

# THE INFLUENCE OF DEMOGRAPHIC HETEROGENEITY ON THE EMERGENCE AND CONSEQUENCES OF COOPERATIVE NORMS IN WORK TEAMS

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**Drawing from social categorization theory, we found that greater demographic heterogeneity led to group norms emphasizing lower cooperation among student teams and officers from ten business units of a financial services firm. This effect faded over time. Perceptions of team norms among those more demographically different from their work group changed more, becoming more cooperative, as a function of contact with other members. Finally, cooperative norms mediated the relationship between group composition and work outcomes.**

Increased demographic heterogeneity in organizations has been expected to generate important benefits, such as increasing the variance in perspectives and approaches to work brought by members of different identity groups. Given the purported advantages, managers might eagerly incorporate workforce diversity into organizational problem-solving processes. Yet attempts to capitalize on these advantages have met with mixed success (e.g., Heilman, 1994). Likewise, research on the effects of demographic heterogeneity in organizational settings has been characterized by mixed findings, leading researchers to conclude that, in spite of the recent popularity of demographic heterogeneity as a topic, there is little consensus about either what constitutes diversity or how it affects performance (Guzzo & Dickson, 1996: 331).

We address these inconsistencies by suggesting that past researchers have neglected to consider whether demographic heterogeneity among work group members led to the emergence of certain norms that subsequently influenced work processes and outcomes. Drawing on self-categorization theory, we begin by exploring how demographic heterogeneity influences the emergence and stability of a group's emphasis on cooperative norms. We then consider the relative impacts of

increased contact on cooperative norms for demographically similar and different people. Finally, we examine how inconsistencies in the relationship between group heterogeneity and work outcomes might be explained by considering the mediating role of norms. Thus, this study may explain the contradictory findings described above; the negative effects of demographic heterogeneity may diminish when norms that encourage a focus on interdependent objectives develop.

## THEORY AND HYPOTHESES

### Group Norms: The Relative Emphasis on Cooperation

Group norms, defined as legitimate, socially shared standards against which the appropriateness of behavior can be evaluated (Birenbaum & Sagarin, 1976), influence how a group's members perceive and interact with one another, approach decisions, and solve problems. Norms are regular behavior patterns that are relatively stable and expected by group members (Bettenhausen & Murnighan, 1991: 21). Cooperative group norms, in particular, reflect the degree of importance people place on their personal interests and shared pursuits (Wagner, 1995: 153), shared objectives, mutual interests, and commonalities among members. Emphasizing independence, rather than cooperation, causes people to differentiate themselves from others and focus on their own and others' unique interests, abilities, and characteristics.

Group cooperation may be dictated by the characteristics of a group's task but, more typically, a work team's objectives are specified at its incep-

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tion, and the means of accomplishing those objectives are left to the team's discretion (Hackman, 1987). Further, outcome interdependence is distinct from task interdependence (Wageman, 1995). Thus, even when incentives and rewards are allocated to a group, variations are likely to emerge in the level of interdependence members exhibit in accomplishing the task.

### **A Self-Categorization Approach to Understanding the Effects of Demographic Composition on the Emergence and Stability of Cooperative Norms**

Much is known about the behavioral consequences of cooperative orientations, but researchers know relatively little about the factors that influence the *emergence* of cooperative norms. Given the impact of cooperative orientations on processes and outcomes in organizations and the importance of matching a group's orientation to its task (e.g., Ancona & Caldwell, 1992), understanding the emergence and stability of such norms over time is critical. Examining group composition at the time groups form and how members categorize themselves and other members on the basis of their demographic differences may shed light on variations in cooperative orientations in different groups at different times.

Self-categorization is the process by which people define their self-concepts in terms of membership in social groups. Self-concepts are activated and provoke specific behaviors depending on the characteristics of the others who are present in a situation (e.g., Markus & Cross, 1990). People often use immediately apparent physical features, such as race, sex, and national origin, to categorize others and predict their behavior. Further, members of demographically heterogeneous groups are more likely to categorize one another in terms of demographic characteristics than are members of homogeneous groups (Stroessner, 1996).

The principle of functional antagonism describes an inverse relationship between the salience of different social categories: as one category becomes more salient, others become less salient (e.g., Turner, Oakes, Haslam, & McGarty, 1994). This principle implies that when demography is salient, a group of people will focus more on their differences than on their similarities; that is, they will be less likely to acknowledge and act in accordance with factors that tie them together. Research has shown that demographic heterogeneity within work groups is inversely related to members' focus on organizational objectives (Chatman, Polzer, Barsade, & Neale, 1998). We suggest that this focus on

differences will lead to the formation of norms that highlight individual members' interests; such norms would be independent, rather than interdependent, norms.

One of the few studies that focused on norm formation in work groups showed that their norms formed early, often before groups' members adequately understood their tasks (Bettenhausen & Murnighan, 1985). Norms were subject to modification over time, however. As group members interacted, shared experiences formed the basis for norms governing future interactions. Interestingly, demographic heterogeneity may influence the stability of cooperative norms as "social targets *initially* activate primary or primitive generic categories such as race, gender, and age" (Messick & Mackie, 1989: 54; emphasis added). A negative relationship between demographic heterogeneity and cooperative norms may be most pronounced early in a group member's tenure or in a group's formation. It is during this early period that people will have the fewest alternative, potentially competing, categories on which to focus, given a lack of prior knowledge about their colleagues (Brewer & Miller, 1984). The negative influence of demographic differences on group members may weaken over time as other social categories, which were not immediately apparent, surface (Harrison, Price, & Bell, 1998).

The dominant paradigm in demography research, similarity-attraction theory, cannot account for such temporal changes in the demography-behavior relationship. The similarity-attraction model implies that a stable relationship exists between demographic characteristics and behavior because similarity remains constant (e.g., Pfeffer, 1983). Social categorization theory, in contrast, provides a more dynamic explanation in which it is recognized that attention to specific characteristics in a given situation may change over time. At first, demographically different team members may be hesitant to cooperate with one another because they categorize each other as out-group members. However, if the salience of surface-level demographic characteristics dissipates over time and demographically dissimilar group members begin to recategorize themselves as fellow in-group members, they may be more inclined to cooperate with one another. Drawing on social categorization theory and invoking the functional antagonism principle, we therefore predict the following:<sup>1</sup>

<sup>1</sup> Predictions at both the individual and group levels of analysis are relevant because a single member's perceptions of group norms may depend on the extent to which

*Hypothesis 1a. The negative relationship between being demographically different from the other members of a group and perceptions that group norms emphasize cooperation will be strongest for members who are new to the group.*

*Hypothesis 1b. Group heterogeneity will be most negatively related to cooperative norms early in a group's existence.*

Past researchers have found that recategorization was facilitated by increased contact among group members (Sherif, Harvey, White, Hood, & Sherif, 1954). Simple contact between people with different backgrounds, here based on demographics, may not, however, be enough to reduce biases or increase trust. To induce group members' recategorization of different people into a common in-group identity, the contact situation must reflect certain conditions, including, most importantly, an objective that makes members' shared fate salient (Dovidio, Gaertner, & Validzic, 1998). This should influence members to perceive themselves as one superordinate group rather than as individuals differentiated by demographic characteristics. Interaction under such conditions of shared fate can broaden perceptual fields to allow impressions of out-group members to become more accurate and favorable (Islam & Hewstone, 1993).

Research on the contact hypothesis has focused on identifying the antecedent conditions that are necessary for recategorization to occur (e.g., Brewer & Brown, 1998). In much of this work, it has been assumed that all group members react similarly to increased contact. We argue, instead, that increased contact among similar and dissimilar members may differentially affect cooperative norms. That is, more contact among heterogeneous team members may lead to a higher increase in cooperative norms, but contact may have a less significant effect among homogeneous members.

The psychology underlying this prediction can be illustrated by considering a high level of demographic dissimilarity at the individual level. Imagine a five-member group with one black African woman and four white American men. She is demographically different from everyone else, and they are demographically homogeneous with each other. We predict that more frequent contact will

improve relationships among the people in the group who differ from each other—the people who know less about one another. We assume that negative stereotypes about demographically different people are generally untrue and that demographically similar people will respond reasonably to disconfirming information about negative stereotypes (e.g., Stephan & Brigham, 1985). Thus, the black African woman will, with increasing opportunities to learn about them, improve her relationship with all four white American men following contact, whereas each demographically homogeneous team member will improve only one relationship. In this way, the perception of team norms for those who are more demographically similar is not as affected by increased contact as it is for those who are more demographically different.

Similarly, at the group level, increased contact will have less impact on demographically homogeneous groups because such interaction will merely confirm members' positive impressions of similar others and strengthen group cohesion. Conversely, contact will have a greater impact on diverse groups because members' increased contact will provide information to members that disconfirms unfounded stereotypes, as we predict in Hypotheses 2a and 2b:

*Hypothesis 2a. With their initial (early membership) perceptions of cooperative group norms controlled for, the perceptions of cooperative norms of demographically heterogeneous group members will increase more as a result of contact than will the perceptions of homogeneous members.*

*Hypothesis 2b. With initial cooperative group norms controlled for, cooperative norms will increase more as a result of contact in heterogeneous than in homogeneous groups.*

### **The Role of Cooperative Norms in Mediating the Relationship between Diversity and Group Processes and Outcomes**

Research has found that demographic heterogeneity influences work processes and outcomes, but it is unclear whether it promotes or constrains group effectiveness. On the one hand, a "value in diversity" hypothesis has been supported. Compared to homogeneous groups, members of demographically heterogeneous groups behaved more cooperatively (Cox, Lobel, & McLeod, 1991), were more innovative (O'Reilly, Williams, & Barsade, 1997), and derived higher-quality solutions (e.g., Kirchmeyer & Cohen, 1992). On the other hand, Williams and O'Reilly (1998) concluded that in-

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he or she agrees with prevailing group norms, and the impact on group activities and outcomes of norms favoring independence or cooperation could depend on whether group members unanimously or partially share norms (e.g., Kenny & LaVoie, 1985).

creased diversity typically has negative effects on individual and group behavior, citing studies showing that *homogeneous*, not heterogeneous, groups were more cooperative (e.g., Alagna, Reddy, & Collins, 1982), were more innovative (e.g., O'Reilly & Flatt, 1989), performed better (e.g., Watson, Kumar, & Michaelsen, 1993), and experienced less turnover, alienation, and dissatisfaction among members (e.g., Tsui, Egan, & O'Reilly, 1992).

One reason for these diametrically opposed results may be that researchers have often neglected to specify the psychological mechanisms underlying the relationship between demographic heterogeneity and work processes and outcomes, relying instead on demographic characteristics as proxies for such mechanisms (e.g., Lawrence, 1997). A growing number of studies have acknowledged the complexity of demographic effects and identified factors that influence whether demographic diversity enhances or detracts from performance, including group structure, process, conflict (e.g., Jehn, Northcraft, & Neale, 1999), and organizational culture (Chatman et al., 1998). Interestingly, in many of these studies, particularly those relating to cooperation and conflict, norms are central to the group composition–outcome link. For example, Simons (1995) found that demographic heterogeneity was only advantageous when teams were able to manage conflict. Members' tolerance for others' points of view influenced the link between compositional heterogeneity and creative solutions (Hoffman, Harburg, & Maier, 1962). And cooperative cultures in which members' shared fate was salient determined whether group heterogeneity influenced work effectiveness (e.g., Chatman et al., 1998).

This discussion suggests that, in addition to being influenced by composition, a group's emphasis on cooperative norms may mediate the relationship between demographic heterogeneity and work processes and performance. Although heterogeneity influences cooperative norms, it may be less potent than norms in affecting work processes and outcomes. As we proposed above, salient demographic differences influence members' behavior early in a group's existence. This influence may occur because of a lack of knowledge of group norms (among new members) or because of an absence of specific group norms (in newly formed groups) (e.g., Levine & Moreland, 1991). But, as a group forms more specific norms, these norms may eclipse the use of demographic differences as proxies for how members should act and treat others. As time passes, group norms strengthen, and the degree to which they are enforced intensifies, while members' tendencies to react to surface-level differences dissipate (e.g., Harrison et al., 1998).

Below we discuss how group effectiveness may be more influenced by cooperative norms than by the composition of members' demographic characteristics. Our focus in this section, therefore, shifts from the early period of norm formation to the cumulative impact of cooperative norms, because all aspects of a team's history contribute in some way to its processes and outcomes (e.g., Gersick, 1988).

**Project and task timing.** Communication frequency and timing influence group effectiveness. Gersick (1988) found that successful teams engaged in the most concentrated debate and discussion at the midpoint of their life spans. Researchers have linked demographic heterogeneity to team members' willingness to communicate about task information, assuming that demographic attributes provide surrogate measures for the common experiences and backgrounds shaping communication (Pfeffer, 1983) and that people may be less inclined to share task information with those who are demographically different (e.g., Zenger & Lawrence, 1989). In contrast, we propose that communication frequency and timing may be more influenced by the norms a team adopts than by its demographic heterogeneity.

Regardless of demographic heterogeneity, more interaction occurred among members in groups that were experimentally manipulated to emphasize norms supporting interdependence rather than independence (Chatman et al., 1998). Driven by salient group objectives and greater agreement about how to approach required tasks, members of groups that emphasize cooperative norms may be more likely to meet as soon as their tasks are assigned, giving them more time to consider and determine group processes. In contrast, teams that develop less cooperative norms may fail to recognize the need to address procedural issues that go beyond dividing up the tasks. Members of such a team may, instead, assume that the group is merely a collection of individuals who will each work on a part of the task independently. Such an approach may hinder the effective accomplishment of interdependent tasks, but members may not realize the need for cooperation until project deadlines are close and members reconvene to integrate the distinct pieces of their projects. As a result, groups emphasizing less cooperative norms will be more likely to experience a flurry of group meetings at the point when the tasks need to be completed than will teams emphasizing more cooperative norms.

We predict that cooperative norms will mediate the relationship between demographic heterogeneity and the timing of group communication and interaction. Specifically, regardless of demo-

graphic composition, teams emphasizing cooperative norms will be more likely to hold early meetings (those occurring closer to the time that the tasks are assigned) than late meetings (those occurring closer to the time that the tasks must be completed) than will teams not emphasizing cooperative norms, as stated in Hypotheses 3a and 3b:

*Hypothesis 3a. Perceptions of cooperative norms will be positively related to a group's tendency to hold more early than late meetings.*

*Hypothesis 3b. Perceptions of cooperative norms will mediate the relationship between demography and early versus late meetings in such a way that the direct effect of group heterogeneity will weaken after cooperative norms are considered.*

**Members' satisfaction and intentions to remain with a team.** Norms supporting cooperation may also have a greater influence than demographic heterogeneity on team members' attitudes about a team experience. Research has shown that people who are more demographically different from their coworkers are less satisfied and less likely to intend to remain in their jobs (e.g., O'Reilly, Caldwell, & Barnett, 1989). However, Tsui and her colleagues (1992) found that some of the negative effects of being demographically different disappeared when they took "company effects" into account. They concluded that corporate culture or other firm-specific characteristics contributed to satisfaction and reversed the relational demography effects. This reversal may occur because members of teams that emphasize cooperative norms may be more satisfied with their team experience because of the team's emphasis on satisfying members' needs and objectives and maintaining harmonious relationships. Conversely, the more team members believe that they can perform effectively as independent contributors, the less likely they are to value team membership, regardless of the demographic heterogeneity of the group. Thus, less conflict regarding members' contributions may arise in teams emphasizing cooperative norms. Such positive team interaction will likely lead to members of more cooperative teams being more satisfied than members of teams that develop less cooperative norms, as we predict in Hypotheses 4a and 4b:

*Hypothesis 4a. Perceptions of cooperative norms will be positively related to group members' satisfaction with group processes and products.*

*Hypothesis 4b. Perceptions of cooperative norms will mediate the relationship between members' demographic heterogeneity and satisfaction in such a way that the direct effect of heterogeneity on satisfaction will weaken after cooperative norms have been considered.*

**Individual performance and team efficiency and effectiveness.** Past research results have been characterized by inconsistent links between demographic differences and work effectiveness. This discrepancy may be reconciled by considering the mediating role of cooperative norms. A lack of emphasis on interdependence among members may render uncooperative teams less efficient and less effective in accomplishing their objectives than teams that emphasize cooperative norms. Because group-level goals are emphasized in cooperative teams, members are likely to develop shared views about ways to approach and accomplish their required tasks. In contrast, less cooperative groups may be forced to spend more time synthesizing team members' perspectives because task accomplishment proceeds more efficiently and effectively when team members agree about the proper way to approach a task (Bettenhausen & Murnighan, 1985).

Ancona and Caldwell (1992) found that greater tenure heterogeneity impeded innovation among product development teams by reducing their capability for teamwork and, subsequently, their ability to get new products implemented quickly. This observation suggests that demographic heterogeneity influences work group efficiency and effectiveness more indirectly, through an influence on cooperative norms. In contrast, norms may influence individual and team output, such as quality, productivity, and creativity, directly (e.g., Chatman et al., 1998), even if members have the requisite variety of ideas to achieve high levels of success in addressing complex tasks. When less cooperative norms prevail and a team is characterized by a focus on individual achievement, self-interest, and a lack of commitment and trust, members may be inhibited about sharing their ideas (Gaertner, Mann, Dovidio, Murrell, & Domare, 1990). In teams that are less cooperative, sharing information and ideas is risky because of the potential for the dilution of the individual credit and rewards granted for those ideas. Conversely, members of teams emphasizing cooperative norms will be more willing to contribute their ideas because their rewards are derived from meeting team goals. At the group level, a cooperative emphasis will improve performance by focusing members' efforts on a single objective. A less cooperative team, in contrast, may encounter difficulty integrating individual contri-

butions into a cohesive final product. Thus, regardless of demographic heterogeneity, team members' enhanced focus on group-level goals may yield greater team efficiency and effectiveness and individual performance, with such norms eclipsing the direct influence of heterogeneity on these outcomes, as we predict in Hypotheses 5a–6b:

*Hypothesis 5a. Perceptions of cooperative norms will be positively related to individual contributions to group objectives.*

*Hypothesis 5b. Perceptions of cooperative norms will mediate the relationship between demographic heterogeneity and members' contributions to group objectives in such a way that the direct effect of heterogeneity will weaken after perceptions of cooperative norms are considered.*

*Hypothesis 6a. Cooperative norms will be positively related to team efficiency and effectiveness.*

*Hypothesis 6b. Cooperative norms will mediate the relationship between demographic heterogeneity and team efficiency and effectiveness in such a way that the direct effect of heterogeneity will weaken after cooperative norms are considered.*

## STUDY 1 METHODS

### Respondents and Study Design

One hundred nineteen students, representing half of the first-year class enrolled in a two-year full-time M.B.A. program at a major American university, participated in this study. All students who were asked to participate in the study did so, yielding a 100 percent response rate. Thirty-six percent were not U.S. citizens, 22 percent were nonwhite, and 32 percent were women. Respondents' mean age was 28.60 years, and they had an average of 5.31 years of full-time work experience. The demographic profile of study participants was identical to that of the entire first-year class.

As part of their required organizational behavior course, students had to complete a semester-long consulting project in five-person groups, which, with an associated presentation, ratings by other team members, and a paper describing the team process, accounted for 42.5 percent of their final course grades. Students assembled their own groups during the first two weeks of classes ( $n = 24$  groups). For the remainder of the 15-week semester, each group identified and addressed a critical organizational behavior problem confronting a real

organization of their choosing. At the end of the semester, each team was required to submit a written report of its consulting analysis and recommendations and present an oral report of findings to the other students in the class and the instructor; many also had members of the firms on which their projects focused present.

Once the project of a student's group was completed, but before graded projects were returned to the groups, each student submitted a four-page paper describing his or her team experience. Students were informed that their evaluation papers would be assessed in terms of their ability to constructively evaluate their team's work approach. These papers were content-coded for the present study by two independent judges who were blind to the hypotheses. Specific procedures are described in the dependent variables section below.

Survey data regarding the team experience were collected at two points in time. Respondents assessed teams' cultural norms during the 3rd (time 1) and 15th (time 2) weeks of the 15-week semester, with each independently reporting perceptions of her or his team's *current* relative emphasis on cooperative norms. Response rates were 98 percent at time 1 and 100 percent at time 2. These data were collected in class, and no advance warning was given, to avoid cueing effects. Respondents were told that these data would be used to "assess the effectiveness of using groups in the M.B.A. core curriculum" and that course grades would in no way be affected by these data, their instructor would not see their responses, participation was voluntary, and responses would remain completely confidential. Assessments of each team's interaction during the semester were collected at time 2. Each team member was required to provide independent ratings of himself or herself and of each other team member on a variety of dimensions on the last day of the semester. Finally, demographic data were collected from the school's archives.

### Independent Variables

**Demographic heterogeneity.** At the individual level, we calculated relational demography scores to reflect sex, race, and citizenship differences between individuals and other team members. Following others (e.g., Tsui et al., 1992), we used this Euclidian distance measure:  $[1/n\sum(x_i - x_j)^2]^{1/2}$ , where  $x_i$  equaled the focal individual's score on a dimension (0 = "male," 1 = "female"; 0 = "white," 1 = "nonwhite"; and 0 = "U.S. citizen," 1 = "not U.S. citizen");  $x_j$  equaled each other team member's score on that dimension; and  $n$  equaled the number of students in the focal student's group. A rela-

tional measure ranging from 0 to 1 was derived for each of the three demographic dimensions. Social categorization theory focused us on visible differences in themselves rather than on their content, which has been the focus in prior research (e.g., Riordan & Shore, 1997). In this sense, individual demographic differences are best interpreted, at least in relational demography terms, as an amalgamation (e.g., Wayne & Liden, 1995). Therefore, we summed the three individual relational scores to create an overall measure of relational demography. Calculated scores ranged from 0.0 (similar to others) to 2.44 (different from others). The higher the overall relational demography score, the more demographically different respondents were from other people within their teams in terms of citizenship, race, and sex ( $\bar{x} = 1.65$ ,  $s.d. = 0.46$ ).

At the group level, we used the coefficient of variation, a scale-invariant measure of dispersion (Allison, 1978), to assess the relative demographic heterogeneity of the team. We calculated the coefficient of variation for the M.B.A. groups as the standard deviation of the total demographic difference between team members divided by the mean of the total demographic difference between team members ( $\bar{x} = 0.79$ ,  $s.d. = 0.43$ ). Groups ranged on this measure from a score of 0.0 (homogeneous) to a score of 1.48 (heterogeneous).

**Contact among team members.** At time 2, respondents reported the frequency of their teams' interactions over the semester in terms of the numbers of meetings held. Respondents reported the number of team meetings that occurred for three periods: the 1st through the 8th week of the semester, a meaningful end point, because during their 8th week all M.B.A. students participated in an intersession program for which they were excused from their regular classes ( $\bar{x} = 3.48$ ,  $s.d. = 1.79$ ); the 9th through the 14th week ( $\bar{x} = 6.06$ ,  $s.d. = 3.11$ ); and the 15th week of the semester ( $\bar{x} = 3.05$ ,  $s.d. = 1.76$ ). We created a measure of the total number of meetings each team held by summing these three measures at the individual level ( $\bar{x} = 12.66$ ,  $s.d. = 4.64$ ) and averaging team members' scores at the group level ( $\bar{x} = 12.68$ ,  $s.d. = 3.17$ ).<sup>2</sup>

<sup>2</sup> We calculated the corresponding eta-square for all individual variables aggregated to the group level to check whether any two people within the same group responded more similarly than two people in different groups. The eta-square far exceeded Georgopoulos's (1986: 40) minimum criterion of .20, supporting aggregation.

## Dependent Variables

**Cooperative team norms.** Perceptions of teams' norms were assessed twice, as described above. Each respondent independently reported how strongly each of five statements characterized his or her team using seven-point Likert-type scales (1, "strongly disagree," to 7, "strongly agree"). The cooperative norms scale contained the following items (tense was present for time 1 and past for time 2, the 15th and last week of the semester): (1) "It is/was important for us to maintain harmony within the team," (2) "There is/was little collaboration among team members, tasks are/were individually delineated" (reverse-coded), (3) "There is/was a high level of cooperation between team members," (4) "People are/were willing to sacrifice their self-interest for the benefit of the team," and (5) "There is/was a high level of sharing between team members." The overall reliability (alpha) coefficients for the scale were .62 at time 1 and .77 at time 2. Responses to the items summed for each time period yielded an overall measure of each respondent's perception of his or her team's norms pertaining to cooperation. This individual-level measure is thereafter referred to as *perceptions of cooperative norms*. Perceptions of cooperative norms at time 1 ( $\bar{x} = 24.15$ ,  $s.d. = 3.62$ ) and time 2 ( $\bar{x} = 24.60$ ,  $s.d. = 4.53$ ) were used as dependent variables to test Hypotheses 1a and 2a. We averaged norms at time 1 and time 2 ( $\bar{x} = 24.47$ ,  $s.d. = 2.98$ ) to test the individual-level main and mediation hypotheses (Hypotheses 4a and 4b and 5a and 5b).

We developed a measure of norms at the group level by calculating the average, within groups, of all members' scores on the cooperative norm scale for each time period. This group-level measure is hereafter referred to as *cooperative norms*. Cooperative norms at time 1 ( $\bar{x} = 24.61$ ,  $s.d. = 2.99$ ) and time 2 ( $\bar{x} = 24.19$ ,  $s.d. = 3.46$ ) were used as dependent variables to test Hypotheses 1b and 2b. We averaged each team's cooperative norms over the two time periods ( $\bar{x} = 24.47$ ,  $s.d. = 2.98$ ) and used this measure as an independent variable to test the group-level main and mediation hypotheses (3a, 3b, 6a, and 6b).

**Early/late meetings.** To assess whether groups held more meetings early or late in the 15-week period, we created a ratio with the average number of meetings held each week during the first 8 weeks as the numerator and the average number of meetings held during the 15th week as the denominator ( $\bar{x} = 0.19$ ,  $s.d. = 0.14$ ). A larger value indicated a team met more often earlier than it did later.

**Satisfaction, performance, and team efficiency and effectiveness.** Satisfaction, efficiency, and effectiveness were assessed through content coding the team evaluation papers mentioned above. In this assignment, students were told to “evaluate the effectiveness of your teams’ approach to the consulting project.” To reduce social desirability bias, we informed students that their assessment would be based on their analyses, not on how effective the teams were or how satisfied the students were with them. They were instructed verbally and in writing to comment on: (1) team effectiveness, (2) whether certain biases or conflicts hindered team efficiency, and (3) how satisfied they were with their experience and final results. Coders were instructed to look for these categories of comments in the papers and were easily able to do so, as the high interrater reliabilities reported below indicate.

For the content analysis, we removed all references to team members’ names, sex, race, and nationality from the evaluation papers. To retain continuity, we assigned each member a two-digit identification number, which was used in place of personal identifiers. Two independent coders, who were blind to the study hypotheses, then read the papers (average interrater agreement across the four variables = .86). Coders were provided with definitions of each construct, and disagreements over the interpretation of these terms were resolved by discussion between coders after they had completed a set of practice papers (the same assignment had been collected in the course the prior year). They coded all papers within a single team before moving on to the next team, rating individual-level variables immediately after reading each evaluation paper and group-level variables after reading all five randomly ordered papers from members of a single team. The exact measures are described in detail below.

Two measures of *satisfaction* (defined for coders as “the collection of both positive and negative feelings and beliefs that people have about their team experience”) were assessed (1, “very dissatisfied,” to 7, “very satisfied”). Coders rated each respondent’s satisfaction with the team process ( $\bar{x} = 4.92$ , s.d. = 1.35) and team product ( $\bar{x} = 5.73$ , s.d. = 1.09). These measures, which were highly correlated ( $r = .79$ ,  $p < .01$ ), were then averaged into an overall measure of individual satisfaction ( $\bar{x} = 5.32$ , s.d. = 1.15).

*Individual performance* was assessed with ratings of each team member made by his or her teammates. Each member was asked to report the extent to which a focal individual “contributed to the successful running of and outcomes generated by the team” (1, “made minor or no contributions,” to 9, “made major, extensive contributions”). We then

averaged teammates’ ratings of each focal individual (excluding self-ratings) to obtain a single composite measure of each person’s overall contribution to the team project ( $\bar{x} = 7.54$ , s.d. = 1.09). We used a single-item within-group interrater reliability equation ( $r_{WG(1)} = 1 - [s_{xj}^2/\sigma_{EU}^2]$ ; James, Demaree, & Wolf, 1984) to assess the reliability of these individual contribution ratings. A reliability score was obtained for each group of raters ( $n = 119$ ;  $\bar{x} = 0.79$ , s.d. = 0.14 for the reliability scores).

Coders rated team effectiveness (defined as “the extent to which the team accomplished its purpose and produced the intended, expected, or desired result”) and team efficiency (“the extent to which the team functioned with the least waste of time and effort”) (1, “highly inefficient or ineffective,” to 7, “highly efficient or effective”;  $\bar{x}_{team\ efficiency} = 5.04$ , s.d. = 1.44;  $\bar{x}_{team\ effectiveness} = 4.29$ , s.d. = 1.81). Because the two measures were highly correlated ( $r = .90$ ,  $p < .01$ ), we averaged them to create an overall measure, *team effectiveness and efficiency* ( $\bar{x} = 4.67$ , s.d. = 1.58).

## Model

**Control variables.** At the individual level of analysis, dichotomous dummy variables for citizenship, race, and sex were included in each regression equation. (0 = “U.S.”/“white”/“male”; 1 = “non-U.S.”/“nonwhite”/“female”). Doing this controlled for the possibility that demographic patterns affected one nationality, race, or sex more than others, consistent with our focus on the effects of being demographically different, rather than on the content of such differences. We controlled for team size at the group level of analysis because slight variations existed (three groups of four and two groups of six members). In tests of Hypothesis 2a, we controlled for perceptions of group norms and group norms at time 1 to determine whether a regression to the mean influenced changes in demographically different people’s perceptions and heterogeneous teams’ norms, which, in Hypothesis 1a, were predicted to be more extreme (negative).

**Analyses.** We used hierarchical regression to test the hypotheses at the individual and group levels of analysis. Control variables were entered in the first step, demographic heterogeneity (relational demography for the individual level and the coefficient of variation for the group level) in the second step, and individual- or group-level cooperative norms in the third step. We used slope analyses (e.g., Schoonhoven, 1981) to test the moderating hypotheses (2a, 2b), entering contact in the third step and the interaction of demographic heterogeneity and contact in the final step. To test the



mediation hypotheses (3a–6b), we used a series of three regression analyses: (1) the dependent variable regressed on the independent variable, (2) the mediator regressed on the independent variable, and (3) the dependent variable regressed on the independent variable simultaneously with the mediator variable. Mediation is demonstrated to the extent that the mediator (cooperative norms) relates to the dependent variable (timing, satisfaction, effectiveness) beyond the effect of the independent variable (demographic heterogeneity). If a variable is a mediator, the level of significance for the coefficient of the independent variable will decrease, and the significance of the mediator variable will remain constant when the two variables are entered simultaneously (Baron & Kenny, 1986).

## STUDY 1 RESULTS

Means, standard deviations, and correlations are reported in Table 1.

### Predicting Cooperative Group Norms

Hypothesis 1a predicts that the impact of demographic heterogeneity on perceptions of cooperative norms will be strongest when members are new to a group and will decrease over time. We first found that each separate demography measure had a significant, negative effect on perceptions of cooperative norms in the M.B.A. sample ( $\beta_{\text{citizenship}} = -0.19, p < .05$ ,  $\beta_{\text{race}} = -0.19, p < .05$ ;  $\beta_{\text{sex}} = -0.15, p < .10$ ), empirically justifying aggregation. Table 2 shows the results of tests of this hypothesis and of the other predictions made in the first two sets of hypotheses. Relational demography was significantly, negatively related to perceptions of cooperative norms at time 1 ( $\beta = -0.35, p \leq .01$ , equation 1) but not at time 2 ( $\beta = -0.07$ ; n.s., equation 2). To further test whether the impact of demographic heterogeneity on perceptions of cooperative norms was significantly less at time 2 than at time 1, we pooled responses for both times and consolidated measures of cooperative norms at both times into a single variable. We then ran a hierarchical regression equation in which simple demographic controls and a dummy for time ("time 1" = 0, "time 2" = 1) were entered in the first step, demographic heterogeneity in the second step, and the interaction of demography and time in the third and final step. The coefficient of the interaction term ( $\beta = 0.34$ ) was marginally significant ( $p < .10$ ), indicating that the influence of relational demography on norms was greater at time 1 than time 2.

Hypothesis 1b, stating that the impact of team-level

demographic heterogeneity on cooperative norms will decrease over time, was supported, since team heterogeneity negatively and significantly influenced cooperative norms at time 1 ( $\beta = -0.45, p \leq .05$ , equation 3) but not at time 2 ( $\beta = -0.17$ , n.s., equation 4). Using the test for Hypothesis 1a described above, we found the effect of team heterogeneity on cooperative norms was marginally, significantly less at time 2 than time 1 ( $\beta = 0.75, p \leq .10$ ).

### Predicting Changes in Team Norms as a Function of Intragroup Contact

Hypothesis 2a predicts that demographically different people will be more affected by contact with team members in the extent to which perceptions of cooperative norms change (increase) over the course of a project. As predicted, equation 2 in Table 2 shows a significant, positive coefficient for the interaction of amount of contact and relational demography at time 2 ( $\beta = 1.17, p \leq .05$ ). To understand the form of this interaction, we used the slope analysis equation (Schoonhoven, 1981):  $y = b_1x_1 = b_3x_1x_2$ , where  $b_1$  is the unstandardized coefficient for relational demography,  $x_1$  is the relational demography score,  $b_3$  is the unstandardized coefficient of the interaction of contact and demography, and  $x_2$  is the level of contact. We calculated the contribution of demographic heterogeneity at two levels of contact: relatively low for this sample (one standard deviation below the mean, or 8.02) and relatively high (one standard deviation above the mean, or 17.30). For the interaction between level of contact and relational demography, an increase in relational demography from one standard deviation below the mean (1.21) to one standard deviation above the mean (2.09) increased the perception of cooperative norms by 4.41 more when a respondent reported a higher level of contact among team members, as revealed in the detailed calculations: For less contact,  $-.67(1.21) + .54(1.21)(8.02) = 4.43$ , and  $-.67(2.09) + .54(2.09)(8.02) = 7.65$ . For more contact,  $-.67(1.21) + .54(1.21)(17.30) = 10.49$ , and  $-.67(2.09) + .54(2.09)(17.30) = 18.12$ . The important number is the difference of the differences at time 2 ( $[18.12 - 10.49] - [7.65 - 4.43] = 4.41$ ), representing the increase in cooperative norms for a two-standard-deviation increase in relational demography for those experiencing more rather than less contact.

Hypothesis 2b, which predicts that demographically heterogeneous groups will be characterized by a greater change (increase) in cooperative norms over time when members have more contact but that homogeneous groups will evidence less variance in

**TABLE 1**  
**Means, Standard Deviations, and Correlations among Study Variables**

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Study 2<sup>a</sup></b>																
1. Citizenship	63.90%															
U.S.	36.10%															
Non-U.S.			-.19*													
2. Race	78.20%															
White	21.80%															
Nonwhite			-.07	.21*												
3. Sex	68.10%															
Male	31.90%															
Female			.05	-.18	.07											
4. Team size	4.96	0.46	.11	.48**	.40**	.22										
5. Relational demography	1.65	0.43	.10	-.35	-.15	.16	.02									
6. Team composition	0.79	3.17	.17	.03	.00	-.12	-.14	.41*								
7. Cooperative norms, individual	24.37	2.30	.10	.08	-.10	-.15	-.20	-.43*	.73**							
8. Cooperative norms, group	24.40	4.64	.04	-.12	-.01	-.05	.18	.14	-.03	-.33						
9. Total meetings, individual	12.66	3.16	.03	.12	.14	.14	.41*	-.25	.04	-.03	.68**					
10. Total meetings, group	12.69	0.19	.13	.14	-.18	-.19	-.39	-.40	.56**	.63**	-.27	-.16				
11. Early/late meetings	5.32	1.15	.02	.00	-.10	-.17	-.18*	-.22	.59**	.55**	-.04	-.10	-.05			
12. Satisfaction	4.65	1.58	.11	.13	-.16	-.36	-.13	-.32	.58**	.81**	-.05	.14	.50*	.65**		
13. Team effectiveness and efficiency	7.54	1.09	-.17	-.08	-.12	-.11	-.13	.04	.20*	.36	.06	.14	.27	.26**	.51*	
14. Individual performance																
<b>Study 2<sup>b</sup></b>																
1. Citizenship	91.60%															
U.S.	9.40%															
Non-U.S.			.15**													
2. Race	87.60%															
White	12.40%															
Nonwhite			-.05	.09												
3. Sex	77.10%															
Male	22.90%															
Female																
4. Total compensation	\$226,948	\$144,682	.03	-.06	-.09											
5. Relational demography	1.21	0.51	.38**	.42**	.25**	-.21**										
6. Perceptions of cooperative norms	23.66	7.73	-.14	-.18*	-.02	.16*	.21**									
7. Satisfaction	4.64	1.50	-.04	-.02	.06	-.01	.03	.32**								
8. Individual performance	2.32	0.50	-.05	-.02	-.02	.29**	-.08	.17*	.06							
9. Total compensation increase	0.18	0.37	-.06	-.01	-.06	-.19**	-.09	.14	.07	.03						

<sup>a</sup> Group  $n = 24$ ; individual  $n = 119$ .

<sup>b</sup>  $n = 116$ .

\*  $p < .05$

\*\*  $p < .01$

**TABLE 2**  
**Results of Hierarchical Regression Equations Predicting Perceptions of Cooperative Norms and Cooperative Norms, Study 1<sup>a</sup>**

Variable	Perceptions of Cooperative Norms, Hypotheses 1a and 2a		Cooperative Norms, Hypotheses 1b and 2b	
	Time 1: Equation 1	Time 2: Equation 2	Time 1: Equation 3	Time 2: Equation 4
Citizenship	0.17 <sup>+</sup>	0.09		
Race	0.03	0.06		
Sex	-0.04	0.04		
Cooperative norms, time 1		0.19 <sup>+</sup>		0.00
Team size			-0.16	-0.05
$\Delta R^2$	0.03	0.05	0.03	0.00
Relational demography	-0.35 <sup>**</sup>	-0.07		
Team composition			-0.45 <sup>+</sup>	-0.17
$\Delta R^2$	0.08	0.01	0.19	0.03
Total meetings		0.08		0.03
$\Delta R^2$		0.00		0.00
Relational demography $\times$ total meetings		1.17 <sup>+</sup>		
Team composition $\times$ total meetings				-0.75
$\Delta R^2$		0.04		0.05
$\bar{R}^2$	.11	.10	.22	.08
Overall <i>F</i>	3.40 <sup>**</sup>	1.69	2.97 <sup>+</sup>	0.32
<i>df</i>	4, 113	7, 110	2, 21	5, 18

<sup>a</sup> Entries represent standardized coefficients.

<sup>+</sup>  $p \leq .10$

\*  $p \leq .05$

\*\*  $p \leq .01$

these norms regardless of intragroup contact, was not supported (equation 4,  $\beta = -0.75$ , n.s.).

### The Mediating Effect of Cooperative Norms on Group Processes and Outcomes

Table 3 gives the results of regression analyses predicting early/late meetings. Hypothesis 3a was supported, because cooperative norms had a significant, positive effect (Table 3, equation 1,  $\beta = 0.56$ ,  $p \leq .01$ ) and, as expected, greater team heterogeneity had a significant, negative effect (equation 1,  $\beta = -0.38$ ,  $p \leq .05$ ) on the ratio of early to late meetings. The mediating hypothesis, 3b, was also supported, because the relationship between team heterogeneity and early/late meetings lost significance ( $\beta = -0.15$ , n.s.) when the cooperative norms variable was entered simultaneously, and the strength of the relationship between cooperative norms and early/late meetings remained intact. Figure 1 summarizes all the mediating effects, which are not shown in the tables.

Since teams may have reported more cooperative norms because they met more often, we tested whether early norms could predict meetings during the last week of the semester. We ran the meeting ratio equation (equation 1) again, substituting the

meetings during the last week of the semester for the dependent variable (ratio of early to late meetings) and our early (time 1) measure of norms for the average across all three meeting periods. As expected, we found a significant, negative coefficient for the cooperative norms measure ( $\beta = -0.48$ ,  $p < .01$ ); thus, the more cooperative the norms, the fewer later meetings a group had. This finding provides some assurance that causality is in the hypothesized direction, from norms to meetings rather than from meetings to norms.

**Members' satisfaction with their team.** As predicted in Hypothesis 4a, perceptions of cooperative norms were significantly related to judges' ratings of members' satisfaction (equation 2,  $\beta = 0.59$ ,  $p \leq .01$ ) and, as expected, relational demography was negatively related to individual satisfaction ( $\beta = -0.24$ ,  $p \leq .05$ ). Hypothesis 4b was also supported, because the effect of relational demography on satisfaction lost significance ( $\beta = -0.07$ , n.s.) when the measure of cooperative norms, which maintained significance, was entered simultaneously.

**Individual performance and team effectiveness and efficiency.** Hypothesis 5a was supported because perceptions of cooperative norms were positively related to peer ratings of each member's

**TABLE 3**  
**Results of Hierarchical Regression Equations Predicting Team Interaction and Individual and Team Process Outcomes and Performance, Study 1<sup>a</sup>**

Variable	Team Interaction, Hypothesis 3a	Individual Process Outcome, Hypothesis 4a	Individual and Team Performance, Hypotheses 5a and 6b	
	Early/Late Meetings, Equation 1	Satisfaction, Equation 2	Peer Rating of Individual Contribution, Equation 3	Team Effectiveness and Efficiency, Equation 4
Citizenship		0.02	-0.20*	
Race		0.02	-0.09	
Sex		-0.10	-0.12	
Team size	-0.19			-0.36*
$\Delta R^2$	.04	.01	.06	.13
Relational demography		-0.24*	-0.03	
Team composition	-0.38*			-0.27 <sup>†</sup>
$\Delta R^2$	.14	.04	.00	.07
Cooperative norms	0.56**	0.59**	0.25**	0.80**
$\Delta R^2$	.25	.32	.06	.52
$\bar{R}^2$	.43	.37	.12	.72
Overall <i>F</i>	5.04**	12.96**	2.90**	16.78**
<i>df</i>	3, 20	5, 112	5, 112	3, 20

<sup>a</sup> Entries represent standardized coefficients. To test the mediating hypotheses, variables from the second and third steps were entered simultaneously in a separate set of regressions. Results from these separate regressions are reported in the text and in Figure 1.

<sup>†</sup>  $p \leq .10$

\*  $p \leq .05$

\*\*  $p \leq .01$

contribution (equation 3,  $\beta = 0.25$ ,  $p \leq .01$ ). However, a test of the mediating hypothesis, 5b, was precluded because team members' contributions were not significantly related to how demographically different they were from their teammates.

Hypothesis 6a was supported, because teams characterized by cooperative norms were significantly more effective and efficient ( $\beta = 0.80$ ,  $p \leq .01$ ), as rated by independent judges. The mediating hypothesis, 6b, was modestly supported, as demographically heterogeneous teams were marginally less effective and efficient than were homogeneous teams ( $\beta = -0.27$ ,  $p \leq .10$ ), and this relationship lost significance ( $\beta = -0.06$ , n.s.) when the measure of cooperative norms, which maintained its significance, was entered simultaneously.

## STUDY 2, METHODS

### Respondents and Study Design

We conducted study 2 to determine the extent to which our findings from study 1 could be generalized to actual work settings. One hundred sixty-one officers from ten business units of the North American division of a large U.S. financial services firm participated in this study, representing an 89 percent re-

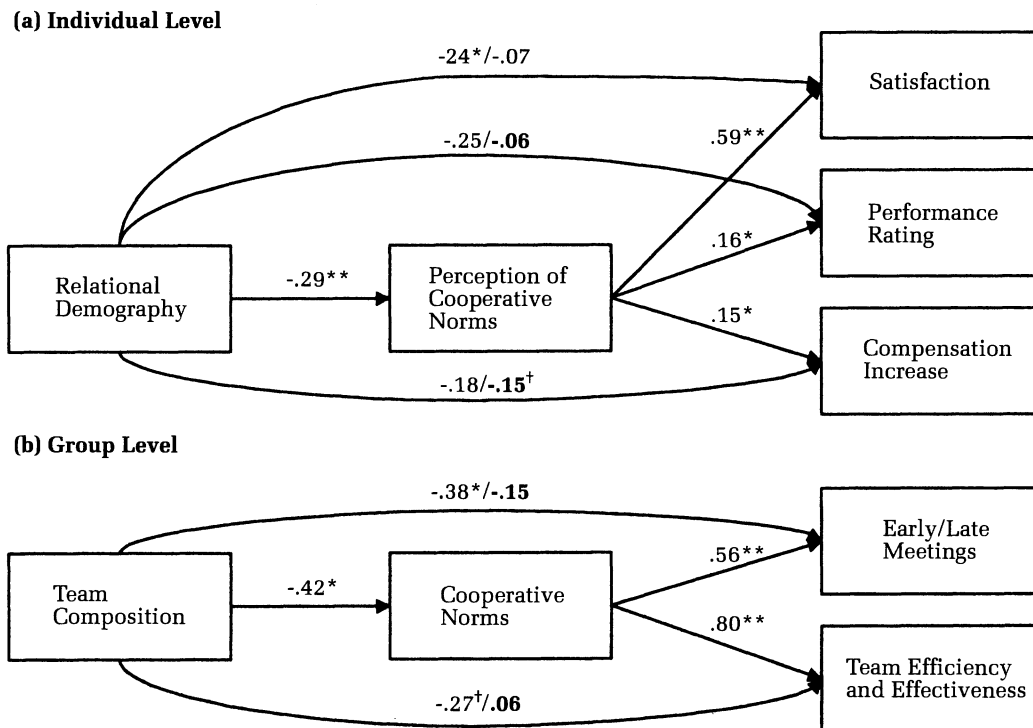
sponse rate. The participating business units conducted work in global finance. The groups ranged in size from 9 to 58 officers ( $\bar{x} = 28.32$ , s.d. = 13.91). Respondents' mean age was 42.81 years, and average tenure with the company was 11.24 years. Nine percent were not U.S. citizens, 12 percent were non-white, and 23 percent were women.

Personnel data, including compensation, performance appraisals, and demographic information, were obtained from the company's archives. We also collected original survey data by mailing surveys to the heads of the participating business units, who distributed surveys to all of their officers. Respondents returned the surveys directly to us in preaddressed envelopes and were assured that their survey responses would be confidential and not disclosed to their employer. Because of the small number of business units and cross-sectional design of this study, our analyses of these data were limited to testing a portion of the individual-level hypotheses (1a, 4a-4b, 5a-5b).

### Variables

**Independent: Demographic heterogeneity.** As in study 1, differences in citizenship, race, and sex

**FIGURE 1**  
**Main and Mediating Effects of Demography on Individual and Team Outcomes<sup>a</sup>**



<sup>a</sup> Numbers above the arrows represent standardized coefficients (betas). Betas in bold are based on regression equations including the connectedness mediator.

<sup>†</sup>  $p \leq .10$

\*  $p \leq .05$

\*\*  $p \leq .01$

One-tailed tests.

were assessed by comparing each individual's citizenship, race, and sex to those of every other individual in her or his business unit. Again, respondents' scores for citizenship, race, and sex differences were combined to create an individual-level measure of demographic differences ( $\bar{x} = 1.21$ ,  $s.d. = 0.51$ ).

**Dependent variables.** Respondents rated the *cooperative norms* of their business units, answering five items about the extent to which the following described the units (1, "extremely uncharacteristic," to 9, "extremely characteristic"): cooperative, collectivistic, individualistic (reverse-coded), team-oriented, and supportive. We summed responses to form an index of cooperative norms ( $\bar{x} = 23.66$ ,  $s.d. = 7.73$ ,  $\alpha = .78$ ).

*Satisfaction* was assessed through five questions rated on a seven-point scale. Examples are "I've thought seriously about changing organizations" (reverse-coded) and "If I have my own way, I'll be working for [the firm] three years from now." Responses to the items were averaged, yielding an overall measure of each respondent's satisfaction ( $\bar{x} = 4.64$ ,  $s.d. = 1.50$ ,  $\alpha = .81$ ).

Individual *performance* was assessed with a single-item rating of overall performance ( $\bar{x} = 2.32$ ,  $s.d. = 0.50$ ) assigned to each officer annually by his or her direct supervisor on a scale of 1 ("did not meet expectations") to 3 ("exceeded expectations"). We also collected data from the firm regarding employees' total annual *compensation* level (salary plus all bonuses) for the current year ( $\bar{x} = \$233,659$ ;  $s.d. = 165,672$ ) and the year prior to the study ( $\bar{x} = \$226,948$ ;  $s.d. = 144,682$ ). We then used prior-year compensation to calculate compensation increases for each individual by subtracting it from current-year compensation and dividing that amount by prior-year compensation ( $\bar{x} = 0.18$ ,  $s.d. = 0.37$ ).

**Control variables.** Dichotomous dummy variables for citizenship, race, and sex were included in each equation, and we controlled for prior-year compensation in the compensation increases equation.

## STUDY 2, RESULTS

Means, standard deviations, and correlations for study 2 are shown in Table 1. Table 4 gives the results of regression analyses for study 2.

**TABLE 4**  
**Results of Hierarchical Regression Equations Predicting Perceptions of Cooperative Norms and Individual Outcomes, Study 2<sup>a</sup>**

Variable	Hypothesis 1a		Hypothesis 4	Hypothesis 5a	
	Perceptions of Cooperative Norms Newcomers, Equation 1	Perceptions of Cooperative Norms, Veterans, Equation 2	Satisfaction, Equation 3	Individual Performance, Equation 4	Total Compensation Increase, Equation 5
Citizenship	-0.01	-0.01	-0.03	-0.10	-0.14 <sup>†</sup>
Race	-0.18	-0.28	-0.01	-0.10	-0.02
Sex	-0.38 <sup>†</sup>	-0.15	0.05	-0.01	-0.07
Compensation, prior year					-0.22 <sup>*</sup>
$\Delta R^2$	.16	.12	.01	.02	.07
Relational demography	-0.86 <sup>*</sup>	0.07	0.05	-0.25 <sup>*</sup>	-0.18 <sup>*</sup>
$\Delta R^2$	.11	.00	.00	.02	.01
Perceptions of cooperative norms			0.34 <sup>**</sup>	0.16 <sup>*</sup>	0.15 <sup>*</sup>
$\Delta R^2$			.10	.02	.02
$\bar{R}^2$	.27	.12	.11	.06	.08
Overall <i>F</i>	1.78 <sup>†</sup>	0.79	3.82 <sup>**</sup>	1.93 <sup>†</sup>	2.84 <sup>**</sup>
<i>df</i>	4, 23	4, 27	5, 150	5, 150	6, 149

<sup>a</sup> Entries represent standardized coefficients. To test the mediating hypotheses, variables from the second and third steps were entered simultaneously in a separate set of regressions. Results from these separate regressions are reported in the text and Figure 1.

<sup>†</sup>  $p \leq .10$

<sup>\*</sup>  $p \leq .05$

<sup>\*\*</sup>  $p \leq .01$

### Predicting Cooperative Norms

Hypothesis 1a posits that the negative relationship between being demographically different and perceptions of cooperative group norms would be strongest when members were new to a group. To test this hypothesis, we created two subsamples based on employee tenure. Those employees whose tenure fell at least one standard deviation below the mean were labeled “newcomer” employees ( $\bar{x} = 1.42$ , *s.d.* = 0.56), and those employees whose tenure fell at least one standard deviation above the mean were labeled “veteran” employees ( $\bar{x} = 23.57$ , *s.d.* = 4.21). Once again, each separate demography measure was negatively related to perceptions of cooperative norms in the financial services firm sample ( $\beta_{\text{citizenship}} = -0.22$ ,  $p < .05$ ,  $\beta_{\text{race}} = -0.07$ , *n.s.*;  $\beta_{\text{sex}} = -0.26$ ,  $p < .05$ ), justifying aggregation. For newcomer employees, relational demography had a significant, negative effect on perceptions of cooperative norms (equation 1,  $\beta = -0.86$ ;  $p \leq .05$ ). And, for veteran employees, relational demography had no significant impact on perceptions of cooperative norms (equation 2,  $\beta = 0.07$ , *n.s.*). Using an analysis similar to that described for Hypotheses 1a and 1b in study 1, we again found a modestly significant difference ( $\beta = 0.42$ ,  $p \leq .10$ ) in the demographic heterogeneity effect for the two tenure categories (0 = “newcomer,” 1 = “veteran”).

### The Mediating Effect of Cooperative Norms on Group Outcomes

**Satisfaction.** Respondents who viewed their business units as more cooperative were more satisfied than were those who perceived the units as being less cooperative (equation 3,  $\beta = 0.34$ ,  $p \leq .01$ ; again, see Figure 1 for mediation results), supporting Hypothesis 4a. But demographic heterogeneity and satisfaction were not significantly related (equation 3,  $\beta = 0.05$ , *n.s.*), suggesting that, rather than playing a mediating role (and precluding a test of Hypothesis 4b), only the direct effect of cooperative norms influenced members’ job satisfaction in this sample.

**Individual performance.** Respondents who were more demographically different from others in their business unit were lower performers (equation 4,  $\beta = -0.25$ ,  $p \leq .05$ ; also see Figure 1) and received less substantial compensation increases (equation 5,  $\beta = -0.18$ ,  $p \leq .05$ ). And, supporting Hypothesis 5a, respondents who perceived norms to be more cooperative performed better (equation 4,  $\beta = 0.16$ ,  $p \leq .05$ ) and received higher compensation increases (equation 5,  $\beta = 0.15$ ,  $p \leq .05$ ). We also found a decrease in the strength of the relationship between demographic heterogeneity and performance ( $\beta = -0.06$ , *n.s.*) and demographic heterogeneity and compensation increases ( $\beta =$

$-0.15, p \leq .10$ ) when the cooperative norms measure was entered simultaneously in each equation (in both cases, the cooperative norms measure maintained its level of significance). Given that the significance of the demography coefficient did not diminish completely in equation 5, we would label this result "partial mediation" (James & Brett, 1984). Thus, we found corroborating support for three of the four hypotheses tested in this study.

## DISCUSSION

### The Relationship between Demography and Cooperative Norms

We examined whether demographic heterogeneity among team members influenced the emergence and stability of cooperative norms and how such norms, in turn, mediated the relationship between demographic heterogeneity and work processes and outcomes. Hypotheses 1a and 1b, addressing the individual and group levels of analysis, were modestly supported in both samples. M.B.A. students who were more demographically different and groups that were more demographically heterogeneous were less likely to perceive and develop cooperative norms early in the groups' formation than more similar individuals and more homogeneous groups, respectively. Similarly, being demographically different was negatively associated with perceptions of cooperative norms for financial services firm officers with low (newcomer) rather than high (veteran) tenure. This pattern of findings is consistent with prior research showing how functional antagonism precludes a simultaneous focus on characteristics that differentiate people, such as demography, and characteristics that assimilate people, such as group membership (e.g., Chatman et al., 1998). Our study adds to existing research by suggesting that this effect is stronger early on in both a person's membership in a group and the group's existence.

For the M.B.A. sample, the connection between demographic heterogeneity and perceptions of cooperative norms had dissipated completely by the end of the 15-week project. But the relationship between being demographically different and perceiving norms as less cooperative endured for at least 2.6 years for the newcomers among the financial services officers. This longer duration of the demography-norms link may reflect differences between the samples. We had to assume that newcomers were similar, in many regards, to veterans when the latter first entered the financial services firm. In contrast, M.B.A. student teams had fixed membership for the duration of their projects,

which were also highly interdependent tasks that demanded frequent contact over a concentrated period of time among a small number of people. This pattern made it possible for members to interact with one another regularly, which may have accelerated the decreasing impact of demographic heterogeneity on cooperative norms. More realistically, organizations are likely to contain fluid groups in which employees are members of multiple groups with varying membership at any point in time. As a result, our findings for the financial services firm here may be an underestimate of the effects of tenure on the relationship between demographic heterogeneity and the perceptions of cooperative norms, because we did not assess how long each respondent had worked with each other member of her or his business unit. More specific information about employee tenure and longitudinal data about intraunit contact over time would be useful to gain a finer-grained understanding of the effects of tenure on the demography-norms link (e.g., Harrison & Carroll, 1991).

Cooperative norms were more stable over time among people who were more demographically similar and less stable among people who were more different, depending on their contact with other members. Following contact, different people may be more likely to recategorize group members by viewing work group membership as more salient than previously assigned demographically based out-group identities. Thus, the test of hypotheses 2a and 2b revealed an important distinction: contact is significantly more influential for demographically different people than for those who are similar.

We argued that the relatively greater influence of contact on demographically different people's perceptions of cooperative norms may be explained by the number of dissimilar relationships being managed. As an individual's relational demography score increases, he or she has more dyadic relationships with group members who are different from him or her. Assuming that contact works to improve different people's impressions of each other, it is only a small step to suggest that demographically different people's impressions of group norms will improve relatively more because they have more relationships with other group members that benefit from increased contact. Interestingly, our results for Hypothesis 2a actually surpassed our predictions. People who were more different were, as predicted, more positively affected by contact but, by the end of the project, they also perceived norms as significantly *more* cooperative than did similar people who had experienced equivalent amounts of contact. Given that increased contact

with different others is likely to be more uncomfortable or taxing, those who are more different may have escalated their commitment to the group (e.g., Staw, 1976), viewing the group's objectives as more salient and cooperative norms as more prevalent as a result. Future research might assess the comparative level of discomfort similar and different members experience when interacting with one another.

### **The Main and Mediating Effects of Cooperative Norms**

Demographic heterogeneity was negatively related to holding early rather than later meetings, members' satisfaction with their team experience, individual performance (as rated by supervisors and as reflected in compensation increases in the financial services firm), and team efficiency and effectiveness. We found, in all seven equations tested in the two studies, that when people perceived or teams emphasized more cooperative norms, meetings were held earlier rather than later, members were more satisfied, people performed better, and teams were more effective.

Most importantly, however, we found consistent support for the mediating role of cooperative norms in all five (out of seven) equations that we tested, though the mediating effect for Hypothesis 6b was modest. Taken together, these results support a model in which cooperative norms mediate the effects of demographic heterogeneity on work processes (Hypotheses 3a and 3b) and outcomes (Hypotheses 4a–6b). This is a critical theoretical contribution, because it suggests that, in past investigations of teams, researchers may have overemphasized the direct influence of demographic composition and failed to appreciate the influence of norms. Indeed, in past research, demographic differences may have been confounded with cooperative team norms. For example, all groups were encouraged to adopt cooperative work norms, which were neither varied nor accounted for in analyses, in one study (Thornburg, 1991), precluding a determination of whether group heterogeneity or cooperative norms caused variations in group effectiveness.

Our mediation findings also imply that research should focus on the factors that cause specific group norms to emerge, rather than take for granted the direct effects of demographic composition on work processes and outcomes. Team norms can be identified to predict whether a diverse group (or any group) will be more or less effective. The tendency for demographically heterogeneous people and groups to be respectively less likely to perceive and form cooperative norms early (in their group

membership or in the group's existence) is predictable. And, although people who were more different from their coworkers were less satisfied, were poorer performers, and were paid less than those who were more similar, these outcomes might have been improved had they viewed norms as more cooperative. Likewise, more heterogeneous teams delayed meetings and were judged to be less efficient and effective. An increased emphasis on cooperative norms may have enhanced their efficiency and effectiveness.

### **Limitations and Implications for Future Research**

One limitation of our first study was a lack of external validity. We attempted to address this in several ways. First, we drew participants from an M.B.A. program that is highly selective, only admitting candidates with substantial work experience. Additionally, the consulting project, which counted for nearly half of the course grade, focused on a problem in a real organization. Given their career objectives, these students tended to be highly "instrumental" in choosing the organization and problem on which to focus. Thus, performance on the project had real consequences because it could be used as a vehicle for long-term career objectives. Although we believe that the second study, of financial services firm officers, provides a more compelling external validation of the original study, the M.B.A. student project may begin to approximate the kinds of stakes and performance pressures that people face in a real work group setting.

Future research might also address the salience and relative influence of other relevant demographic characteristics, such as length of stay and functional background, as these differences may have different effects on cooperative norms in different organizations (e.g., Spataro, 2000). Further, researchers have not consistently agreed on the best way to represent compositional effects. In this study, we aggregated three demographic characteristics, but each dimension may be a more or less potent cause of feeling different.

We used retrospective reports of meeting frequency. The accuracy of respondents' reports may have been biased by their previous reports of team norms, because we collected data on team norms and meeting frequency at time 2 with the same survey. Future research might use alternative methods of measuring meeting frequency, such as observation or diary accounts during the course of a project. Further, although the measures collected here were highly reliable across raters, groups of raters may be uniformly biased in their recollection



of meetings and team norms. Further, we assessed when meetings took place, but not what occurred in these meetings. Given the importance of contact, particularly as a way of changing demographically different people's perceptions of norms, in the future researchers should investigate the content of group meetings to identify the activities associated with earlier and later meetings. It may be that earlier meetings are more conducive to considering tasks at a more leisurely pace, one that is more likely to stimulate creative, high-quality ideas. Experiencing the pressure of an impending deadline may make it more difficult for members to think creatively and develop quality output.

## Conclusions

Demography research has produced enough mixed evidence to support two diametrically opposed positions: the value in diversity hypothesis (e.g., Cox, et al., 1991) and the conclusion, drawn by Williams and O'Reilly, that "increased diversity typically has negative effects on the ability of the group to meet its members' needs and to function effectively over time" (1998: 166). One common feature of both positions is a paucity of research specifying *how and when* demographic differences lead to positive versus negative outcomes. By specifying the time frame in which demographic heterogeneity has the greatest impact—early in a group's existence—findings from this study may alert researchers to the fleeting nature of the effects of demographic heterogeneity, per se, on group processes and outcomes. Instead, to understand groups in organizational settings, more insight may be derived by focusing on the intervening processes, specifically, on how cooperative norms are constructed and the factors leading groups' members to focus on their shared fate.

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