	Diversity course work	Yes	.089
		Civic attitudes	Cocurricular diversity	Yes	.023
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.090
		Diversity-related civic attitudes	Diversity course work	Yes	.283
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.077

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.139
		Diversity-related civic attitudes	Diversity course work	Yes	.095
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.151
Gurin, Nagda, and Lopez (2004)	174	Civic attitudes	Intergroup dialogue	No	.144
		Civic attitudes	Intergroup dialogue	No	.102
		Civic attitudes	Intergroup dialogue	No	.128
		Diversity-related civic attitudes	Intergroup dialogue	No	.309
		Diversity-related civic attitudes	Intergroup dialogue	No	.308
		Diversity-related civic attitudes	Intergroup dialogue	No	.264
		Diversity-related civic attitudes	Intergroup dialogue	No	.156
		Civic behavior	Intergroup dialogue	No	.149
		Civic behavior	Intergroup dialogue	No	.173
Gurin et al. (2004)	1,670	Civic attitudes	Multiple or other diversity experiences	No	.110
		Diversity-related civic attitudes	Multiple or other diversity experiences	No	.340
		Civic behavior	Multiple or other diversity experiences	No	.067
		Civic behavior	Multiple or other diversity experiences	No	.227
		Civic behavior	Multiple or other diversity experiences	No	.199
		Diversity-related civic behavior	Multiple or other diversity experiences	No	.163
		Diversity-related civic behavior	Multiple or other diversity experiences	No	.258
Herrmann (2005)	2,626	Civic attitudes	Multiple or other diversity experiences	No	.090
Hu and Kuh (2003)	53,756	Diversity-related civic attitudes	Interpersonal interactions with nonracial diversity	No	.406

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
Hurtado (2001)	4,253	Diversity-related civic attitudes	Interpersonal interactions with racial diversity	No	.180
		Diversity-related civic attitudes	Diversity course work	No	.140
		Diversity-related civic attitudes	Diversity course work	No	.080
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	No	.160
		Diversity-related civic attitudes	Diversity course work	No	.190
		Diversity-related civic attitudes	Diversity course work	No	.140
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	No	.140
		Diversity-related civic attitudes	Diversity course work	No	.110
		Diversity-related civic attitudes	Diversity course work	No	.090
		Leadership skills	Interpersonal interactions with racial diversity	No	.130
		Leadership skills	Diversity course work	No	.040
		Leadership skills	Diversity course work	No	.020
Hurtado (2005)	4,403	Civic attitudes	Interpersonal interactions with racial diversity	Yes	.112
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.003
		Civic attitudes	Diversity course work	Yes	.071
		Civic attitudes	Cocurricular diversity	Yes	.056
		Civic attitudes	Intergroup dialogue	Yes	.021
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.064

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.036
		Civic attitudes	Diversity course work	Yes	.057
		Civic attitudes	Cocurricular diversity	Yes	.082
		Civic attitudes	Intergroup dialogue	Yes	.007
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.143
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.006
		Civic attitudes	Diversity course work	Yes	.084
		Civic attitudes	Cocurricular diversity	Yes	.055
		Civic attitudes	Intergroup dialogue	Yes	.029
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.075
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.025
		Civic attitudes	Diversity course work	Yes	.070
		Civic attitudes	Cocurricular diversity	Yes	.071
		Civic attitudes	Intergroup dialogue	Yes	.034
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.104
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.017
		Civic attitudes	Diversity course work	Yes	.041

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
		Civic attitudes	Cocurricular diversity	Yes	.055
		Civic attitudes	Intergroup dialogue	Yes	.028
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.089
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.032
		Civic attitudes	Diversity course work	Yes	.042
		Civic attitudes	Cocurricular diversity	Yes	.002
		Civic attitudes	Intergroup dialogue	Yes	.050
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.130
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.040
		Diversity-related civic attitudes	Diversity course work	Yes	.088
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.100
		Diversity-related civic attitudes	Intergroup dialogue	Yes	.021
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.153
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.052
		Diversity-related civic attitudes	Diversity course work	Yes	.031
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.039

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
		Diversity-related civic attitudes	Intergroup dialogue	Yes	.057
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.050
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.014
		Diversity-related civic attitudes	Diversity course work	Yes	–.015
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.011
		Diversity-related civic attitudes	Intergroup dialogue	Yes	–.001
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.034
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.055
		Diversity-related civic attitudes	Diversity course work	Yes	.074
		Diversity-related civic attitudes	Cocurricular diversity	Yes	–.040
		Diversity-related civic attitudes	Intergroup dialogue	Yes	.055
		Leadership skills	Interpersonal interactions with racial diversity	Yes	.044
		Leadership skills	Interpersonal interactions with racial diversity	Yes	.026
		Leadership skills	Diversity course work	Yes	.007
		Leadership skills	Cocurricular diversity	Yes	.047
		Leadership skills	Intergroup dialogue	Yes	.029

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
Jayakumar (2008)	7,689	Diversity-related civic attitudes	Diversity course work	Yes	.080
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.124
		Leadership skills	Interpersonal interactions with racial diversity	Yes	.005
Johnson and Lollar (2002)	526	Civic attitudes	Diversity course work	Yes	.048
		Civic attitudes	Cocurricular diversity	Yes	–.052
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.061
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.058
		Civic behavior	Diversity course work	Yes	–.027
		Civic behavior	Cocurricular diversity	Yes	.153
		Civic behavior	Interpersonal interactions with racial diversity	Yes	.102
		Civic behavior	Interpersonal interactions with racial diversity	Yes	.129
		Diversity-related civic attitudes	Diversity course work	Yes	.123
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.102
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.121
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.168

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
Kendall Brown (2007)	600	Diversity-related civic attitudes	Cocurricular diversity	Yes	.002
		Diversity-related civic attitudes	Interpersonal interactions with nonracial diversity	Yes	.075
		Diversity-related civic attitudes	Diversity course work	Yes	.057
Lopez (2004)	737	Diversity-related civic attitudes	Diversity course work	Yes	.077
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.070
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.031
Luo and Jamieson-Drake (2009)	1,551	Civic attitudes	Interpersonal interactions with racial diversity	No	.130
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	No	.318
Luo and Jamieson-Drake (2009)	2,127	Civic attitudes	Interpersonal interactions with racial diversity	No	.127
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	No	.280
Luo and Jamieson-Drake (2009)	2,371	Civic attitudes	Interpersonal interactions with racial diversity	No	.126
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	No	.281
Mayhew and Fernandez (2007)	423	Diversity-related civic attitudes	Interpersonal interactions with nonracial diversity	Yes	.145
		Diversity-related civic attitudes	Intergroup dialogue	Yes	.261

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
Nagda, Gurin, Sorensen, Gurin-Sands, and Osuna (2009)	1,483	Diversity-related civic attitudes	Intergroup dialogue	No	.113
		Civic attitudes	Intergroup dialogue	No	.110
Nelson, Sundt, and Cole (2010)	553	Civic attitudes	Diversity course work	No	.127
Nelson Laird (2005)	289	Civic attitudes	Diversity course work	Yes	.170
			Interpersonal interactions with racial diversity	Yes	.110
			Interpersonal interactions with racial diversity	Yes	.210
Nelson Laird, Engberg, and Hurtado (2005)	367	Civic attitudes	Diversity course work	Yes	.150
		Civic attitudes	Interpersonal interactions with racial diversity	Yes	.060
Umbach and Kuh (2006)		Civic behavior	Multiple or other diversity experiences	No	.340
		Diversity-related civic attitude	Multiple or other diversity experiences	No	.440
Umbach and Kuh (2006)		Civic behavior	Multiple or other diversity experiences	No	.340
		Diversity-related civic attitude	Multiple or other diversity experiences	No	.450
VanHecke (2006)	424	Leadership skills	Diversity course work	Yes	.071
		Leadership skills	Diversity course work	Yes	–.083

(continued)

APPENDIX (continued)

Study	Sample size	Type of civic outcome	Type of diversity experience	Included multiple diversity experiences	β
		Leadership skills	Interpersonal interactions with nonracial diversity	Yes	–.053
Vogelgesang (2001)	19,915	Civic attitudes	Interpersonal interactions with racial diversity	Yes	.065
		Civic attitudes	Diversity course work	Yes	.062
		Civic attitudes	Diversity course work	Yes	.038
		Civic attitudes	Cocurricular diversity	Yes	.028
		Civic attitudes	Cocurricular diversity	Yes	.059
		Diversity-related civic attitudes	Interpersonal interactions with racial diversity	Yes	.175
		Diversity-related civic attitudes	Diversity course work	Yes	.079
		Diversity-related civic attitudes	Diversity course work	Yes	.081
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.093
		Diversity-related civic attitudes	Cocurricular diversity	Yes	.075
Zuniga, Williams, and Berger (2005)	597	Diversity-related behavioral intentions	Interpersonal interactions with nonracial diversity	Yes	.120
		Diversity-related behavioral intentions	Diversity course work	Yes	.110
		Diversity-related behavioral intentions	Cocurricular diversity	Yes	.060
		Diversity-related behavioral intentions	Cocurricular diversity	Yes	.090
		Diversity-related behavioral intentions	Cocurricular diversity	Yes	.100

where r is the correlation coefficient and $\log_e$ is the natural logarithm (ln). This transformation was used in the current study. Because the correlations in the sample studies are generally small, the values from this Z_r transformation are almost identical to the original betas; for example, a correlation (or β) of .10 has a z-transformed effect size of .1003. Therefore, the coefficients provided in the results can be reasonably interpreted in terms of standardized beta coefficients. In addition, the standard error of the effect size estimate is

$$SE_Z = 1/\sqrt{(n-3)},$$

where n is the total sample size (Lipsey & Wilson, 2001; Raudenbush & Bryk, 2002).

[4]Diversity variables that included interpersonal interactions with both racial and nonracial diversity were classified as nonracial diversity.

[5]The word *attitude* is used in the remainder of the article to describe attitudes, knowledge, and skills that are not behaviors or behavioral intentions. Although this is certainly an oversimplification, some outcomes were not classified easily as an attitude, skill, or knowledge domain (e.g., appreciation of diversity). It is worth noting that the vast majority of civic outcomes that can be best described as knowledge or skills were related to diversity (e.g., ability to relate to people from different races or nations) or leadership (e.g., leadership skills).

[6]As with virtually all meta-analytic techniques, hierarchical linear modeling (HLM) analyses weight each effect size by the inverse of the study's squared standard error. Assigning larger weights to studies with larger sample sizes is a critical component of meta-analysis since—all else equal—studies that contain 5,000 students produce much smaller errors and more generalizable results than do studies with 50 students. Initially, an unconditional HLM analysis was performed, with the z-transformed effect size as the DV and no independent variables in the model. This unconditional analysis provides a weighted estimate of the overall effect size across all studies, and it conducts a homogeneity analysis that tests whether there is more variation across studies than one would expect by chance (e.g., from measurement error or random differences in study populations). If the variance is significantly greater than chance, then subsequent models should include independent variables at Level 2 to predict which study characteristics are associated with the observed relationships between diversity and civic engagement.

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