© Academy of Management Journal
2000, Vol. 43, No. 1, 26–49.

# CREATING HYBRID TEAM CULTURES: AN EMPIRICAL TEST OF TRANSNATIONAL TEAM FUNCTIONING

P. CHRISTOPHER EARLEY
Indiana University

ELAINE MOSAKOWSKI
Purdue University

**Focusing on hybrid team culture within transnational teams as a facilitator of group interaction, we hypothesized a curvilinear relationship between team heterogeneity on nationality and effective performance. Through a qualitative field study, we developed a mediation model of the effects of transnational team dynamics. Two confirmatory laboratory studies followed. The hypothesized curvilinear relationship was confirmed, with homogeneous and highly heterogeneous teams outperforming moderately heterogeneous ones in the long run. Drawing from conceptual work on status hierarchies, group "faultlines," and group membership, we discuss implications for team structures in transnational settings.**

Organizational researchers who recognize the heterogeneous nature of the workforce have increasingly focused on the dynamics of teams with multicultural and multinational members (e.g., Argote & McGrath, 1993; Elron, Shamir, & Ben-Ari, 1998; Jackson, May, & Whitney, 1995; Jackson, Salas, & associates, 1992; Lawrence, 1997; Snow, Snell, Davison, & Hambrick, 1996). But what does team heterogeneity mean in a global context, where nationalities, races, religions, genders, and so forth, all matter? For example, gender role expectations may vary dramatically across cultures. Teams with both national and gender diversity may function differently than those with only gender diversity. We suggest current knowledge on team heterogeneity and performance does not adequately incorporate the complexity of nationally diverse teams.

This article examines the effects of heterogeneity in transnational teams. We suggest nationality is a superordinate determinant of a person's self-identity, derived through a meaning system shared with others (Shweder & Levine, 1984). We argue that transnational teams do not begin with shared meaning systems and that successful heterogeneous teams create hybrid team cultures over time (Hambrick, Davison, Snell, & Snow, 1998). By hybrid team culture, we refer to an emergent and simplified set of rules, norms, expectations, and roles that team members share and "enact." This emergent culture offers a common sense of identity that becomes group-specific, provides a basis for team-member self-valuation, and facilitates team interaction and performance (Casmir, 1992; Klimoski & Mohammed, 1994).

In the next section, we review extant research on team diversity. In the following section, we suggest an upright U-shaped relationship between team heterogeneity and team effectiveness and propose hypotheses that link team heterogeneity with effectiveness. We then present three studies testing these hypotheses. Drawing on results of the first, qualitative study, we propose a mediation model describing the effects of transnational team dynamics. Results of two confirmatory laboratory studies examining that model are then presented.

## THE EXTANT LITERATURE ON TEAM HETEROGENEITY

Three literatures inform study of the impact of heterogeneity on team effectiveness. The first is the organizational demography literature (e.g., O'Reilly, Caldwell, & Barnett, 1989; Pfeffer, 1983; Tsui, Egan, & O'Reilly, 1992), in which external, observable traits are surrogates for internal mediating psychological states (Lawrence, 1997). Demographic research on team composition has examined differences in observable characteristics such as age or functional background, showing that team similarity is positively associated with team effec-

We would like to thank Michael Bond, Joel Brockner, Ya-Ru Chen, Karen Jehn, Bill McKelvey, Barbara Lawrence, Amy Randel, Anne Tsui, and John Wagner for their helpful comments on drafts of this article. We also thank Pino Audia, Tim Morris, and Nigel Nicholson for their invaluable assistance in collecting the study 3 data. In addition, we thank the London Business School for its administrative assistance.

tiveness and interpersonal attraction (Hambrick & Mason, 1984; Tsui et al., 1992). Homogeneous team members generally report stronger affinity for their teams than heterogeneous team members (Ibarra, 1992). Second, the cultural diversity literature (e.g., Cox, 1993; Cox, Lobel, & McLeod, 1991; Jackson et al., 1992; Watson, Kumar, & Michaelson, 1993) encompasses studies of team members' demographic backgrounds and highlights demographic variables presupposed to relate directly to cultural attributes, values, and perceptions. The benefits of cultural diversity are often attributed to the variety of perspectives, values, skills, and attributes that diverse team members contribute (Maznevski, 1994). Finally, groups research addresses team composition effects (e.g., Hackman, 1976, 1987; McGrath, 1984; Tajfel, 1982; Tajfel & Turner, 1979; Turner, 1985). For example, research on minority influence (e.g., Moscovici, 1976; Nemeth, 1986) has demonstrated that small amounts of heterogeneity (for instance, a single, vocal, dissenting opinion) can enhance team functioning, depending upon a group's task. The groups literature suggests the relationship of heterogeneity to performance is mixed and subject to a number of constraints imposed by work settings (McGrath, 1984; Nemeth, 1986).

Integrating these three perspectives might logically lead to postulating an inverted U-shaped relationship between team heterogeneity and effectiveness. That is, one would expect some optimal, moderate level of heterogeneity to balance homogeneous teams' ease of communication, low relational conflict, and ability with heterogeneous teams' task-based conflict and creativity (Amabile, 1988). We next propose an alternative functional relationship generated from a theoretical model of how a hybrid team culture improves team effectiveness. Rather than positing an inverted U, we argue for an upright U. Our argument is that, given sufficient opportunity to work together, homogeneous and highly heterogeneous teams will be more effective than moderately heterogeneous ones.

## THEORY DEVELOPMENT

Recent work on transnational team effectiveness has focused on the importance of the culture emerging from team interaction. We call such emergent cultures *hybrid*, although different terms in the literature include third cultures (Casmir, 1992), team-based mental models (Klimoski & Mohammed, 1994), and synergy (Adler, 1991). A hybrid team culture consists of an emergent and simplified set of rules and actions, work capability expectations, and member perceptions that individuals within a team develop, share, and enact after mutual interactions. To the extent these rules, expectations, and roles are shared (Rohner, 1987; Shweder & Levine, 1984), a strong culture exists. These characteristics need not be completely shared among a team's members, just as cultural values are not uniformly shared among a society's members (Rohner, 1987), but there must be significant overlap among team members to achieve a strong team culture. Our thesis is that an effective team is one with a strong team culture, because shared member expectations facilitate individual and team performance and communication. A strong team culture may derive from overlapping and preexisting characteristics of team members or from newly developed patterns of team member interaction.

Shared understanding has been viewed as important for team functioning in several perspectives. For example, effective groups often display shared conceptions of their expectations and rules (Bettenhausen, 1991; Hackman, 1987). A team mental model (Klimoski & Mohammed, 1994) is a shared psychological representation of a team's environment constructed to permit "sense-making" and guide appropriate group action (Elron et al., 1998). When team members perceive shared understandings with other members, the positive affect and propensity to trust generated by such a discovery fuels performance improvement (Klimoski & Mohammed, 1994) and bolsters group efficacy (Bandura, 1997). In an innovative simulation study, Carroll and Harrison (1998) found that length of service was positively related to a team's culture and that the strength of this relationship varied somewhat with context.

Team member characteristics influence the emergence of a shared culture in two general ways. First, team members' personal characteristics shape their expectations of appropriate interaction rules, group efficacy beliefs, and group identity. Second, these personal characteristics affect team members' expectations of how other members should act within the team. Thus, a person's demographic background influences her or his self-construal as a team member and view of others within the group (Lickel, Hamilton, Wieczorkowska, Lewis, Sherman, & Uhles, 1998; Markus & Kitayama, 1991).

Given team members' individual traits, when are expectations and roles shared within a group? Consider three types of team heterogeneity: high homogeneity, moderate heterogeneity consisting of a few salient subgroups, and high heterogeneity. By heterogeneity, we refer to the number of distinguishable subgroups that a group's members perceive on the basis of salient traits or characteristics (Lau & Murnighan, 1998). Critical to this definition is how

team members vary on traits with psychological salience. We do not constrain the absolute or relative numbers of members needed to constitute a subgroup since we agree with Turner (1985) that group identity is a psychological experience of an individual. Reasonably, any subgroup requires at least two members sharing salient traits. We should note that an alternative definition of moderate heterogeneity allows relatively modest differences among individuals on a larger number of dimensions. This idea is captured in the Euclidean distance measure proposed by Turner (1985) and operationally defined by Tsui and colleagues (1992).)

We define a highly homogeneous team as one in which all members perceive themselves as sharing key salient characteristics (Lau & Murnighan, 1998). Similarities are not based simply on objective characteristics; rather, they are based on perceived commonalities among team members. This homogeneity leads group members to share expectations of how each member should act, even though actions may be differentiated. For example, kibbutz members have collective expectations about member responsibilities (such as rotating leadership duties), even though they do not all enact these responsibilities (not every member becomes a leader). Members share expectations and perceptions of group "entitativity" (Campbell, 1958; Lickel et al., 1998), or the degree to which group members bond into one coherent unit and make only weak attachments within subgroups (Jackson et al., 1995; Lau & Murnighan, 1998). Campbell introduced the construct of group entitativity to describe a group that is unified from the perspective of group members.

In a moderately heterogeneous team, subgroups or factions exist. Moderate heterogeneity is defined as a condition in which team members perceive differences among themselves that are based on a few salient features that distinguish subgroups. This definition implies perceived differences among individuals on relatively few demographic dimensions. Moderate heterogeneity is exemplified in the Group Five case in Lau and Murnighan's research (1998: 330). Finally, in a highly heterogeneous team, most, if not all, the team members differ from other team members on salient traits. Initial member expectations of what roles individuals should play, what procedures are appropriate for group actions, and so forth, may diverge. Transnational organizations and international research consortia offer examples of highly heterogeneous national teams.

*How might unified* team cultures emerge within these three forms? The answer depends on the basic motive for creating commonality within a group. We draw from several conceptual frameworks to describe this motive. First, Henri Tajfel and John Turner proposed complementary models of group process: social identity theory (Tajfel, 1982) and self-categorization theory (Turner, 1985, 1987). These theories rest on the assumptions that individuals form group memberships on the basis of their relative similarity to others and that individuals seek to distinguish their in-groups from other groups by emphasizing differences with outsiders and derogating out-group members. Second, the sociologist Everett Hughes argued that individuals establish relative social roles on the basis of primary and auxiliary status-determining traits (Hughes, 1971). He suggested that people determine their statuses using hierarchically ordered primary trait categorizations. Third, Lau and Murnighan (1998) suggested that demographic "faultlines" underlie how team diversity affects functioning. Faultlines are the "hypothetical dividing lines that may split a group into subgroups based on one or more attributes (Lau & Murnighan, 1998: 328). Analogous to the geological fault lines under tectonic plates, demographic faultlines arise from a combination of team member attributes. Lau and Murnighan argued that task characteristics moderate how faultlines exaggerate or mitigate subgroup formations. Especially at early stages of group development, task type may exacerbate perceived differences among subgroups.

Drawing on these perspectives, we posit that people base group attachments on perceived similarities in personal characteristics. Once perceived, these similarities contrast with the perceived dissimilarities of outsiders to enhance self-construals and worth (Brewer, 1993; Chen, Brockner, & Katz, 1997; Markus & Kitayama, 1991) and strengthen group entitativity (Campbell, 1958; Lickel et al., 1998). Which characteristics members perceive as primary depends upon their societal, cultural, and personal backgrounds. The likelihood of a unified team culture's emerging varies as a function of group composition. In a homogeneous team, members have mutually shared worldviews (coincident to membership), and a unified team culture results from preexisting in-group attachments and shared perceptions. Given preexisting commonalities among members, a unified team culture will form quickly and with relative ease when a homogeneous team faces external demands such as organizational goals for performance and innovation.

Subgroup identities dominate a team with moderate heterogeneity (Jackson et al., 1995; Lau & Murnighan, 1998; Zenger & Lawrence, 1989). As challenges or threats confront the team, members retreat toward preexisting subgroup identities for

ego protection. Instead of forming a unitary identity, the team divides into preexisting subgroups, creating a potential for relational conflict (Jehn et al., 1997; Lau & Murnighan, 1998). For example, Fielder (1966) conducted a study of heterogeneous groups with Dutch and Belgian members; these people reported a less pleasant atmosphere and experienced more communication problems than the members of homogeneous groups. In a moderately heterogeneous team, subgroup identities provide an easy retreat that subgroup members hesitate to abandon. Thus, multiple subcultures are likely to persist in moderately heterogeneous teams (Davison, 1994; Hambrick et al., 1998).

In a highly heterogeneous team, few common bases for subgroup formation, self-categorization, and social identity exist. Members will attempt to create and establish a new shared understanding of team member status, team processes, role expectations, communication methods, and so forth. Hybrid culture depends upon group understanding emerging from team member interaction. Unlike a homogeneous or moderately heterogeneous team, a highly heterogeneous team cannot easily fall back on a preexisting identity or on subgroup identities, because few commonalities exist. Perhaps more important, the notion of what constitutes primary traits is not shared. Thus, when external demands confront a highly heterogeneous team, it must form a hybrid team culture to move forward, although such formation may require significant time and effort (Lau & Murnighan, 1998).

As suggested earlier, teams with unified cultures are likely to perform better than other teams. A unified team culture facilitates internal communication (Oetzel, 1995), coordination and strategic action (Hackman, 1987), cohesiveness (Klimoski & Mohammed, 1994), and team efficacy (Bandura, 1997). We posit that the likelihood and timing of hybrid team culture formation and, hence, of a unified team culture, will vary with a team's degree of heterogeneity. We argued earlier that homogeneous and highly heterogeneous teams will develop strong cultures. In a homogeneous team, the culture will develop shortly after team formation. In a highly heterogeneous team, it will develop after the team has had sufficient time and opportunity to form a common basis of exchange and interaction.

Which characteristic or characteristics will be most important for perceived heterogeneity? Few researchers in the fields of diversity and demography have proposed specific hierarchies of characteristics. When national and/or cultural origins differ within a group, nationality is likely to be the most salient for two reasons. First, nationality often determines communication patterns and interaction styles (Geringer, 1988; Oetzel, 1995). Second, nationality and culture have meta-effects on individuals' trait hierarchies (Turner, 1985). That is, nationality shapes the content and overall structure of a person's trait hierarchy. We posit that particularly in transnational teams, the primary status-determining trait (Hughes, 1971) is nationality and that other traits, such as race, gender, religion, and profession, are secondary determinants (Hambrick et al., 1998).

Therefore, we hypothesize that team heterogeneity on nationality affects team-related process and outcome variables such as performance, communication, planning, team identity, and team confidence. Time will interact with heterogeneity, so effects will differ over the short term and the long term. As we will demonstrate, the time period defined as the long term may range from an hour to several months, depending on a team's task. To explore temporal effects, we applied Gersick's (1988) finding that the concept of time changes with a group's task. A group must have considerable opportunity and motivation to interact and become acquainted. A critical, punctuated event, like an imposed deadline, offers these conditions. We defined the short run as the period prior to the critical event and the long run as any time afterward.

*Hypothesis 1. In the short run, teams that are homogeneous on member nationality will outperform moderately or highly heterogeneous teams. Homogeneous teams' members will experience greater satisfaction with their team performance than moderately or highly heterogeneous teams' members.*

*Hypothesis 2. In the long run, there will be a curvilinear relationship between team heterogeneity on nationality and team outcomes. Relative to moderately heterogeneous teams, homogeneous and highly heterogeneous teams will perform better and be more satisfied with their performance.*

## OVERVIEW OF RESEARCH STUDIES

We tested Hypotheses 1 and 2 with three studies. In study 1, we used intensive field observations of and interviews with the members of five transnational teams to assess how transnational team composition affected performance and to identify key mediating variables that accounted for this effect. Studies 2 and 3 were confirmatory tests of the specific mediating variables identified in study 1.

## STUDY 1

### Methods

***Participating organization.*** This research dictated a certain level of national diversity in the participating organization. We also needed a company that emphasized teamwork, in that teams had significant opportunities to interact, outcomes from team activities were significant for the organization, and each team's work was loosely structured. The first teamwork criterion, significant opportunities to interact, was related to our central thesis. Without these opportunities, a team might not be able to create a hybrid culture. The significance of team actions was important because we hypothesized critical events would catalyze the hybrid culture's creation. Finally, the loose structure of work would ensure variability in team strategies and member responsibilities. Using these criteria, we identified a large multinational organization with this type of team environment. The first author met with a former executive student from the host company who expressed an interest in participating in the study. The company is a large multinational clothing producer. It employs over 17,000 people worldwide. It began in the 1960s; by the early 1990s, company revenues exceeded $3 billion per year. The company has plants and subcontractors in Asia (including Vietnam, China, Indonesia, and Thailand), Central and Eastern Europe (including the Czech Republic and Hungary), Central and South America (including Brazil and Costa Rica), and North America (including the United States and Mexico). Our contact was based in the Pacific Rim, and the teams observed were from this region.

Teams often developed new product lines and marketing plans (work that would include ill-structured problems), and teams were a stepping stone for promotion (outcomes were significant). After several meetings, the researcher and company representatives identified five teams that met our criteria and conducted meetings in a single geographic location (Bangkok). Choosing centrally located teams aided field observation.

***Data collection methods.*** Data were collected from the five teams through direct observations of team meetings, company records of demographic information, and open-ended and structured on-site interviews with key team personnel. These data were gathered during the fall of 1997. The first author worked with the company contact in Bangkok. Several of the teams already existed, and these varied in how long members had worked together. The rest of the teams were planned but had not yet been formed. All teams consisted of midlevel managers who ranged from 28 to 43 years old and had an average of six years of company experience. Thirty-seven managers participated in the five teams, which had respectively 7, 11, 7, 7, and 5 members representing a total of eight countries. These were heterogeneous teams with rich national diversity. In most cases, team members had similar functional, work, and educational backgrounds, so the primary salient distinction became nationality. In addition, the international context of the teams' work further enhanced members' national identities.

The five teams were involved in product development, marketing, and sales with special emphases on developing Pacific Rim markets. The Appendix presents further details about the five teams' work and time frames. Because of our agreement with the company representative, we do not name the company or individuals involved. The company prohibited the use of any recording device during meetings, but the researcher (the first author) was permitted to take field notes and interview team members after meetings. All of the quotes used in the study are presented verbatim (they were written down at the time of the interviews). Team meetings were observed several times over a six-week period. Interviews were frequently conducted immediately after the team meetings because of the travel constraints facing some team members. In other instances, interviews were conducted several days after team meetings. Observations were drawn from a total of 12 meetings.

The following section discusses findings obtained through the field observations and interviews. Since complete meeting transcripts were not available, formal textual analysis was not possible. Following Maxwell (1996), Golden-Biddle and Locke (1997), and Spradley (1979), we offer quotes from the meetings and the subsequent interviews as the basis for our inferences.

### Overview of Observations

Table 1 presents team descriptions, member nationalities, summary observations, sample comments, and overall effectiveness ratings made by the first author and a company general manager. The teams were classified as having low, moderate, or high heterogeneity in terms of both our criteria—perceived differences among team members on nationality and cultural background—and Lau and Murnighan's description of faultlines. Two assistants blind to the hypotheses were given those guidelines and asked to use the biographical information and general summary comments that team members made about one another to classify the five teams into one of three categories of heteroge-

neity (low, moderate, and high). There was 100 percent agreement, and Table 1 presents these categorizations. Although teams 3–5 had similar proportions of members with distinct nationalities, team 4 was classified as having low heterogeneity in terms of Lau and Murnighan's faultline concept. The members of team 4 were seen as not differing on the salient characteristic of nationality because all had extensive experience (and family relations) in Thailand. The classification also concurs with team members' responses to questions about team cohesiveness and a sense of common identity. The next subsection discusses the test of the team effectiveness hypotheses. A discussion of intervening variables that emerged as central to the various teams' functioning follows.

***Preliminary test of Hypotheses 1 and 2.*** General observations suggested marked differences in effectiveness. Teams 1, 2, and 4 functioned effectively and conducted their work competently. Although team 2 had some initial problems, its members were able to establish a common understanding and agree on how to complete their work. The members of teams 1, 2, and 4 were very satisfied with their team experiences. A team 2 member told the first author this: "I have come to look forward to my meetings here. I find the different views presented to be refreshing." In contrast, teams 3 and 5 had many significant problems, and they did not achieve their team objectives. The leader of team 5 chastised his group at one meeting, saying, "If we don't get anything done soon, [the company] is going to wonder why they ever put us into this team." After this meeting, one team member confided in the observer and said, "I know why [the leader] was criticizing us. I think that we are just not doing anything right as a team and I hope that we can just finish this project and go back to our own companies." The teams with moderate heterogeneity suffered from the poorest performance.

Further evidence was provided by effectiveness ratings. During a debriefing interview, the first author asked the general manager his overall assessment of the five teams' effectiveness, including the question, "Overall, how would you judge the effectiveness of this team in terms of what it has produced for the company?" (1 = not at all effective and 5 = highly effective). In addition, the author made his own overall rating of group effectiveness. This assessment was made on the same five-point scale, although it was based on group process instead of outcome. The patterns in Table 1 suggest that the most effective teams were either highly heterogeneous (teams 1 and 2) or highly homogeneous (team 4). The lowest-rated team (team 5) was moderately heterogeneous, consisting of two major subgroups. Thus, the observations and ratings support the hypothesis that team performance is a curvilinear function of heterogeneity with an upright ∪ shape.

These observations beg the question of why these differences occurred and how they relate to underlying group processes. From the observations and field notes, we identified underlying mechanisms affecting the observed group outcomes. We read over the field notes and wrote down the key events and actions observed. Next, we interpreted the significance of these drawing on selected quotes and stories. For example, one team 3 member made this comment: "As far as I'm concerned, the only reason that I'm staying in this team is because I have to. We don't seem to get anything done because no one knows what we are supposed to be doing." Two assistants sorted these data into the minimal number of categories. Next, we reviewed these derived categories in light of the extant literature on group process (Gersick, 1988; Hackman, 1987; McGrath, 1984) and generated five categories. Our observations divided into the following process categories: rules and practices used, communication and conflict, team efficacy and perceived effectiveness, team identity and unity, and changes over time. This classification scheme was not imposed on the data by the observer (the first author), and the data were collected without this scheme.

We present categorical data for each team in Table 2 and discuss each category below. This discussion includes a brief category description, followed by illustrative quotes and stories and an interpretation and restatement of the process variable (see Golden-Biddle & Locke, 1997: 63).

***Rules and practices used.*** Rules and practices reflect norms governing team members' interaction. For example, seats were not assigned in teams 1, 2, and 4. Members sat wherever they wished, and their seating patterns changed across meetings. A team 4 member noted that "I like to move around and sit near different people in each meeting so that I get a different perspective on issues." In contrast, in teams 3 and 5 the seating arrangements divided members into two subgroups and emphasized an "us-versus-them" atmosphere. Further, the seating arrangement allowed physical closeness among subgroup members so that they could whisper within but not between subgroups. The revolving seating of teams 1, 2, and 4 provided the team members with exposure to all other members. This lowered potential barriers between individuals.

Interaction styles varied across teams. The meetings for teams 1, 2, and 4 began with approximately 5–15 minutes of general nonwork discussions about weather, restaurants, the economic climate,

## TABLE 1
## Descriptions, Performance Ratings, and Selected Quotes, Study 1

| Team Mandate and Membership | Type and Performance | Overall Impression of the Observer | Sample Comments |
|---|---|---|---|
| Team 1<br>Regional marketing<br>Thai, 2<br>Australian, 1<br>American, 1<br>Vietnamese, 1<br>Malaysian, 1<br>Indonesian, 1 | High heterogeneity<br>Manager rating, 4<br>Observer rating, 5 | Of the various groups, this one seemed to handle diverse issues well. Despite language barriers and diverse styles, team members spent considerable time communicating and trying to understand each other. The Australian member was generally the most forceful, but other members were also eager contributors. Disagreements occurred, but they were resolved quickly and a clear pattern did not emerge among the same set of individuals. | As for me, I think that the people I have worked with on this team are first-rate and very dedicated to the company. It is true that we sometimes have disagreements with each other but we have developed an informal way of dealing with our problems. (Malaysian manager) |
| Team 2<br>Product development<br>Thai, 3<br>Australian, 2<br>American, 3 (2 based in Thailand, 1 in Malaysia)<br>Hong Kong, 1<br>Malaysian, 1<br>Indonesian, 1 | High heterogeneity<br>Manager rating, 5<br>Observer rating, 4 | This was the most cohesive group observed. Members had a positive view of one another, seemed to honestly enjoy each other's company, and continued their discussions before and after the meetings. This group also spent the most time on an internal structure for dispute resolution, informal communication policies, and practices for dividing the work burden. | There were several times early on in our meetings that I thought our differences would be a problem for the team and its capability to deal with company challenges. My general feeling is that we were able to overcome these limitations by spending a great deal of time early on talking with one another and deciding the best ways to communicate . . . people in our team take more time trying to understand each other. (American manager working in Thailand) |
| Team 3<br>Product marketing<br>Thai, 4<br>American, 3 (all based in Thailand with between three months and two years time in Thailand) | Moderate heterogeneity<br>Manager rating, 3<br>Observer rating, 3 | Sometimes the discussion style suggested two simultaneous and distinct meetings. It was not uncommon for the Thais to speak in Thai and not translate. Confrontation was common, despite a conflict avoidance style of two Thai managers. Thai members often remained silent when confronted by an American. Team members did not enjoy being at meetings, and they did not particularly like one another or respect each other's opinions. While a formal reporting structure existed in this group, the Thais appeared to follow it because it was mandated and not because they wanted to do so. | My Thai colleagues try very hard and I think that they are making a lot of progress in adopting modern methods. However, they still have a long way to go. (American team leader)<br><br>There are a number of lessons that the Thai people can teach others who wish to do business in Thailand. Sometimes we think of ourselves as a third-world country, but I do not think that this is true. We have a competitive economy that is just having some problems at the moment. (Thai manager) |
| Team 4<br>Product sales<br>Thai, 5<br>British, 1<br>American, 1 (both having substantial experience in Thailand) | Low heterogeneity<br>Manager rating, 4<br>Observer rating, 4 | This team was very effective and operated well from the beginning. The team members were polite and gave each other ample opportunity to speak. The non-Thais were content with the Thais speaking Thai to clarify a point. Both non-Thais also spoke reasonably good Thai. At times, the Thai members corrected their Western associates' command of the Thai language. Disagreements resolved themselves quickly. This group had the most formal power differentiation. | I did not realize that Western people would show such an interest in Thailand. Both of my work colleagues [American and British team members] have taken the time to learn my language and more about my country (Thai manager) |
| Team 5<br>Product sales<br>Thai, 3<br>American, 2 (with very limited Thai experience) | Moderate heterogeneity<br>Manager rating, 1<br>Observer rating, 2 | This team had the most problems. The split between the Americans and Thais was quite dramatic and severe. Many problems stemmed from signals from the American leader that the team was unimportant (watching his watch) and he was impatient with his Thai colleagues. The Thai managers were generally unwilling to participate in the meetings. The reporting structure was bifurcated, with the Thais often appealing to a single Thai manager who interacted with the Americans (usually with the American who spoke some Thai). | I think that the Thai managers are worried about their jobs because of the economic problems in Asia. They probably should be worried although no one is going be fired if they continue to perform well. (American team leader)<br><br>I think that [the company] is not sending people for work in Thailand who have enough international experience in marketing and sales. Although my work colleagues are very competent . . . we need to communicate . . . and this does not happen. (Thai member) |

## TABLE 2
## Process Variables Identified in Study 1

| Team Mandate and Type | Rules and Practices Used | Communication and Conflict | Team Efficacy and Perceived Effectiveness | Team Identity and Unity | Changes over Time |
|---|---|---|---|---|---|
| Team 1<br>Regional marketing<br>High heterogeneity | Informal seating chart and informal voting avoid direct conflicts. Rules derived through mutual consensus. Team leader suggested general procedural matters should be decided in the first meeting. | Good listening skills and empathy among team members. Leader played key role in solidifying team action. | High team confidence expressed by leader and team members. One member stated that he has never felt better equipped to get his work done than when he is with his team. | Team identity was high and team adopted a name. One member proposed buying T-shirts as symbol of unity. | Group members commented that early difficulties were overcome through perseverance and patience through rules and practices developed. |
| Team 2<br>Product development<br>High heterogeneity | Meetings began consistently with casual conversation. This style enhanced understanding within team. | Open communication, and members often rephrased what they heard from another group member to ensure they understood what had been said. | Strong sense of confidence within team. One member noted, "I realize now that our team can take on nearly any challenge successfully." | Strong sentiment of unity expressed by members. They used English in discussions so no one felt left out. | Members worked hard to achieve a common understanding of their goals and functioning. |
| Team 3<br>Product marketing<br>Moderate heterogeneity | Little informal interaction observed and rules developed were not understood comparably across subgroups. | Communication conveyed dislike for one another. One team member commented, "I just wish that we had discussed what we were expected to do for our next meeting before [the leader] left." | Leader commented the team is acting like "kids who want to prove themselves." Team efficacy was low. Reactions to Grand Thailand Sale showed a lack of confidence. | Accusations that other subgroup members lacked understanding of the local culture. An us-versus-them mentality emerged. | Early in the team's experiences, there was little evidence of movement away from factions (U.S. versus Thai). |
| Team 4<br>Product sales<br>Low heterogeneity | Meetings began with casual conversation. During discussions, team systematically assessed everybody's views. | Conversations in Thai and English. Members took care to translate for non-Thai member less skilled in Thai. | Team members expressed capability in business-related matters. | Expatriate managers commented that they felt acculturated and identified with company and region. | Members commented that team was able to perform well "from the very beginning." |
| Team 5<br>Product sales<br>Moderate heterogeneity | Inconsistent structure of schedule for meetings, with leader often leaving unexpectedly. | Emphasis on within-group communication (Thai vs. American). Disagreements followed subgroup lines. | A consistent lack of confidence in group's ability to perform and get along. | General hostility for other subgroup. One Thai manager noted expatriate managers see split as insurmountable. | Even after many months of meetings, subgroup structure remained. |

and currency fluctuations. A team 2 member commented that they were uncomfortable without this chit-chat. In addition, teams 1 and 2 developed rules for introducing new points of discussion. For example, a Thai team 1 member requested clarification of a controversial agenda point and commented that the issue was "one of those delicate points that our regional director would like to have disappear." Several group members (American, Vietnamese, and Malaysian) agreed, and the leader formally acknowledged their opinion. These emergent rules and practices for conducting meetings, handling potential disagreements, and so forth emphasized team integration and team members' awareness of one another's views. Further, these rules were created early in the teams' development. For example, team 1 members confronted their American team leader with questions about team responsibilities, company expectations, urgent projects, and procedural questions.

The procedures used in teams 3 and 5 developed very differently. During the first team 5 meeting, the American team leader monopolized the discussion. The two Americans then conversed with one another, excluding the Thais. About midway through the discussion, it was clear the Americans were dominating it, occasionally including one Thai manager. Meanwhile, the other two Thai managers sat very quietly. The leader then turned to them (they were sitting beside one another) and asked, "We haven't heard anything from you two on these issues, what do you think?" Generally, practices in teams 3 and 5 exacerbated the subgroup split. Conflicting expectations and discourse styles demonstrated the lack of consensus about the rules for group interaction.

***Communication and conflict.*** This category covers the amount and style of communication among team members and whether conflict was constructive (task productive) or destructive (interpersonal; Jehn, 1997). All five teams conducted meetings almost entirely in English. A team 1 member explained people spoke in English because doing this excluded no one. Team 4 members, however, sometimes spoke in Thai.

A general observation about teams 1, 2, and 4 was that people were usually open and willing to listen to one another. For example, in a meeting the Malaysian member of team 1 said this: "Siri [not actual name], I couldn't agree with you more on this point even though this isn't how we are doing things in KL. . . . I just hadn't thought about it the way you suggested it but I understand your suggestion." On another occasion, an American member of this team suggested the economic crisis offered opportunities to take advantage of low regional production costs. The Australian leader responded that the company didn't want to further the perception that it was there to take advantage of the economic crisis and the group's focus should be on new markets. The American backed down, saying, "You're right, at this stage we should be very careful to present ourselves as wanting to move the region out of its economic problems and not taking advantage of it. Maybe we can use our new marketing efforts as a way of showing that [the company] is ready to stay the course in Asia." Other members quickly nodded agreement. Thus, team members expressed disagreement while saving face. These communication patterns reflected an openness to other team members' ideas and an interest in protecting one another.

Members of teams 3 and 5 were not so open to others' views, although they often supported fellow subgroup members' views. Team 5 discussed a new product line expected to receive more sales attention within the region. One Thai manager commented the following: "This just is not the type of product that will sell in Thailand. Thai people prefer their [item] in a much different form." This communication reflected defensiveness by the Thai subgroup. Further, Thai members initially held divergent opinions on this issue, but they quickly unified in opposition to the American.

Conflict was observed in all five teams, and styles of conflict management varied. A Vietnamese team 1 member thought an agenda item was made irrelevant by newly generated company information and suggested the team not discuss it. Other members (American and Malaysian) disagreed, and for five minutes or so, the team discussed the item's relevance. The observer later asked the team leader how this dispute resolution procedure developed. He said, "To avoid the kind of conflict that this might mean for some of the members, we decided a more informal 'nod of the heads and eye contact' was the best approach." Team 1's informal voting practices reflected a desire to examine work issues while avoiding excessive interpersonal strife.

In sharp contrast, the typical team 3 pattern for airing and resolving differences was the following: the Thais would talk among themselves (in Thai) while the Americans would talk among themselves or look at one another (sometimes rolling their eyes or showing other signs of impatience). Finally, an American would restate the need to speak English so that all opinions could be heard. He would do so in a curt and abrupt fashion, conveying his anger toward his Thai colleagues. The Thai managers would comply with a few terse comments. Two Thai members would seem uncomfortable (shifting

uneasily in their chairs) and would not speak further. In both teams 3 and 5, work-related conflict evolved into interpersonal and destructive conflict. This development was reflected in terse speech, lack of eye contact, and even audible grunts and groans of disapproval. The conflict within teams 3 and 5 was almost always along subgroup lines, with the Thai members confronting or being confronted by their American and British colleagues.

***Team efficacy and perceived effectiveness.*** Team members' perceptions of group efficacy varied across teams. Efficacy refers to Bandura's (1997) concept of capability to perform work, and effectiveness refers to individuals' judgments of work outcomes. The members of teams 1 and 4 had the strongest confidence in their teams' potential; the members of teams 3 and 5, the weakest confidence; and the members of team 3, moderate confidence.

Toward the end of a team 1 meeting, the Australian leader commented on feedback from the general manager about their team's marketing accomplishments: "Just as a closing thought, I want you all to know that we are already getting some attention from [the company]. I spoke with [a general manager] on the phone and he says that we are doing first-rate work in our efforts. I think that they were not sure if we would be worth the expense and time, but now they believe that we can get some new ideas generated for the company. The feedback that we're receiving is all very good and the company is keen for us to continue our efforts. If we continue at this rate, we'll all be general managers [laughter]." Additionally, team 4 members expressed confidence in their own capabilities. As one Thai manager noted, "At least we can agree on how to do business in Thailand effectively, this is more than the government can say."

The confidence of team 3 members was quite low. One meeting focused on a new plan for a government-sponsored Grand Thailand Sale, an initiative to boost retail sales. The discussion was lengthy and heated at times. The team 3 leader moderated several arguments and even stopped the meeting for a break. Later, he commented to the observer: "It was getting really tense and I figured that a break would let people get some perspective. Sometimes they [the team] act like kids wanting to prove who is right. We'll never accomplish anything if this is how we act." After the second team 5 meeting, one American manager told the observer, "I don't know why I have to work on this team. There isn't any question that we aren't going to get anything done." Thus, the members of teams 3 and 5 had low confidence in their teams' efficacy, whereas teams 1 and 4 showed strong confidence.

***Team identity and unity.*** This category reflects the sense of entitativity, or the common perception of group cohesiveness. Comments about team identity were rare in all five teams, although several people offered some insights. A Thai manager from team 4 noted this: "We know each other pretty well here and even the *farang* [foreigners] have been here quite some time. In fact, [the British member] is married to a Thai lady. This means that we understand each another in many important ways." Teams 1 and 2 also expressed a sense of team identity. A team 1 member told the observer they had named their team the Transpacific Travellers, and he was considering team T-shirts. During the second team 2 meeting, one topic led to heated discussion among the Thai managers and the American manager who spoke fluent Thai. The team leader suggested further discussion be conducted in English so "we remember that we are a single team and not a bunch of groups forced together"; the other group members smiled, nodded agreement, and continued their discussion in English. These teams had esprit de corps and strong senses of interdependence and a common fate.

Teams 3 and 5 expressed disunity and a lack of a common identity in a number of ways. A Thai manager from team 3 commented this: "You know, I do not think that the [home office] really understands our situation. Even some of the managers [referring to his team members] over here from XXXX don't understand how difficult things are. It sometimes makes me wonder if they know very much about Thailand and this region." Team 5 scheduled a meeting that the American team leader later canceled because of interfering business obligations. Several members expressed strong dissatisfaction. One Thai manager turned to the other American manager and said, "Remember that he is one of yours," with a smile but underlying anger. These comments reflect a strong split in team members' views of their own in-groups. This us-versus-them mentality made it easy for one subgroup to blame the other subgroup for mistakes and to put work off onto one another.

***Changes over time.*** The opportunity to observe the initial team dynamics varied across teams. Teams 1 and 3 had interacted for quite some time prior to the study, and the observer was forced to rely upon retrospective accounts of their formative periods. Teams 2, 4, and 5 had been formed later, so observations captured the formative period. According to our hypotheses, highly heterogeneous teams would only develop hybrid cultures over the long run, whereas homogeneous teams would operate with a common culture early on. Further, we argued that the diversity of a highly heterogeneous

team would stimulate members to create their own common culture. Several observations bear on these propositions.

By the end of the observation period, the members of teams 1, 2, and 4 had developed effective interaction patterns and clear expectations. In teams 1 and 2, the managers commented that this shared understanding emerged after confusion during early meetings. A team 2 member said the following: "In the beginning, no one really understood anyone else in the team given how diverse we were. Hell, we didn't really even share a language completely. We spent a lot of our time in the beginning trying to figure out how we would do things, what was expected of us, and getting to know each other better. It wasn't easy, but it was worth it." Managers from team 4, however, did not experience such confusion, and they operated as if they knew ex ante what was expected of them in the team (how to interact, how to resolve disagreements). A team member said, "We had little difficulty getting our work started because we all were familiar with what was expected of us and how we should go about doing our work despite the challenges." These comments suggest the highly diverse teams began with a great deal of confusion that was overcome after effort was expended by group members. For the homogeneous team 4 members, little confusion existed from early on.

Over time, we did not observe significant improvement in the level of shared understanding among the members of teams 3 and 5. For team 5, this lack of change was not unexpected, given the short time the members had been together (team 5 was newly formed at the time of the observer's first encounter). However, this lack of shared understanding was notable for team 3, which had been meeting regularly for six months.

***Analysis and summary of observations.*** Teams demonstrated marked differences in shared role expectations, communication and conflict management styles, group confidence, and team member demeanor. Teams 1, 2, and 4 reported the least amount of conflict and the most effective communication patterns. Communication flowed without subgroup barriers. In addition, team members confronted challenges openly and with little hesitation. In one case, team 1 created a volunteer task force. Teams 1 and 2 also emphasized rules and practices that were inclusive rather than exclusive. For example, dissenters maintained group cohesion by nodding instead of registering dissenting public votes. The informal procedure was a cooperative (and potentially face-saving) way to resolve disagreements. Team 4 showed a high level of cooperation, and members were very comfortable with one another. Their discussions emphasized keeping others involved at all times.

In contrast, teams 3 and 5 displayed dysfunctional interactions. Upon encountering a problem, members accused one another of being its source or of not fully understanding it. Team 5 showed a very strong split between the Thai and American managers. The Thais complained that their American counterparts did not understand the complex causes of the Pacific Rim economic downturn. Members of teams 3 and 5 mentioned a lack of empathy within their teams, and the Thai members sometimes reverted to their first language. Although members of both subgroups (American and Thai) expressed interest in understanding the other's viewpoint, they did not achieve such understanding. Team 5 clearly had the most difficulties of any team studied. Team members viewed one another in terms of a foreign-versus-local dichotomy. Conversations across this divide were generally forced and uncomfortable.

## Conclusions

This study was an exploratory investigation conducted to ground a general theory. In our conceptual framework, we hypothesized an upright U-shaped function relating team heterogeneity to team effectiveness, and the results derived from our observations support the existence of this function. Also, the performance of the heterogeneous teams improved over time, but that of the homogeneous or moderately heterogeneous teams stayed relatively constant. These findings offer preliminary support for Hypotheses 1 and 2.

These results raise the question of how national heterogeneity impacts team dynamics. Through analysis of field observations, we identified mediating variables potentially responsible for the hypothesized effect. Study 1 suggests that the creation of a unified team culture may depend upon several intervening conditions: establishment of rules for interpersonal and task-related interactions, creation of high team performance expectations, effective communication and conflict management styles, and the development of a common identity. In addition, a lack of cross-cultural empathy and understanding appeared to contribute to the dysfunctional activities of teams 3 and 5. Not unexpectedly, these are among key variables previously linked to group effectiveness (Bandura, 1997; Lau & Murnighan, 1998; McGrath, 1984). Therefore, we propose a hypothesis about the process variables behind the team heterogeneity effect:

*Hypothesis 3. The relationship of team member heterogeneity to performance and member satisfaction will be mediated by members' shared identity, team efficacy, expectations, and intrateam communication.*

We now report the results of two confirmatory studies conducted to test Hypotheses 1 through 3.

## STUDY 2

### Methods

***Participants.*** Ninety-two managers (22 women and 70 men) voluntarily participated in the study. We recruited participants from an executive training course at a European business school. The course focused on general management topics, ranging from business strategy through marketing to organ-izational behavior, and was taught in English. All participating managers were fluent in English as a first or second language. These managers came from a total of 34 different countries in Asia (for instance, Brunei, Hong Kong, and Singapore), North and South America (for instance, Canada, the United States, Brazil, Chile, and Columbia), Europe (for instance, England, Germany, and Sweden), and the Middle East and Africa (for instance, Kenya, Israel, and South Africa). They were employed in full-time management positions, and most were sponsored by their organizations. All participants in the program were at comparable general management levels. The average age of study participants was 43 years old, and the average number of years of postuniversity education was one.

***Design and task.*** The study employed a two-factor, mixed design with team type (homogeneous, split, or heterogeneous) as a between-subjects factor and time (pre- versus postplanning) as a repeated factor. Each team had four individuals, and team type consisted of three levels: the homogeneous type, in which all members of the team came from the same country; the split type, in which two members were from one country and the other two members were from another country; and the heterogeneous type, in which all four members were from different countries. Within each team type, we systematically assigned members on the basis of nationality to avoid regional biases whenever possible. For example, a split team would consist of two Germans and two Indonesians, or a heterogeneous one would include individuals from Asia, North America, the Middle East, and Europe. The repeated-measures factor, time, consisted of two 20-minute performance trials during which the teams performed the task. The two performance periods were separated by a 30-minute planning session. All materials were presented in English.

The task chosen for this experiment was adapted from a study by Earley, Wojnaroski, and Prest (1987). It was designed to promote team-level performance opportunities as a function of team process and interaction. The task was a managerial simulation in which each team was given short descriptions of fictitious products. Teams were asked to recommend a medium with which to advertise each product (for instance, television, newspaper, trade journal) after applying four criteria provided to them and to write a justification for each choice. Teams were instructed to evaluate, recommend, and justify as many products as possible in the time allotted.

***Dependent measures.*** For study 2, the key process variables (team identity, team efficacy, role expectations, and intrateam communication) assessed in this research were measured as follows: Team identity referred to an individual's sense that his or her team had a unified identity. It was assessed with these three items, each rated on a five-point scale (1 = strongly disagree and 5 = strongly agree): (1) "The feeling that we are all sharing a common set of beliefs and values is high in our group," (2) "Our group has a strong sense of what it is," and (3) "Our group acted as a single, cohesive team." For subsequent analyses, we averaged the responses to the items to obtain a composite score that had a reliability (Cronbach's alpha) of .65 for time 1 and of .86 for time 2. Although for the first trial the reliability is a bit low, it is quite acceptable for time 2. It is likely that the lower time 1 reliability reflects greater inconsistency in the groups' senses of identity.

In addition, members' perceptions of subgroup formation were assessed at the end of the experiment in terms of the perceived emergence of factions within teams. Subgroup perceptions were assessed with two items each rated on five-point scales (1 = strongly disagree and 5 = strongly agree): (1) "After our planning session, it was clear that our group was divided into subgroups" and (2) "Our group really consisted of several smaller groups of people based on how people interacted with each other." For subsequent analyses, we reverse-coded responses to the items (higher ratings indicated less subgroup formation) and averaged them to obtain a composite score having a reliability ($\alpha$) of .91.

Team members' perceptions of their groups' efficacy were assessed with an adapted form of Bandura's (1997) efficacy scale. We calculated team efficacy by averaging team members' perceptions that their group could successfully achieve a given

performance level as a team. Efficacy was measured by asking the members of a team to rate their team's efficacy for five levels of performance—completing 10, 15, 20, 25, and 30 advertisements in a 20-minute performance period—using a 100-point certainty scale (0 = certain the performance level cannot be achieved and 100 = certain the performance level can be achieved; $\alpha$ = .72 and .80, times 1 and 2, respectively).

To assess team member role expectations, we measured the amount of planning a team did prior to the second performance trial. This variable assessed the extent to which members thought that their team had clarified what should be done, how it should be done, and so forth. Planning was measured after time 2 with a single item: "Our group was effective and thorough concerning how we planned for working in the second part of the task" (1 = strongly disagree and 5 = strongly agree).

Intrateam communication, the perceived effectiveness of communication within a team, was assessed with two items: (1) "People talked with one another openly and freely in our group" and (2) "We did not seem to understand what one another was saying during our discussions (1 = strongly disagree, 5 = strongly agree; item 2 reverse-coded; $\alpha$ = .72 and .75, times 1 and 2, respectively).

In addition to the process variables, two separate outcomes were assessed. First, team performance was measured at a group level as each group's number of correctly completed justifications for a particular medium choice; correctness meant conforming to the selection criteria provided to the teams. Two graduate business students unaware of the experimental categories rated each team's performance. This procedure resulted in very high interrater agreement ($r$ = .94), and any disagreements were resolved by discussion between the raters and the first author. Given the straightforward nature of this task, it was not surprising that few disagreements occurred.

Second, satisfaction with the team's performance was assessed with two items: (1) "How satisfied are you with your group's performance?" and (2) "How happy do you feel about the performance of your group?" (1 = not at all satisfied/happy and 5 = completely satisfied/happy; $\alpha$ = .82).

Team efficacy, team identity, intrateam communication, and performance were measured at both trials, whereas planning, subgroup formation, and satisfaction were only measured after the second trial. All variables (except performance) were calculated as aggregates of each member's responses, so there was a single score for each team.

A principal axis factor analysis was conducted with an "oblimin" rotation on planning, subgroup formation, and satisfaction at the individual level of analysis. The factor analysis demonstrated that the three scales were independent of one another (three eigenvalues greater than 1.00 accounted for 68 percent of the variance, and off-factor loadings were less than .35 and on-factor loadings greater than .40).

***Procedures.*** All participants followed similar experimental procedures. The first author conducted the team exercise as part of two ongoing executive education courses. The session in which the experiment was conducted focused on general principles of organizational behavior but not on the topic of the exercise. Participants were in residence for approximately one to two weeks attending diverse classes. After being introduced to the participants, the first author lectured on the general importance of organizational behavior in a modern business setting. The experimental task was introduced as a focal demonstration for the next several hours. The managers were told they were randomly assigned to four-person teams. In actuality, the first author had constructed the teams systematically using class rosters completed prior to class. Participants were instructed to work in these teams on the business simulation about new product advertising strategies. Prior to this class session, participants had worked together in larger teams of 6–8 people. Whenever possible, members of a preexisting group were not assigned to the same experimental group.

Next, a packet of materials with an instruction sheet and product descriptions for 30 products was distributed to the teams. The task required each team to read a paragraph describing a fictitious product, choose a medium in which to advertise it (from a list of eight possible media), and write statements in support of their choice. The products ranged from household goods to business computers. All teams were provided with a "media fact sheet" containing four criteria to be used when choosing an advertising medium for a product, and they were told that their performance would be evaluated in terms of their use of these criteria. The media fact sheet emphasized considering who would buy a product, where it would be distributed, when it would be advertised, and how much money would be available for advertising. The fact sheet briefly described each consideration.

Each team then went to a private room, where members introduced themselves and received task instructions. After the first author had answered questions, he gave the participants a short questionnaire assessing the demographic variables, team efficacy, team identity, and intrateam communication. After completing this questionnaire, the team members began a 20-minute performance period.

After the first 20-minute period, each team was

asked to count the products it had completed, and the completed work was collected. Team members were instructed to spend 30 minutes discussing and planning effective ways to perform their task. After this, they received a second questionnaire assessing their team efficacy, team identity, and intrateam communication. Upon completion of the second survey, the teams worked for another 20 minutes on a new set of product descriptions. After the second performance period, each team counted the number of products completed, and the first author collected materials and distributed a final postexperimental questionnaire assessing satisfaction with team performance, planning effectiveness, and subgroup identity formation.

After they had completed the final questionnaire, the teams were debriefed interactively as to the exercise's objectives. In particular, the first author queried the participants, using an open-ended format, about how well they had worked on the task and communicated with one another. He took notes on each team's self-reported procedures for task performance and for sharing information. How team composition plays a dynamic role in the functioning of international work teams was then stressed to participants.

## Results

***Descriptive statistics.*** Table 3 reports the means and standard deviations for the demographic variables, team type, team efficacy, team identity, planning, intrateam communication, team performance, subgroup formation, and satisfaction with team performance across the team types.

***Tests of hypotheses.*** To test the two hypotheses predicting that team type influences the dependent variables differently over time, we conducted a two-way, repeated-measures multivariate analysis of variance (MANOVA), with team type as a between-subjects factor and time as a within-subjects factor, for team efficacy, team identity, and intrateam communication. Gender, age, and education level were covariates. Data were analyzed at the group level for all variables ($N = 23$) after an analysis of variance indicated that between-groups variance was greater than within-group variance and that normality and independence of error terms were present. We report significance at the .10 and .05 levels using one-tailed tests appropriate for our directional hypotheses. The analyses, conducted at a group level, are a conservative test since they reflect the stable patterns of four aggregated scores.

The results of the MANOVA demonstrate a significant effect for time (Wilks's lambda $F_{4, 17} = 95.97$, $p < .01$) and the team-type-by-time interaction (Wilks's lambda $F_{8, 34} = 5.15$, $p < .05$). We conducted a one-way MANOVA with team type as a between-subjects factor for planning, satisfaction with team performance, and subgroup identity, with gender, age, and education level as covariates. The results demonstrate a significant effect for team type (Wilks's lambda $F_{6, 36} = 3.54$, $p < .05$). After obtaining a significant multivariate $F$, we estimated follow-up repeated-measure univariate analyses of variance (ANOVAs) for team efficacy, identity, communication, and performance as well as ANOVAs for planning, satisfaction, and subgroup identity. Table 4 presents the results. They demon-

**TABLE 3**
**Descriptive Statistics across Team Types for Study 2 Dependent Variables[a]**

| | Homogeneous | | Mixed | | Heterogeneous | | Pearson Correlations | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | Mean | s.d. | Mean | s.d. | Mean | s.d. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1. Age | 43.07 | 4.99 | 43.59 | 5.61 | 41.28 | 5.13 | | | | | | | | | | | | | |
| 2. Gender | 0.75 | | 0.88 | | 0.72 | | .11 | | | | | | | | | | | | |
| 3. Education | 4.89 | 1.16 | 5.00 | 1.43 | 4.87 | 0.42 | .09 | .14 | | | | | | | | | | | |
| 4. Efficacy, time 1 | 85.07 | 5.38 | 78.30 | 6.65 | 79.72 | 4.86 | −.19 | −.32 | −.23 | | | | | | | | | | |
| 5. Efficacy, time 2 | 90.77 | 7.12 | 84.31 | 10.87 | 93.67 | 5.46 | .14 | −.07 | −.55 | .20 | | | | | | | | | |
| 6. Identity, time 1 | 2.67 | 0.67 | 2.15 | 0.59 | 1.94 | 0.39 | .29 | .04 | −.29 | .35 | .42 | | | | | | | | |
| 7. Identity, time 2 | 3.99 | 1.08 | 3.33 | 1.06 | 4.19 | 0.84 | −.25 | −.37 | −.20 | .33 | .29 | .34 | | | | | | | |
| 8. Communication, time 1 | 3.28 | 0.70 | 2.64 | 0.82 | 2.09 | 0.72 | .22 | .11 | −.11 | .44 | .20 | .65 | .02 | | | | | | |
| 9. Communication, time 2 | 3.99 | 1.07 | 3.33 | 1.06 | 4.18 | 0.84 | −.05 | −.01 | −.40 | .03 | .50 | .30 | .28 | .10 | | | | | |
| 10. Performance, time 1 | 14.29 | 1.18 | 13.13 | 1.99 | 12.50 | 1.76 | .27 | .16 | −.30 | .11 | .05 | .33 | .16 | .31 | −.03 | | | | |
| 11. Performance, time 2 | 21.29 | 4.45 | 18.38 | 2.59 | 23.50 | 2.78 | .03 | −.25 | −.42 | .08 | .58 | −.02 | .15 | −.07 | .54 | .08 | | | |
| 12. Planning | 4.25 | 0.70 | 2.88 | 1.38 | 4.28 | 0.77 | −.07 | −.08 | −.29 | .20 | .33 | .03 | .36 | −.19 | .35 | .01 | .38 | | |
| 13. Satisfaction | 3.77 | 1.23 | 3.08 | 1.19 | 3.84 | 0.78 | −.08 | −.19 | −.30 | .31 | .05 | .04 | .40 | −.17 | .32 | .28 | .19 | .50 | |
| 14. Subgroup identity | 3.63 | 1.14 | 3.09 | 1.36 | 4.17 | 1.02 | −.35 | −.28 | −.35 | .18 | .04 | −.06 | .37 | −.09 | .17 | .26 | .15 | −.02 | .38 |

[a] Correlations with an absolute value greater than .45 are significant at $p < .05$; biserial correlations are reported for gender.

strate the hypothesized interaction of team type and time period. This interaction pattern is similar across variables, demonstrating that the dependent variables were at their highest values in the homogeneous teams at trial 1 and that, at trial 2, they were higher for both the homogeneous and highly heterogeneous teams than for the split teams.

To test Hypothesis 2, we examined the curvilinear effect across team type using the quadratic term of the ANOVAs. The results, presented in Table 4, demonstrate generally consistent support for the hypothesis that the relationship of team composition to performance, team efficacy, team identity, and intrateam communication is curvilinear in trial 2, and that its relationship to planning, satisfaction, and subgroup identity is curvilinear. The quadratic analysis demonstrated that, for all dependent variables, the homogeneous and highly heterogeneous teams were significantly higher on all measures than the split teams.

***Mediation tests.*** To assess the mediating role of team identity, efficacy, and communication in the relation of team heterogeneity to performance and satisfaction (Hypothesis 3), we conducted a mediated regression analysis using the procedure described by James and Brett (1984). Given the small sample (23 groups), however, the results, which are presented in Table 5, should be interpreted with some caution.

We began with two dummy variables contrasting the homogeneous (dummy 1) or the highly heterogeneous (dummy 2) team types (conditions) with the moderately heterogeneous condition. In the first equation, we regressed performance and satisfaction on team identity, efficacy, planning, subgroup identity, and communication for trial 2 and then added the two heterogeneity dummy variables. (We were not able to conduct this analysis for trial 1 since planning and subgroup identity were only assessed after trial 2.) In the second equation, we regressed performance and satisfaction on the two dummies and then added the hypothesized mediating variables. According to James and Brett (1984), hypothesized mediating variables should account for significant variance in the dependent variables in both equations. Further, the two dummy variables should be significantly related to the dependent variables in the second but not the first equation. The results of the analysis for performance (reported in Table 5) demonstrate that, with the hypothesized mediating variables controlled, the two dummy variables only accounted for 8 percent of the variance; prior to the entrance of the mediating variables, they accounted for 30 percent. These analyses for satisfaction demonstrate that the two dummy variables accounted for 6 percent of the variance in satisfaction after we had accounted for the mediating variables; prior to our entering the mediators, they accounted for 14 percent. James and Brett (1984) suggested that a full mediating relationship requires that the antecedent variables (here, the two dummies) be significantly related to the dependent variables prior to the entrance of the hypothesized mediators. This condition was not fully satisfied. Although the second dummy variable was related to performance and satisfaction, the first one was related to performance but not satisfaction. Thus, the results indicated support for a partial, but not full, mediating relationship, and Hypothesis 3 received mixed support.

## STUDY 3

The results from study 2 provided generally consistent support for the hypotheses, so we sought to test additional mediating variables and extend our confirmatory test. In this next study, heterogeneity was measured somewhat differently than in study 2 to overcome a methodological limitation of the latter. In study 2, we measured moderate heterogeneity by examining only the specific case in which a group was split evenly between two national identities. In study 3, we included other forms of moderate heterogeneity to enhance the generalizability of our results. Also, the second study was short in overall duration, and it was not clear how results might change after a longer period of participant interaction. The final study was a survey investigation examining ongoing activities for teams of graduate business students. We tested an additional intervening variable identified in study 1, perceived team conflict. Thus, we sought to confirm the findings of the earlier studies and expand them.

### Methods

***Participants.*** Master's of business administration (M.B.A.) students at a European business school participated in study 3 as a required part of their courses; of a total 161 students, 109 were men and 52 were women. The participants came from 26 different nations, with 28 percent coming from the United Kingdom, 22 percent from the United States, 27 percent from western and central Europe, and 23 percent from Asia, Africa, or South America. The teams had been established by the school's M.B.A. office before the semester when the research was conducted, and the students' assignments were based on the school's desire to introduce national and cultural diversity into M.B.A.

**TABLE 4**
**Results of Analyses of Variance and Quadratic Analysis, Study 2**

| | ANOVA | | | Quadratic Analysis | |
|---|---|---|---|---|---|
| **Dependent Variable** | ***df*** | **Mean Square** | ***F*** | **Mean Square** | ***F*** |
| Team efficacy | | | | | |
| Covariates | 3 | 53.76 | 1.27 | | |
| Team type | 2 | 85.19 | 2.01† | | |
| Time period | 1 | 495.64 | 14.12* | | |
| Team type X time | 2 | 86.27 | 2.10† | | |
| Efficacy, time 1 | | | | 80.56 | 2.83 |
| Efficacy, time 2 | | | | 131.51 | 3.27* |
| Team identity | | | | | |
| Covariates | 3 | 0.23 | 0.30 | | |
| Team type | 2 | 1.34 | 1.74 | | |
| Time period | 1 | 28.83 | 123.14* | | |
| Team type X time | 2 | 2.64 | 11.26* | | |
| Identity, time 1 | | | | 0.13 | 0.54 |
| Identity, time 2 | | | | 6.65 | 9.68* |
| Communication | | | | | |
| Covariates | 3 | 0.98 | 1.72 | | |
| Team type | 2 | 1.32 | 2.34* | | |
| Time period | 1 | 13.80 | 35.45* | | |
| Team type X time | 2 | 2.47 | 6.35* | | |
| Communication, time 1 | | | | 0.00 | 0.01 |
| Communication, time 2 | | | | 1.96 | 3.87* |
| Performance | | | | | |
| Covariates | 3 | 29.98 | 5.80* | | |
| Team type | 2 | 19.48 | 3.77* | | |
| Time period | 1 | 687.99 | 104.44* | | |
| Team type X time | 2 | 34.60 | 5.25* | | |
| Performance, time 1 | | | | 0.37 | 0.12 |
| Performance, time 2 | | | | 84.09 | 6.86* |
| Planning | | | | | |
| Covariates | 3 | 0.82 | 1.22 | | |
| Team type | 2 | 5.23 | 7.76* | | |
| Planning | | | | 10.07 | 14.46* |
| Satisfaction | | | | | |
| Covariates | 3 | 0.74 | 0.84 | | |
| Team type | 2 | 0.64 | 0.72 | | |
| Satisfaction | | | | 2.79 | 3.17* |
| Subgroup identity | | | | | |
| Covariates | 3 | 2.25 | 2.50* | | |
| Team type | 2 | 0.19 | 0.21 | | |
| Subgroup identity | | | | 3.37 | 3.05* |

† $p < .10$, one-tailed test
* $p < .05$, one-tailed test

study groups. The teams ranged from six to eight people and had a mode of six members.

***Procedures.*** Participants worked in the study groups as a normal part of their first M.B.A. semester. Team interactions took place formally within classes and informally during study group sessions and school social activities. As a result, the amount of interaction was relatively extensive over a three-month period.

All data were collected unobtrusively through archival records (such as grades provided by professors) and questionnaires completed as class exercises unrelated to the study. Neither the students nor their professors were aware of the current study's focus. This procedure was intended to enhance the mundane realism of group interactions and ensure the data reflected underlying group and individual perceptions. However, this procedure also limited the study to data available through existing instruments and class exercises.

Data were collected after the M.B.A. teams had worked together for four weeks. The survey, administered during a course entitled "Developing Effective Managers," assessed students' views of their teams' dynamics. This course was team-taught by four faculty members, each of whom had approximately 60 students. Students completed the survey outside of class and received an electronic request to return the questionnaire to their professors after one week. The result was 129 surveys (a response rate of 52 percent) received during the fifth week of the semester. A follow-up e-mail message was sent two weeks later requesting surveys be returned. This follow-up generated an additional 47 surveys, which we received in the seventh week of the course, so the total response rate was 71 percent.

**TABLE 5**
**Results of Mediated Regression Analysis, Study 2**

| Dependent Variable | Step | $\Delta R^2$ | s.e. | *b* | *t* |
|---|---|---|---|---|---|
| Performance | | | | | |
| Team efficacy | 1 | .47 | 0.11 | .42 | 2.07* |
| Communication | | | 1.08 | .32 | 1.95* |
| Team identity | | | −0.18 | −.89 | 0.39 |
| Planning | | | 0.77 | .21 | 1.05 |
| Subgroup identity | | | 0.71 | .15 | 0.79 |
| Dummy 1 | 2 | .08 | 2.23 | .34 | 1.29 |
| Dummy 2 | | | 2.40 | .56 | 1.85* |
| Performance | | | | | |
| Dummy 1 | 1 | .30 | 1.81 | .34 | 1.96* |
| Dummy 2 | | | 1.75 | .63 | 2.93* |
| Team efficacy | 2 | .25 | 0.10 | .40 | 1.98* |
| Communication | | | 1.02 | .25 | 1.21 |
| Team identity | | | 0.86 | −.33 | −1.92* |
| Planning | | | 0.90 | −.03 | −0.14 |
| Subgroup identity | | | 0.73 | −.01 | −0.06 |
| Satisfaction | | | | | |
| Team efficacy | 1 | .51 | 0.03 | −.29 | −1.43 |
| Communication | | | 0.25 | .20 | 0.95 |
| Team identity | | | 0.22 | .30 | 1.86* |
| Planning | | | 0.18 | .43 | 2.21* |
| Subgroup identity | | | 0.16 | .26 | 1.37 |
| Dummy 1 | 2 | .06 | 0.55 | −.32 | −1.19 |
| Dummy 2 | | | 0.61 | −.46 | −1.51 |
| Satisfaction | | | | | |
| Dummy 1 | 1 | .14 | 0.48 | .33 | 1.43 |
| Dummy 2 | | | 0.47 | .39 | 1.65* |
| Team efficacy | 2 | .43 | 0.03 | −.27 | −1.32 |
| Communication | | | 0.25 | .23 | 1.10 |
| Team identity | | | 0.22 | .39 | 1.82* |
| Planning | | | 0.22 | .64 | 2.64* |
| Subgroup identity | | | 0.18 | .39 | 1.88* |

* $p < .05$, one-tailed test

Analysis of the two batches of surveys demonstrated no differences in responses to the variables (specific items are described in the next section). Sufficient data were obtained for 24 (161 individual responses) complete M.B.A. teams, and only intact teams were used in subsequent analyses.

The performance measure was a project score assigned by each team's professor on a group paper. This assignment was distributed after the second week of class and was due in the 8th week of the 11-week course. Although the four instructors had developed grading criteria together, they assigned grades independently approximately 2 weeks after the due date. The instructors did not know the questionnaire results when they assigned the grades. Finally, the first author obtained demographic variables from school records.

***Tests of hypotheses.*** Several dependent variables were measured with the group dynamics survey. Although some of these variables overlap with those in study 1, several new variables were identified, broadening tests of the hypotheses. Data reflected a cross-sectional design, with the teams working together for five to seven weeks. These teams were "real" to their members in as much as the performance outcomes had significance (grades) and relevance (experience), and team members were unaware of the study. Data were collected only once for each variable; a complete test of Hypothesis 1 was not possible. Instead, these data are appropriate for testing Hypotheses 2 and 3 only. It was assumed that, during the eight weeks before the paper's due date, the teams had sufficient opportunity and impetus to integrate their actions.

***Dependent and predictor variables.*** As described earlier, performance was the numeric score assigned to a group project by a team's professor. The grades were based on a 25-point system and ranged from 12 to 22. No significant grade differences were observed across the four streams taught by different professors.

All the questionnaire items were rated on an eight-point scale (1 = the statement is not at all accurate and 8 = the statement is completely accurate). For analyses, responses were averaged. Team communication was assessed with four items: (1) "The purposes of the meetings we get involved in are clearly communicated," (2) "We really listen to one another and try to understand the feelings and points of view of each other," (3) "Each of us has the freedom to express himself on any issue at any time," and (4) "We freely express our feelings and ideas in meetings" ($\alpha$ = .89).

Three items assessed team planning and role clarity: (1) "Each member knows and understands the work-related problems faced by others," (2) "Our approach to solving operating problems could be described as systematic and logical," and (3) "Each member of the group is clear on how his work ties in with that of the others" ($\alpha$ = .89).

An additional aspect of the team process was assessed in study 3, namely, the degree of team conflict experienced by members: (1) "When conflict or tension arises in our group, it is settled by honest give and take which resolves all sides of the issue and results in the full commitment of each member" and (2) "We work together in a relationship free of strain" ($\alpha$ = .62).

Team member satisfaction with the group was assessed with two items: (1) "The members of our group have positive feelings for one another" and (2) "We have a high degree of trust and confidence in one another" ($\alpha$ = .85).

Team heterogeneity was based on the mix of nationalities within each team. For demographic characteristics having few categories, such as gender, a relational demography difference measure is an appropriate measure, but such a method was not appropriate for our assessment of heterogeneity based on nationality given the large number (26) of different countries represented by study 3's participants and the varying sizes of the groups. Thus, we did not use an Euclidean measure estimating intragroup variation (e.g., Chatman & Barsade, 1995; Tsui et al., 1992). In addition, a relational measure would not have adequately captured our interest in subgroup structures. (For purely exploratory purposes, we used a relational Euclidean assessment and found results consistent with those reported using the trichotomous categorization described below.)

Each group was assigned a heterogeneity score based on the number of subgroups represented within each team. As noted, team size ranged from six to eight members, with the number of nationalities within a team ranging from two to six (the mode was three). In the teams with only two nationalities ($n$ = 5), one nationality dominated, with either one or two members coming from the other nationality. We assigned a heterogeneity score of 0 to teams having only two nationalities represented, a 1 to teams having three or four nationalities, and a 2 to teams having five or more nationalities. This categorization scheme is consistent with our conceptual framing of heterogeneity, as it distinguishes among relatively homogeneous groups, heterogeneous groups dominated by subgroups, and heterogeneous groups with no obvious subgroups.

This measurement of heterogeneity differs from that used in study 2 but parallels that used in study 1. In the third study, heterogeneity was not anchored with a completely homogeneous team, and

the split heterogeneity condition was not based on numerically identical subgroups. In the low-heterogeneity case, teams had only two nationalities represented, with only one or two members of one nationality and a strong majority from the other. This type of categorization scheme was reflected in study 1, and it captures Lau and Murnighan's (1998) strong faultline concept.

## Results

***Descriptive statistics.*** A principal axis factor analysis with an oblimin rotation conducted on the four sets of items (communication, conflict, planning, and satisfaction) resulted in four eigenvalues having values of 1.0 or greater accounting for 73 percent of the variance. An examination of the factor loadings demonstrated that the various items loaded independently as expected, with on-factor loadings being all greater than .40 and off-factor loadings all less than .35.

Table 6 reports the means, standard deviations, and Pearson correlations for the demographic variables of age, gender, and race; team heterogeneity based on nationality; team performance; team communication; team conflict; team member satisfaction; and planning and role clarity.

***Test of hypothesis.*** As with study 2, we analyzed the data at the team level of analysis using one-tailed significance tests. A preliminary check confirmed that between-groups variance was greater than within-group variance and that the data were multivariate normal with independent error terms. To test Hypotheses 1 and 3, predicting that team heterogeneity will differentially influence the dependent variables, we conducted a one-way MANOVA using heterogeneity as the independent variable. On finding a significant main effect (Wilks's lambda $F_{10, 34} = 3.77$, $p < .05$), we conducted a series of follow-up one-way ANOVAs with a quadratic trend analysis, using the demographic variables as covariates and team heterogeneity as the independent variable. Table 6 presents the results of this analysis and means for each dependent variable.

The results of the quadratic analysis are consistent with the findings from study 2. Performance was higher in the low- and high-heterogeneity categories than in the moderate category. Communication, satisfaction, and planning were higher with low and high heterogeneity than with moderate heterogeneity. No differences were observed for perceived conflict or satisfaction. Thus, Hypothesis 2 received mixed support.

To test Hypothesis 3, we conducted mediated regression analyses on team performance and satisfaction, using the dummy-coding procedure reported in study 2. The results, reported in Table 7, demonstrate a partial mediating role of communication, conflict, and planning in the relation of team heterogeneity to performance and satisfaction. For performance, the hypothesized mediators accounted for 72 percent of the variance prior to our entering the dummy variables and for 56 percent of the variance after we controlled for the dummy variables. The dummy variables accounted for 20 percent of the variance prior to the entrance of the mediating variables but for only 4 percent after we controlled for them. For satisfaction, this pattern was repeated, with the dummy variables

**TABLE 6**
**Descriptive Statistics for Dependent Variables and Quadratic Analysis, Study 3**

| | | | Quadratic Analysis[b] | | Team Heterogeneity | | | Pearson Correlations[c] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable[a] | Mean | s.d. | Mean Square | $F_{1, 158}$ | Low | Moderate | High | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1. Age | 28.54 | 2.92 | | | | | | | | | | | | | |
| 2. Gender | 0.68 | | | | | | | .16 | | | | | | | |
| 3. Race | 0.42 | | | | | | | −.40 | −.42 | | | | | | |
| 4. Communication | 5.89 | 1.17 | 2.95 | 2.82* | 5.97 | 5.41 | 6.50 | .13 | −.08 | −.36 | | | | | |
| 5. Performance | 16.75 | 2.83 | 23.29 | 3.31* | 16.73 | 15.44 | 18.22 | .02 | −.15 | −.26 | .52 | | | | |
| 6. Conflict | 6.25 | 0.55 | 0.03 | 0.10 | 6.11 | 6.29 | 6.30 | −.14 | −.32 | .02 | .55 | .64 | | | |
| 7. Satisfaction | 5.79 | 1.14 | 1.64 | 1.27 | 5.72 | 5.43 | 6.22 | −.07 | −.27 | −.15 | .66 | .78 | .63 | | |
| 8. Planning | 5.91 | 1.13 | 4.47 | 4.53* | 5.71 | 5.32 | 6.70 | .33 | .09 | −.43 | .39 | .63 | .13 | .56 | |
| 9. Heterogeneity | 1.17 | 0.73 | | | | | | .25 | .23 | −.41 | .30 | .27 | .12 | .21 | .40 |

[a] Gender was coded 0 = women, 1 = men; race was coded 0 = white, 1 = nonwhite.
[b] One-tailed significance tests are reported at the group level ($N = 24$) for the quadratic analysis.
[c] Correlations with an absolute value greater than .40 are significant at $p < .05$; biserial correlations are reported for gender and race.
* $p < .05$

**TABLE 7**
**Results of Mediated Regression Analysis, Study 3**

| Dependent Variable | Step | $\Delta R^2$ | s.e. | *b* | *t* |
|---|---|---|---|---|---|
| Performance | | | | | |
| Communication | 1 | .72 | 0.37 | −.03 | −0.18 |
| Conflict | | | 0.74 | .58 | 4.06* |
| Planning | | | 0.32 | .57 | 4.35* |
| Dummy 1 | 2 | .04 | 0.89 | .22 | 1.66 |
| Dummy 2 | | | 0.92 | .25 | 1.52 |
| Performance | | | | | |
| Dummy 1 | 1 | .20 | 1.44 | .19 | 0.87 |
| Dummy 2 | | | 1.21 | .49 | 2.29* |
| Communication | 2 | .56 | 0.39 | −.13 | −0.79 |
| Conflict | | | 0.74 | .66 | 4.57* |
| Planning | | | 0.35 | .48 | 3.43* |
| Satisfaction | | | | | |
| Communication | 1 | .67 | 0.16 | .26 | 1.54 |
| Conflict | | | 0.32 | .44 | 2.82* |
| Planning | | | 0.14 | .41 | 2.89* |
| Dummy 1 | 2 | .01 | 0.42 | .07 | 0.43 |
| Dummy 2 | | | 0.43 | −.05 | −0.29 |
| Satisfaction | | | | | |
| Dummy 1 | 1 | .10 | 0.62 | .11 | 0.47 |
| Dummy 2 | | | 0.52 | .38 | 1.80* |
| Communication | 2 | .58 | 0.18 | .27 | 1.45 |
| Conflict | | | 0.35 | .44 | 2.60* |
| Planning | | | 0.16 | .44 | 2.66* |

*$p < .05$, one-tailed test

only accounting for 1 percent of the variance after we controlled for the mediators but for 10 percent prior to our doing so. As with study 2, the mediating relationship was a partial one since the heterogeneity variable contrasting the high with the moderate heterogeneity condition was the only significant dummy related to performance and satisfaction. Together, these results provide mixed support for Hypothesis 3.

## DISCUSSION

The studies reported in this article suggest that the processes underlying teams are more complex than they were previously thought to be. During the initial interaction phases of the teams studied here, heterogeneity had a detrimental impact on team functioning. This disadvantage was not a monotonically decreasing function; rather, the impact was consistent, with both split and heterogeneous teams inferior to a homogeneous team. Over time, however, the impact of heterogeneity on team performance and other team outcome variables became curvilinear. After forming ways to interact and communicate, highly heterogeneous teams appeared to create a common identity. This observation is consistent with Elron's (1997) research on top management teams, which demonstrated that cultural heterogeneity was positively related to team performance and issue-based conflict. A hybrid team culture may provide the basis for exchange and coordination within a diverse team and thus permit productive use of member talents and resources. In contrast, a perceived sense of "teamness," or entitativity, appeared absent in the split teams. The moderately heterogeneous groups showed many communication problems, relational conflict, and low levels of team identity. These intervening conditions have been found to be dysfunctional for team effectiveness (Jehn, Chadwick, & Thatcher, 1997; Thatcher, Jehn, & Chadwick, 1998).

The present studies have several important implications. With regard to Hughes's (1971) notion of trait hierarchies, we corroborated that nationality is a primary status-determining characteristic within transnational teams. What is unclear, however, is which auxiliary traits also matter and how these traits vary by cultural background. To some degree, Turner's self-categorization theory (1985) sheds

light on trait hierarchies. Self-categories may be ordered hierarchically by perceived importance, with people identifying with categories to varying degrees. People use trait categories to define themselves if sufficient overlap exists within a trait class. Inclusion at one level (for instance, the category "fruits" includes both apples and oranges), however, may not mean inclusion at a more proximate level (apples and oranges are not both citrus fruits). In this sense, national group membership may be an abstract category subordinate only to a category such as being human (Turner, 1985).

Critical to self-categorization is that traits are perceived to overlap. For example, in the first study, team 4 included three separate nationalities (Thai, American, and British) but had a strong group identity because of the members' perception of a common cultural orientation. In study 3, team members whose demographics were similar to study 1's team 4 instead perceived cultural schisms associated with distinct national identities. Our diverse measurements of heterogeneity over the three studies demonstrated the importance of team members' perceptions. In study 1, we sought to identify the general phenomenon of national heterogeneity and potential mediating variables. It appeared that problems arose from perceptions of clear subgroups. In study 2, we isolated a demographic composition effect and tested potential mediating variables. Study 3 allowed us to expand the definition of moderate heterogeneity beyond that of equally sized subgroups. Other configurations of moderate heterogeneity appeared to also generate an us-versus-them mentality. It remains open for future research to address what leads to strong perceptions of acculturation in some circumstances (study 1's team 4) but not in others (study 3's moderately heterogeneous groups).

A related issue concerns the content of the trait hierarchy itself. What traits are relevant to particular individuals, and how might organizations use this information to design effective teams? If a team overcomes differences attributable to nationality, does this suggest that other traits, like gender and race, are now salient and potentially problematic (Hughes, 1971; Turner, 1985)? To complicate matters, what if trait salience differs by each member's cultural background? Auxiliary traits may differ across team members. For instance, an American manager might perceive race and gender to be important auxiliary status-determining traits, whereas an Israeli manager might see religion as critical. Further, the American might view race and gender as somewhat more important, whereas the Israeli might perceive religion as extremely important. Status hierarchies are individually defined and are potential sources of conflict. Designing an effective team may require understanding differences in members' trait hierarchies.

The relative balance of trait differentiation, or the extent to which an individual seeks identification with others with whom he or she shares a trait, is also important, according to work by Brewer and her colleagues (see Brewer [1993] for a review). In her optimal distinctiveness theory, Brewer argued that people psychologically trade off individuality needs against team identity needs. What this implies for our findings is that a highly heterogeneous group may initially experience a disproportionate emphasis on individuality, with team members strongly aware of interpersonal differences. Counterbalancing forces may motivate the creation of commonalities among group members, with a hybrid team culture becoming a common identity. A split group may balance individual and team identities, and members are not motivated to adjust this balance. Although this result may satisfy individuals, it blocks team integration and entitativity. Harstone and Augoustinos (1995) suggested that the presence of a third subgroup may offset the difficulties of two subgroups. These authors demonstrated that the in-group bias predicted by a minimal groups paradigm did not occur when individuals were divided into three instead of two subgroups. Fractionation into three or more subgroups may facilitate hybrid culture creation through greater information sharing about personal traits, backgrounds, and interests.

Our article provides a new perspective on the black box of demography (Lawrence, 1997). Lawrence (1997) and Jackson and colleagues (1995) suggested that organizational demography studies had overemphasized a direct link between demographic characteristics and outcomes without adequately describing intervening psychological and social constructs. Our conceptual model suggests that a hybrid team culture represents a pattern of intervening constructs generated by self-definition and members' perceptions of one another. A transnational perspective on team formation allows exploration of the black box of demography from a meta-level. In a "feminine" culture, where roles are not directly linked to gender (Hofstede, 1980), gender may influence team cohesion through a psychological experience like supportiveness. In a "masculine" culture with gender-linked roles, gender may influence cohesion through a different mechanism, such as conflict or the exercise of power.

These findings have implications for managers. International joint ventures consisting of two major partners often run into problems because of strong

subgroup identification. For instance, in the takeover of Rover Motor Company by BMW, the mixture of a German emphasis on formal structure, hierarchy, and engineering precision with British traditionality, charm, and elegance created a number of organizational difficulties (for example, severe disagreements concerning marketing strategies for Rover automobiles) that eventually resulted in the resignation of Rover CEO John Tower. Despite various assurances that the new CEO would be British, BMW chose to replace Tower with a German engineer from BMW's board. In commenting on his decision to withdraw from Rover, Tower suggested that strong "guidance" from BMW was inconsistent with Rover's style of low-key leadership.

The present studies are not without limitations. We sampled individuals differing on many dimensions, but we focused on one—national background. Given the obvious complexity of nation as a surrogate for individual differences, our approach does not fully capture the richness of nationality. For instance, the cultural distances among the nations represented on a team will likely influence team processes and member perceptions of heterogeneity (Lau & Murnighan, 1998). Likewise, the work teams in studies 2 and 3 were not necessarily as psychologically salient to their members as other teams they belonged to, such as their families and long-term work groups. The salience of differences may motivate the members of heterogeneous teams to cooperate, and this was the focus of study 1. The natural work teams observed in study 1 differed from the teams in studies 2 and 3 in several ways, including how much team members knew about one another's power and status differences, members' personal and cultural backgrounds related to their task performance, and the personal significance of the work outcomes. The field observations from study 1 converged with the findings from studies 2 and 3, demonstrating the mundane realism and generalizability of these results. Taken together, these three studies offer strong evidence in support of the hypotheses.

Globalization has been a catchall phrase for team heterogeneity within a micro-organizational context. Global organizations and markets demand more transnational coordination. To ask if transnational teams exist is unnecessary; to understand their operating processes and structural conditions is of the utmost importance. Diversity—at least, national heterogeneity—is not an inherent characteristic of effective teams. Researchers must set aside the ideological lure of diversity to seek a systematic explanation of team process.

## REFERENCES


Adler, N. J. 1991. ***International dimensions of organizational behavior*** (2nd ed.). Boston: PWS-Kent.

Amabile, T. M. 1988. A model of creativity and innovation in organizations. In B. M. Staw & L. L. Cummings (Eds.), ***Research in organizational behavior,*** vol. 10: 123–168. Greenwich, CT: JAI Press.

Argote, L., & McGrath, J. E. 1993. Group processes in organizations: Continuity and change. In C. L. Cooper & I. T. Robertson (Eds.), ***International review of industrial and organizational psychology:*** 333–389. Chichester, England: Wiley.

Bandura, A. 1997. ***Self-efficacy.*** Englewood Cliffs, NJ: Prentice-Hall.

Bettenhausen, K. L. 1991. Five years of groups research: What we have learned and what needs to be addressed. ***Journal of Management,*** 17: 345–381.

Brewer, M. B. 1979. Ingroup bias in the minimal intergroup situation: A cognitive-motivational analysis. ***Psychological Bulletin,*** 86: 307–324.

Brewer, M. B. 1993. Social identity, distinctiveness, and in-group homogeneity. ***Social Cognition,*** 11: 150–164.

Campbell, D. T. 1958. Common fate, similarity, and other indices of the status of aggregates of persons as social entities. ***Behavioral Science,*** 3: 14–25.

Carroll, G. R., & Harrison, J. R. 1998. Organizational demography and culture: Insights from a formal model and simulation. ***Administrative Science Quarterly,*** 43: 637–667.

Casmir, R. 1992. Third-culture building: A paradigm shift for international and intercultural communication. ***Communication Yearbook,*** 16: 407–428.

Chatman, J. A., & Barsade, S. G. 1995. Personality, organizational culture, and cooperation: Evidence from a business simulation. ***Administrative Science Quarterly,*** 40: 423–443.

Chen, Y. R., Brockner, J., & Katz, T. 1997. ***Towards an explanation of cultural differences in ingroup bias: The role of individual vs. collective primacy.*** Unpublished paper, Columbia University, New York.

Cox, T. H. 1993. ***Cultural diversity in organizations.*** San Francisco: Berrett Koehler.

Cox, T. H., Lobel, S. A., & McLeod, P. L. 1991. Effects of ethnic group cultural differences on cooperative versus competitive behavior on a group task. ***Academy of Management Journal,*** 34: 827–847.

Davison, S. C. 1994. Creating a high-performance international team. ***Journal of Management Development,*** 13: 81–90.

Earley, P. C., Wojnaroski, P., & Prest, W. 1987. Task planning and energy expended: An exploration of how goals influence performance. ***Journal of Applied Psychology,*** 72: 107–114.

Elron, E. 1997. Top management teams within multinational corporations: Effects of cultural heterogeneity. ***Leadership Quarterly,*** 8: 393–412.

Elron, E., Shamir, B., & Ben-Ari, E. 1998. ***Why don't they fight each other? Cultural diversity and operational unity in multinational forces.*** Working paper, Hebrew University, Jerusalem.

Fiedler, F. E. 1966. The effect of leadership and cultural heterogeneity on group performance: A test of the contingency model. ***Journal of Experimental Social Psychology,*** 2: 237–264.

Geringer, J. M. 1988. Partner selection criteria for developed country joint ventures. ***Business Quarterly,*** 53(2): 79–90.

Gersick, C. J. G. 1988. Time and transition in work teams: Toward a new model of group development. ***Academy of Management Journal,*** 31: 9–41.

Golden-Biddle, K., & Locke, K. D. 1997. ***Composing qualitative research.*** Thousand Oaks, CA: Sage.

Guzzo, R. A., Salas, E., & Associates. 1995. ***Team effectiveness and decision making in organizations.*** San Francisco: Jossey-Bass.

Hackman, J. R. 1976. Groups in organizations. In M. D. Dunnette (Ed.), ***Handbook of industrial and organizational psychology:*** 1455–1525. Chicago: Rand McNally.

Hackman, J. R. 1987. The design of work teams. In J. Lorsch (Ed.), ***Handbook of organizational behavior:*** 89–136. New York: Prentice-Hall.

Hambrick, D. C., Davison, S. C., Snell, S. A., & Snow, C. C. 1998. When groups consist of multiple nationalities: Towards a new understanding of the implications. ***Organization Studies,*** 19: 181–205.

Hambrick, D. C., & Mason, P. A. 1984. Upper echelons: The organization as a reflection of its top managers. ***Academy of Management Review,*** 9: 193–206.

Harstone, M., & Augoustinos, M. 1995. The minimal group paradigm: Categorization into two versus three groups. ***European Journal of Social Psychology,*** 25: 179–193.

Hofstede, G. 1980. ***Culture's consequences.*** Newbury Park, CA: Sage.

Hughes, E. C. 1971. ***The sociological eye: Selected papers.*** Chicago: Aldine-Atherton.

Ibarra, H. 1992. Homophily and differential returns: Sex differences in network structure and access in an advertising firm. ***Administrative Science Quarterly,*** 37: 422–447.

Jackson, S. E., May, K. E., & Whitney, K. 1995. Understanding the dynamics of diversity in decision-making teams. In R. A. Guzzo, E. Salas, & Associates (Eds.), ***Team effectiveness and decision making in organizations:*** 204–261. San Francisco: Jossey-Bass.

Jackson, S. E., Salas, E., & Associates. 1992. ***Diversity in the workplace: Human resources initiatives.*** New York: Guilford.

James, L. R., & Brett, J. M. 1984. Mediators, moderators, and tests of mediation. ***Journal of Applied Psychology,*** 69: 307–321.

Jehn, K. A., Chadwick, C., & Thatcher, S. M. B. 1997. To agree or not to agree: The effects of value congruence, individual demographic dissimilarity, and conflict on workgroup outcomes. ***International Journal of Conflict Management,*** 8: 287–305.

Klimoski, R., & Mohammed, S. 1994. Team mental model: Construct or metaphor? ***Journal of Management,*** 20: 403–437.

Lau, D. C., & Murnighan, J. K. 1998. Demographic diversity and faultlines: The compositional dynamics of organizational groups. ***Academy of Management Review,*** 23: 325–340.

Lawrence, B. S. 1997. Perspective: The black box of organizational demography. ***Organization Science,*** 8: 1–22.

Lickel, B., Hamilton, D. S., Wieczorkowska, G., Lewis, A., Sherman, S. J., & Uhles, A. N. 1998. ***Varieties of groups and the perception of group entitativity.*** Unpublished paper, University of California, Santa Barbara.

Markus, H. R., & Kitayama, S. 1991. Culture and self: Implications for cognition, emotion, and motivation. ***Psychological Review,*** 98: 224–253.

Maxwell, J. A. 1996. ***Qualitative research design: An interactive approach.*** Thousand Oaks, CA: Sage.

Maznevski, M. L. 1994. Understanding our differences: Performance in decision-making groups with diverse members. ***Human Relations,*** 47: 531–552.

McGrath, J. E. 1984. ***Groups: Interaction and performance.*** Englewood Cliffs, NJ: Prentice-Hall.

Moscovici, S. 1976. ***Social influence and social change.*** London: Academic Press.

Nemeth, C. J. 1986. Differential contributions of majority and minority influence. ***Psychological Review,*** 91: 23–32.

O'Reilly, C. A., III, Caldwell, D. F., & Barnett, W. P. 1989. Work group demography, social integration, and turnover. ***Administrative Science Quarterly,*** 34: 21–37.

Oetzel, J. G. 1995. Intercultural small groups: An effective decision-making theory. In R. L. Wiseman (Ed.), ***Intercultural communication theories:*** 247–270. Newbury Park, CA: Sage.

Pfeffer, J. 1983. Organizational demography. In B. M. Staw & L. L. Cummings (Eds.), ***Research in organizational behavior,*** vol. 4: 299–357. Greenwich, CT: JAI Press.

Rohner, R. 1987. Culture theory. ***Journal of Cross-Cultural Psychology,*** 18: 8–51.

Shweder, R. A., & Levine, R. A. 1984. ***Culture theory:***

***Essays on mind, self, and emotion.*** New York: Cambridge University Press.

Snow, C. C., Snell, S. A., Davison, S. C., & Hambrick, D. C. 1996. Use transnational teams to globalize your company. ***Organizational Dynamics,*** 32(4): 20–32.

Spradley, J. 1979. ***The ethnographic interview.*** New York: Holt, Rinehart & Winston.

Tajfel, H. H. 1982. ***Social identity and intergroup relations.*** Cambridge, England: Cambridge University Press.

Tajfel, H. H., & Turner, J. C. 1979. An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), ***The social psychology of intergroup relations:*** 33–47. Monterey, CA: Brooks/Cole.

Thatcher, S. M. B., Jehn, K. A., & Chadwick, C. 1998. ***What makes a difference? The impact of individual demographic differences, group diversity, and conflict on individual performance.*** Working paper, Wharton School, University of Pennsylvania.

Tsui, A. S., Egan, T. D., & O'Reilly, C. A., III. 1992. Being different: Relational demography and organizational commitment. ***Administrative Science Quarterly,*** 37: 549–579.

Turner, J. C. 1985. Social categorization and the self-concept: A social cognitive theory of group behavior. In L. L. Berkowitz (Ed.), ***Advances in group processes:*** 77–121. Greenwich, CT: JAI Press.

Turner, J. C. 1987. ***Rediscovering the social group: A self-categorization theory.*** Oxford: Basil Blackwell.

Watson, W. E., Kumar, K., & Michaelson, L. K. 1993. Cultural diversity's impact on interaction process and performance: Comparing homogeneous and diverse task groups. ***Academy of Management Journal,*** 36: 590–602.

Zenger, T. R., & Lawrence, B. S. 1979. Organizational demography: The differential effects of age and tenure distribution on technical communications. ***Academy of Management Journal,*** 32: 353–376.

## APPENDIX

### Detailed Description of the Teams in Study 1

**Team 1.** This regional marketing team explored new opportunities for existing products in the Pacific Rim, especially mainland China. The group met every two weeks, generally in Bangkok or Kuala Lumpur. The American and Australian were based in Bangkok, each having spent over two years in Asia. The team was formed approximately 12 months before the first author began observing it.

**Team 2.** This product development team focused on creating new product lines for the Pacific Rim and beyond. Their mandate was to emphasize relatively inexpensive product offerings and products within a particular apparel category. This team met once or twice monthly in different locations, which often included Bangkok or Hong Kong. This team was formed shortly before the first author began working with them; it had not met prior to the initial meeting he observed.

**Team 3.** This product marketing team evaluated existing Thai product lines and expansion opportunities into countries such as Pakistan and Vietnam. This group met every two weeks in Bangkok, although several team members often traveled within Southeast Asia. The American members first worked for the company in the United States and later in the Pacific Rim. Two of the four Thais were women, and all members were in their 30s. This team was formed six months before the researcher's entry into the company.

**Team 4.** This product sales group was charged with overseeing the sales of various existing product lines, such as clothing and accessories, in Thailand and neighboring countries, including Myanmar, Malaysia, and Vietnam. Both non-Thai team members had resided in Thailand for many years and were fluent in the Thai language. This group met every two weeks in the Bangkok office, although their sales territories included other countries. The company formed this team shortly before the first author began working with them. It had met three times prior to the first meeting he observed.

**Team 5.** This product sales group was responsible for sales of various product lines in Thailand and in neighboring countries, including Myanmar, Malaysia, Pakistan, and Vietnam. The American members had lived in Thailand for a short time and had minimal knowledge of Thailand and its culture. Like team 4, this group met every two weeks in Bangkok, although the team members' sales territories were spread across Southeast Asia. This team was newly formed when the researcher first observed it.

**P. Christopher Earley** is the Randall L. Tobias Chair of Global Leadership at the Kelley School of Business, Indiana University. He received his Ph.D. in industrial and organizational psychology from the University of Illinois at Urbana-Champaign. His research interests include cross-cultural and international aspects of organizational behavior such as the relationship of cultural values to workgroup dynamics, the role of face and social structure in organizations, and motivation across cultures.

**Elaine Mosakowski** (Ph.D., University of California, Berkeley) is currently an associate professor of strategy at the Krannert School of Management, Purdue University. She is on leave from the Anderson School of the University of California, Los Angeles. Her research focuses on the entrepreneur's role in firm strategy; strategy making under causal ambiguity; global organizations; firm evolution; corporate governance and innovation; and speculation as a source of firm profits.

## References

**Organizational Demography and Culture: Insights from a Formal Model and Simulation**
Glenn R. Carroll; J. Richard Harrison
*Administrative Science Quarterly*, Vol. 43, No. 3. (Sep., 1998), pp. 637-667.
Stable URL:
http://links.jstor.org/sici?sici=0001-8392%28199809%2943%3A3%3C637%3AODACIF%3E2.0.CO%3B2-3

**Personality, Organizational Culture, and Cooperation: Evidence from a Business Simulation**
Jennifer A. Chatman; Sigal G. Barsade
*Administrative Science Quarterly*, Vol. 40, No. 3. (Sep., 1995), pp. 423-443.
Stable URL:
http://links.jstor.org/sici?sici=0001-8392%28199509%2940%3A3%3C423%3APOCACE%3E2.0.CO%3B2-3

**Effects of Ethnic Group Cultural Differences on Cooperative and Competitive Behavior on a Group Task**
Taylor H. Cox; Sharon A. Lobel; Poppy Lauretta McLeod
*The Academy of Management Journal*, Vol. 34, No. 4. (Dec., 1991), pp. 827-847.
Stable URL:
http://links.jstor.org/sici?sici=0001-4273%28199112%2934%3A4%3C827%3AEOEGCD%3E2.0.CO%3B2-0

**Time and Transition in Work Teams: Toward a New Model of Group Development**
Connie J. G. Gersick
*The Academy of Management Journal*, Vol. 31, No. 1. (Mar., 1988), pp. 9-41.
Stable URL:
http://links.jstor.org/sici?sici=0001-4273%28198803%2931%3A1%3C9%3ATATIWT%3E2.0.CO%3B2-8

# LINKED CITATIONS



**Upper Echelons: The Organization as a Reflection of Its Top Managers**

Donald C. Hambrick; Phyllis A. Mason

*The Academy of Management Review*, Vol. 9, No. 2. (Apr., 1984), pp. 193-206.

Stable URL:

http://links.jstor.org/sici?sici=0363-7425%28198404%299%3A2%3C193%3AUETOAA%3E2.0.CO%3B2-5

**Homophily and Differential Returns: Sex Differences in Network Structure and Access in an Advertising Firm**

Herminia Ibarra

*Administrative Science Quarterly*, Vol. 37, No. 3. (Sep., 1992), pp. 422-447.

Stable URL:

http://links.jstor.org/sici?sici=0001-8392%28199209%2937%3A3%3C422%3AHADRSD%3E2.0.CO%3B2-V

**Demographic Diversity and Faultlines: The Compositional Dynamics of Organizational Groups**

Dora C. Lau; J. Keith Murnighan

*The Academy of Management Review*, Vol. 23, No. 2. (Apr., 1998), pp. 325-340.

Stable URL:

http://links.jstor.org/sici?sici=0363-7425%28199804%2923%3A2%3C325%3ADDAFTC%3E2.0.CO%3B2-W

**The Black Box of Organizational Demography**

Barbara S. Lawrence

*Organization Science*, Vol. 8, No. 1. (Jan. - Feb., 1997), pp. 1-22.

Stable URL:

http://links.jstor.org/sici?sici=1047-7039%28199701%2F02%298%3A1%3C1%3ATBBOOD%3E2.0.CO%3B2-J

**Being Different: Relational Demography and Organizational Attachment**

Anne S. Tsui; Terri D. Egan; Charles A. O'Reilly III

*Administrative Science Quarterly*, Vol. 37, No. 4. (Dec., 1992), pp. 549-579.

Stable URL:

http://links.jstor.org/sici?sici=0001-8392%28199212%2937%3A4%3C549%3ABDRDAO%3E2.0.CO%3B2-9

**Cultural Diversity's Impact on Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups**

Warren E. Watson; Kamalesh Kumar; Larry K. Michaelsen

*The Academy of Management Journal*, Vol. 36, No. 3. (Jun., 1993), pp. 590-602.

Stable URL:

http://links.jstor.org/sici?sici=0001-4273%28199306%2936%3A3%3C590%3ACDIOIP%3E2.0.CO%3B2-A