Demographic Diversity, Conflict, and Work Group Outcomes: An Intervening Process Theory

Lisa Hope Pelled

University of Southern California, Los Angeles, California 90089-1421

This paper presents one of the few but growing number of models that open up the black box frequently proposed by organizational demography theories. Pelled examines the processes by which work group diversity predicts individual and group outcomes. The model is particularly interesting because in contrast to typical demographic models that only distinguish "more" from "less" diversity, it suggests that turnover and cognitive task performance (the outcomes) are conditional on both the types of diversity represented in the group (the demographic predictors), and the types of conflict experienced by the group (the intervening processes).

Barbara Lawrence

Abstract

Research has suggested that, within a work group, diversity with respect to members' demographic backgrounds can have a powerful effect on both turnover from the group and on the group's performance on cognitive tasks (i.e., "thinking" tasks that involve generating plans or ideas, solving problems, or making decisions). While such diversity tends to increase turnover, its effects on cognitive task performance are more mixed, sometimes enhancing performance and sometimes impairing it. An understanding of how diversity leads to these outcomes may help managers enhance work group effectiveness. Thus, in this paper I develop a theoretical model to explain the turnover and mixed performance consequences of demographic diversity in work groups.

The proposed model suggests that each demographic diversity variable (e.g., diversity with respect to age, gender, race, group tenure, organization tenure, education, or functional background) can be classified according to its level of visibility and its level of job-relatedness. Visibility is the extent to which the variable is easily observed by group members, and job-relatedness is the extent to which the variable directly shapes perspectives and skills related to cognitive tasks. The model then suggests that the visibility and job-relatedness of a diversity variable indirectly influence how much turnover and/or performance enhancement the variable yields. More specifically, the visibility and job-relatedness of a diversity variable influence the levels of affective (emotional) and substantive (task) conflict in the

group, and the levels affective and substantive conflict, in turn, influence the amount of turnover from the group and the group's performance.

After generating six research propositions based on the model, including three addressing demographic diversity variable-conflict linkages and three addressing conflict-turnover and conflict-performance linkages, I discuss boundary conditions of the model and offer recommendations for future research.

(*Demography*; *Diversity*; *Group*; *Conflict*)

> Before I built a wall I'd ask to know
> What I was walling in or walling out,
> And to whom I was like to give offense.
> Something there is that doesn't love a wall,
> That wants it down.
> <div align="right">Robert Frost (1915)</div>

As modern companies remove the barriers that formerly separated workers of different backgrounds, both managers and management scholars are finding that demographic diversity is a topic they can no longer ignore. Women and minorities have become a significant presence in the workforce (Offerman and Gowing 1990, Loden and Rosener 1991), and widespread inte-

grated manufacturing practices have increased the need for employees of different occupational backgrounds to work together (Dean and Snell 1991). The dynamics and consequences of diversity are particularly salient at the group level, where individuals are in a position to engage in face-to-face interactions more regularly than at the organizational level. Because of this greater salience, and because of the current prevalence of team-based approaches in organizations (Jackson et al. 1991, Parker 1994), the theoretical model offered in this paper focuses on diversity in work groups—referring specifically to heterogeneity at the group level, rather than individual dissimilarity to others in a group.[1] Also, its focus is limited to diversity with respect to demographic attributes (age, race, gender, education, functional background, and tenure), rather than diversity with respect to attitudes, personality, needs, or other attributes that are less directly related to current workforce changes.

Until recently, there were few field studies of demographic diversity in work groups. Studies of group heterogeneity were—with the exception of several case studies that documented observations of tokens in skewed groups (Hughes 1944, Wolman and Frank 1975)—limited to laboratory studies conducted by social psychologists (e.g., Hoffman and Maier 1961, Ruhe and Allen 1977, Taylor and Fiske 1976). However, as the field of organizational demography developed with its studies of demographic distributions in work groups (e.g., Kanter 1977, McCain et al. 1983, Zenger and Lawrence 1989), and as organizational strategy scholars (e.g., Murray 1989, Roure and Keeley 1990) became interested in the demographic composition of top management teams, this pattern began to change. There now exists a reasonable amount of empirical research on group diversity in organizational as well as laboratory settings.

Two dependent variables that frequently appear in these studies are turnover (at both the individual and group levels of analysis)[2] and cognitive task performance (at the group level of analysis). While individual-level turnover refers to the voluntary or involuntary departure of a single employee, group-level turnover refers to the proportion of a group departing voluntarily or involuntarily. Cognitive task performance refers to performance on tasks that are more mentally than physically challenging, e.g., decision making, problem solving, or creative idea generation.[3] Several studies (Clement and Schiereck 1973, Tziner 1985) have examined how demographic diversity affects group performance on behavioral tasks, i.e., tasks that are more physically than mentally challenging; however, as

Jackson (1992) has noted, there have been too few studies of this type to form a solid basis for conclusions. Thus, since the strongest foundation for theory-building on the topic of work group diversity comes from studies having turnover and/or cognitive task performance as dependent variables, this paper primarily addresses the relationship between work group diversity and those outcomes.

While studies of group diversity and turnover (e.g., McCain et al. 1983, Wagner et al. 1984, Wiersema and Bird 1993) have found that diversity consistently increases turnover, studies of diversity and cognitive task performance have had mixed results, with some linking diversity to favorable performance (e.g., Pelz 1956, Bantel and Jackson 1989), some linking it to unfavorable performance (e.g., Kent and McGrath 1969, Murnighan and Conlon 1991), and some linking it to both (e.g., Ancona and Caldwell 1992, Watson et al. 1993). To date, there is not a theory that can adequately explain both the turnover and the mixture of cognitive task performance outcomes associated with work group diversity.

Lawrence (1994) has pointed out that studies looking toward communication frequency and social integration (cohesiveness)[4] for an explanation have found only weak relationships between demographic predictors and these intervening process variables. Moreover, she has suggested that it is not just a lack of statistical support that makes these explanations problematic, but also a lack of theoretical development; specifically, demographic diversity research tends to take intervening processes for granted instead of "assessing which processes actually belong and which do not" (p. 30). Consistent with Lawrence's argument is the observation that the communication frequency and social integration explanations only belong in the case of unfavorable performance and turnover resulting from diversity. These explanations can account for diversity impairing group performance and increasing turnover (by suggesting that it reduces communication frequency and social integration), but they cannot account for favorable performance resulting from diversity.

Recently, Ancona and Caldwell (1992) attempted to account for both favorable and unfavorable performance effects of team diversity by suggesting that diversity is positively related to the frequency of communication with individuals outside the team but negatively related to internal task process (setting goals and priorities). (The authors did not address turnover in their theory.) Their findings, however, showed that organizational tenure diversity had a *positive* relationship with internal task process, and functional diversity

had a positive relationship with external communication frequency. Internal task process, in turn, had a positive relationship with teams' ratings of their own performance, and external communication frequency had a positive relationship with managers' ratings of teams' innovativeness. Thus, the observed indirect effects of organizational tenure and functional diversity were all favorable. Yet both types of diversity had *direct* effects on performance that were unfavorable. Functional diversity directly reduced team-rated performance and manager ratings of team innovativeness, and organizational tenure diversity directly reduced another type of manager-rated performance (adherence to budgets and schedules). The authors were prompted to ask (p. 338), "What can account for this contradictory effect of diversity... ? On the one hand, it produces processes that facilitate performance, and on the other hand, it directly impedes performance." They then suggested (p. 338), "This raises the possibility that the negative direct effects may be a statistical artifact resulting from a missing mediating variable that negatively links demography to performance." Thus, Ancona and Caldwell, like previous researchers, were left with an intervening variable explanation that could not tell the full story.

Several studies of work group diversity have discussed, but not tested, the idea that conflict is an intervening variable (e.g., Bantel and Jackson 1989, McCain et al. 1983, Wagner et al. 1984). Perhaps because of their brevity, however, these discussions have tended to convey a view of conflict that is one-dimensional, as either an entirely disruptive force resulting in turnover or a completely beneficial exchange of ideas resulting in better performance. The argument I present in this paper is that a two-dimensional conceptualization of conflict (as a variable having a substantive component as well as an affective component), accompanied by a more refined understanding of the properties of demographic diversity variables, can help explain both the turnover and cognitive task performance outcomes of demographic diversity in work groups. I propose a model of diversity and its consequences that incorporates this broader conceptualization of conflict as well as a typology for classifying demographic diversity variables.

Lawrence (1994, p. 31) has noted that "multiple subjective concepts" may intervene between demography and organizational outcomes. Rather than specifying the complete set of processes that may intervene between diversity and its performance and turnover consequences, my objective in developing the proposed model has been to further define the role of conflict,

which, I argue, may be a particularly robust mediator. Although it is unlikely that the observed direct effects of diversity on performance and turnover will disappear completely when statistical models incorporate conflict as a mediator, they may diminish substantially.
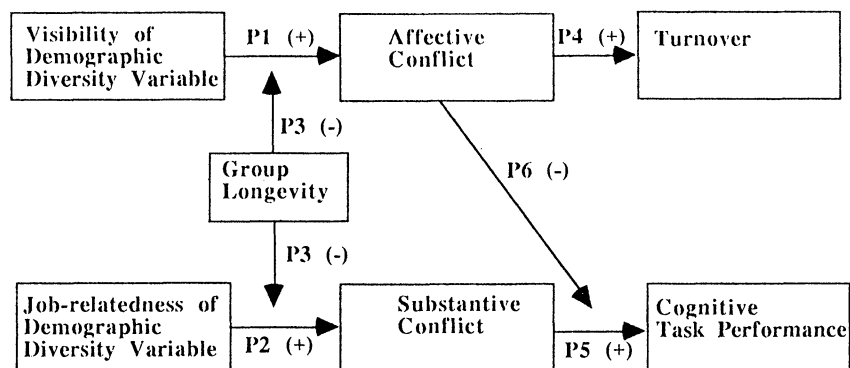
Overview of the Model

The proposed model begins with a typology of demographic diversity variables. Each variable is classified according to two dimensions: job-relatedness and visibility (Figure 1). I propose that these two dimensions determine the strength of a demographic diversity variable's relationship with substantive and affective conflict (Figure 2). The more job-related a particular type of diversity is, the stronger its relationship with substantive conflict will be; for example, organizational tenure diversity will be a stronger predictor of substantive conflict than age diversity. The more visible a particular type of diversity is, the stronger its relationship with affective conflict will be; for example, age diversity will be a stronger predictor of affective conflict than organizational tenure diversity.

The levels of substantive and affective conflict in the group, in turn, determine the tendency for turnover, favorable cognitive task performance, and/or unfavorable cognitive task performance to result indirectly from diversity. While substantive conflict is proposed to enhance performance on cognitive tasks, affective conflict is proposed to promote turnover and, through a negative interaction with substantive conflict, to reduce cognitive task performance. Thus, the particular mixture of different types of diversity in a group determines how strong one dimension of the group's conflict

Figure 1   Typology of Demographic Diversity Variables

	LOW JOB-RELATEDNESS	HIGH JOB-RELATEDNESS
HIGH VISIBILITY	age gender race	group tenure
LOW VISIBILITY		organizational tenure education functional background

Figure 2 Relationships among Work Group Demographic Diversity, Conflict, and Performance and Turnover Consequences

is relative to the other dimension, and this resulting composition of conflict determines the impact on performance and turnover.

The following sections elaborate on the above ideas, ultimately capturing them in a set of propositions.

Typology of Diversity Variables

Those studying demographic diversity have traditionally taken either of two approaches in their treatment of the subject. One approach has been to treat it broadly, making statements about heterogeneity or homogeneity in general, rather than about a particular type (e.g., age diversity). Hambrick and Mason (1984, p. 203), for example, advanced a set propositions that used the terms *homogeneity* and *heterogeneity* generically—e.g., "Homogeneous top management teams will make strategic decisions more quickly than will heterogeneous teams."

The second approach has been to treat each demographic diversity variable as a distinct theoretical construct based on the argument that different types of diversity may produce different outcomes. This has typically been the approach of social psychologists in their lab studies. For example, Hoffman and Maier (1961, p. 407) reported that "mixed-sex groups tended to produce higher quality solutions than did all-male groups," and Kent and McGrath (1969, p. 437) reported that "sexually homogeneous groups generated products which were decidedly more original than those from heterogeneous groups." Instead of assuming that other types of diversity would have similar effects, these researchers built their theory and conclusions around a specific type of demographic diversity. Zenger and Lawrence (1989, p. 353) took this approach with several types of diversity (age and organizational tenure) in their field study of demography and commu-

nication frequency, noting that "... there is no a priori reason to believe that age, race, and tenure exert the same influence on frequency of technical communication."

Arguments for both approaches exist. On the one hand, using a broader diversity variable allows hypotheses or propositions to have greater explanatory power (Bacharach 1989, p. 507). On the other hand, lumping the different types of diversity together may cause us to overlook important distinctions among them. As a result, in striving for generality, one may lose the ability to make accurate predictions.

In this paper I use a middle-ground approach, following Zenger and Lawrence's (1989, p. 369) recommendation that "... future theory and research on demographic variables should pursue both their similar and distinct properties as predictors of organizational outcomes." Thus, I define sets of demographic diversity variables based on two properties: visibility and job-relatedness.[5] Variables within the same set are similar in the degree to which they can be readily observed and in the degree to which they are job-related. Variables in different sets are dissimilar either in their visibility, in their job-relatedness, or in both properties. My propositions identify common effects (i.e., effects that all types of diversity are expected to share) as well as differences in effect based on the visibility and job-relatedness of variables.

While it is possible to classify demographic variables based on other dimensions such as their relationship to time, with age and tenure high on the time dimension, I have selected the dimensions of job-relatedness and visibility because they have the greatest tendency to trigger, respectively, selective perception of job tasks and categorization of individuals, mental processes that promote substantive and affective conflict (as a later

section of this paper discusses in detail). Thus, the job-relatedness and visibility dimensions of a demographic variable ultimately determine the strength of that variable's relationship with substantive and affective conflict.

As mentioned earlier, the focus of this paper is demographic diversity, including age, race, gender, tenure (company or group), education (specialization or level), and functional background diversity. Figure 1 shows how each of these diversity variables is classified. Age, gender, and race are high in visibility and low in job-relatedness. Particularly in the early stages of a group's development, physiological attributes tend to be more salient than other demographic characteristics. Tsui et al. (1992, p. 557) note specifically, "age, sex, and race, because they are easily observable, are more accessible characteristics than education and (organizational) tenure." Although high in visibility, these physiological attributes are low in job-relatedness because they do not reflect task perspectives and technical skills as directly as organizational tenure, education, and functional background. When discussing the effects of age and organizational tenure similarity on communication frequency in work groups, Zenger and Lawrence (1989, p. 369) argued that while organizational tenure homogeneity (or heterogeneity) directly shapes work-related interactions, "... the effects of age similarity on technical communication result primarily from basic social behaviors that occur independently of task characteristics." Race and gender, like age, shape attitudes and behaviors that are not necessarily related to group tasks.

While group tenure, organizational tenure, education, and functional background are similar (high) in the job-relatedness dimension—i.e., directly shaping task perspectives and technical skills, they differ in their visibility. Until all members have belonged to the group for a period of time, differences in individuals' *group* tenure (length of time in the group) are apt to be as visible as differences in physiological attributes (i.e., highly visible), for the novelty of more recent members increases their salience (Fiske and Taylor 1991). In contrast, organizational tenure, education, and functional background diversity are less readily observed and are therefore classified as low in visibility.

Conflict as an Intervening Variable
The Two Dimensions of Conflict
A number of organizational demography researchers have hinted at the possibility that conflict is an intervening variable, but their treatment of the construct

has been limited. Most have devoted no more than one or two sentences to the subject. For example, Wagner et al. (1984, p. 89) suggested that one path of extension to their work "... involves examining the effects of demographic distributions on some of the hypothesized intervening processes, such as conflict.... There is certainly a literature suggestive of the fact that generational conflict is important and that such generations are indeed defined along time and age dimensions." In a similar manner, McCain et al. (1983, p. 628) asserted that "a critical variable impacting turnover is the extent to which there are definable cleavages or discontinuities in the organizational unit's membership that may make communication more difficult and conflict and power struggles more likely to occur." The brevity of these statements makes it difficult to tell how the authors defined conflict, although the implication is that conflict is a one-dimensional, destructive force leading to turnover and impairing performance.

Organizational strategy scholars have occasionally adopted the alternative—and equally one-dimensional —view that conflict is a positive force through which heterogeneity enhances a group's performance. For example, Murray (1989, p. 127) claimed that "the higher level of conflict associated with heterogeneous groups can enable them to better discern when adaptation is appropriate."

Yet for a number of years, conflict theorists (e.g., Coser 1956, Haiman 1951, Wall and Nolan 1986, Ross 1989) have described the variable as having two dimensions, one consisting of task disagreements, and the other referring to socio-emotional or interpersonal arguments. When viewed as a two-dimensional construct, with one dimension that can have a beneficial effect on cognitive task performance and the other dimension typically increasing turnover and—through an interaction effect—impeding performance, conflict has an advantage over previous intervening process explanations that cannot account for the mixture of outcomes associated with work group diversity. Thus, the model proposed here adopts this broader conceptualization of conflict. In doing so, it uses the terminology of Guetzkow and Gyr (1954) both for its appeal and because affect literature is used to develop supporting theory for the model: Task-related conflicts are called *substantive*, and emotion-based, nontask conflicts are called *affective*.

Guetzkow and Gyr (1954, p. 380) describe substantive conflict as "intellectual opposition among participants, deriving from the content of the agenda" and affective conflict as "tension generated by emotional clashes aroused during the interpersonal struggle in-

volved in solving the group's agenda problem." I have drawn upon the writings of Eisenhardt and Bourgeois (1994) and Schermerhorn et al. (1991) to further develop these definitions: *Substantive conflict* is the perception among group members that there are disagreements about task issues including the nature and importance of task goals and key decision areas, procedures for task accomplishment, and the appropriate choice for action. *Affective conflict* is the perception among group members that there are interpersonal clashes characterized by anger, distrust, fear, frustration, and other forms of negative affect.[6]

Both statistical and case study evidence have supported the conceptual distinction between substantive and affective conflict. Upon analyzing data from a questionnaire administered to 440 subjects, Jehn (1994) found support for a two-factor structure consisting of emotional conflict ("frustration, friction, tension, and dislike among [group] members" (p. 232)) and task conflict ("differing viewpoints and ideas related to the task" (p. 232)). Her statistical findings are consistent with examples from several case studies. In an investigation of conflict in product development teams (Pelled and Adler 1994), one interviewee described a substantive conflict in a manner that clearly distinguished it from affective conflict:

> We got along fine on a personal level; hallway conversations were cheerful and friendly. When it came to talking about the project, though, there were problems.

Along the same lines, a multiple case study of top management teams in the microcomputer industry (Eisenhardt and Bourgeois 1994) found that high-performing teams had high task conflict with little interpersonal animosity.

The two dimensions of conflict may not be completely independent. In some cases, when group members harbor particularly strong feelings about a task issue, they may become emotional about it, and substantive conflict will lead to affective conflict. As Ross (1989, p. 140) observed, "It is also possible for such (task) differences to generate emotionally harsh language, which can be taken personally. We then have both task and psychological conflicts occurring at the same time." Affective conflict, however, is not apt to promote true substantive conflict—sincere differences of opinion about the task. Although individuals may express hostility by manufacturing useless criticisms of each other's task-related ideas, this interaction would constitute an attempt to masquerade affective conflict as substantive conflict, and group members are apt to perceive it as such.

Conflict Versus Previous Intervening Variable Explanations

It is likely that substantive and affective conflict are closely related to—but not the same as—previously examined intervening variables, including communication frequency, social integration, and internal task process. Communication has been loosely defined as "a process involving the sending and receiving of messages" (Giffin and Patton 1971, p. 5) and more specifically defined as "the transfer of information, ideas, understanding, or feelings" (Mondy et al., 1986, p. 8). Organizational researchers (Jackson et al. 1993, Katz 1982, Morrow 1981, Zenger and Lawrence 1989) have made a distinction between non-work-related communication and work-related communication. At first glance, one might see little difference between the concepts of non-work-related communication and affective conflict, for if group members perceive that there is affective conflict in a group, then it is likely that members are sending negative, hostile messages to each other either verbally or nonverbally. Likewise, the concepts of work-related communication and substantive conflict may appear identical initially; if members perceive that they have conflicts about their task, then it is likely that they are communicating such differences of opinion to each other either verbally or nonverbally.

The two conflict dimensions and the two communication dimensions do not always overlap, however. While affective conflict is consistently characterized by hostility and frustration, non-work-related communication can be either a positive, friendly interaction or a frustrating, hostile interaction. Also, unlike the variable substantive conflict, work-related communication does not necessarily refer to differences of opinion. Group members can communicate about task issues by expressing agreement or exchanging information that supports a perspective they share. Because the term communication describes interactions more generally than the term conflict, it is more difficult to predict how an increase or decrease in communication frequency will affect a group's performance and turnover. As intervening variables, then, substantive and affective conflict have an advantage over work-related and non-work-related communication frequency.

Like communication frequency, the variable social integration (or cohesiveness), the extent to which group members are attracted to each other, feel satisfied with each other, and socialize with each other (Katz and Kahn 1978, O'Reilly et al. 1989), should be associated with, but not identical to, conflict. Organizational literature often treats cohesiveness as the opposite or con-

verse of conflict, such that the absence of cohesiveness means the presence of conflict, yet the two concepts are distinct. Katz and Kahn (1978, p. 553) have noted that "primary relationships" (relationships characterized by cohesiveness) "...are affectively connected rather than rationalistically role-related." Similarly, Ancona and Caldwell (1992) have argued that social-integration is not a task-oriented intervening variable. It is likely that social integration and the affective dimension of conflict have a fairly strong negative relationship. Both are affect-based, and when group members are frustrated and angry with each other, the emotional bonds among them are apt to be weaker. Yet, just as positive affect (the extent to which a person feels energetic and enthusiastic about life) and negative affect (the extent to which a person feels unpleasantly aroused) are not opposites (Watson et al. 1984), social integration and affective conflict are not opposites. A group with low social integration is not always a group with high affective conflict; group members may feel indifferent to each other, having no emotional ties, without being frustrated or angry with each other.

The distinction between social integration and the substantive dimension of conflict is more obvious than the distinction between social integration and the affective dimension; social integration does not describe interactions that concern task issues, while substantive conflict does. Social integration and substantive conflict should therefore have a weaker relationship than social integration and affective conflict. Also, lack of task-relatedness may make social integration more limited than substantive conflict in its ability to account for cognitive task performance directly.

The third intervening variable in prior research, internal task process, is also related to but distinct from conflict. Internal task process, the ability of a group to "define goals, develop workable plans, and prioritize work" (Ancona and Caldwell 1992, p. 328), overlaps with substantive conflict to the extent that it describes task-related interactions; its definition does not, however overlap with that of affective conflict. As an intervening variable explanation for the turnover and performance consequences of diversity, internal task process suffers from limitations that—as later sections of this paper will demonstrate—affective and substantive conflict do not. Specifically, internal task process cannot easily account for the turnover resulting from diversity; group members may still get along well, like each other, and prefer to remain in the group even if they cannot define goals, develop workable plans, and prioritize work. Also, internal task process is limited in

its ability to account for the performance consequences of diversity. For example, group members can define goals, make workable plans, and establish priorities without necessarily having differences of opinion and coming up with a creative solution to a problem.

In summary, communication frequency, internal task process, and social integration may be strongly related to one or both dimensions of conflict, but they are not identical to it. While all four variables may help account for the turnover and cognitive task performance consequences of demographic diversity, we can expect, based on its above-mentioned theoretical advantages, that conflict will play a stronger intervening role.

Direct Effects of Diversity on Conflict

Figure 2 suggests that, in general, demographic diversity variables have positive effects on both the affective and substantive dimensions of conflict in groups. One need only recall the explosive race riots in Los Angeles to believe that diversity can induce affective conflict. Anecdotal and case study evidence indicate that work groups in organizations are not immune to this effect. Alagna et al. (1982) studied all-male versus mixed-sex groups of medical students involved in dissection tasks. They found that mixed-sex groups had more interpersonal conflicts, greater tension, and lower levels of friendliness and respect. For a more recent example, consider the case of Frances K. Conley, who resigned her position as a full, tenured professor of neurosurgery at Stanford University because she felt her coworkers were hostile towards women.

A race-related incident was described by an automobile assembly worker, who recalled the following occurrence in a process improvement team to which she belonged (Pelled 1993, p. 69):

> A couple of years ago there was a conflict. They were on the ground beating each other up. One got knocked out. It was between an oriental and a black....

An increase in similar incidents at other companies prompted the director of research for the National Institute Against Prejudice and Violence to remark, "The workplace probably is going to be the major site of ethnoviolent conflict throughout the 1990s" (Solomon 1992, p. 30).

Visible types of diversity such as gender and race are not the only sources of hostility, however; diversity with respect to functional background and other less visible attributes can trigger affective conflict as well. In essence, Secord and Backman (1974) advanced the

idea that different educational levels may promote such conflict when they reasoned that individuals experience annoyance and anger when working with those of lesser ability. The link between functional diversity and affective conflict can be seen in Strauss' (1964, p. 141) classic case study of cross-functional interactions. He noted the envy and resentment between purchasing agents and engineers, supporting his observation by quoting the following complaint by a purchasing agent:

'Engineers are a special breed of cat that think they know everything, including purchasing ... . They feel the purchasing agent is just a clerk.'

More recently, the Pelled and Adler (1994) study mentioned earlier reported several examples of affective conflicts based on functional background differences in product development teams.

An examination of the categorization and intergroup relations literature offers insight into the mechanisms by which demographic diversity can promote affective conflict. When group members are dissimilar with respect to demographic attributes, they may engage in the cognitive process of *categorization*, classifying themselves and others into distinct social groups on the basis of ethnicity, gender, or other attributes (Turner 1982). Brewer (1979), Tajfel (1982), and Brewer and Kramer (1985) have reviewed numerous studies suggesting that simply classifying a group of people into subgroups on an arbitrary basis (e.g., through categorization) can trigger intergroup bias, the tendency for individuals to evaluate members of their own subgroup more positively than—to perceive themselves as superior to—members of other subgroups. When individuals perceive themselves as superior to other individuals, they often feel hostility toward them and experience anxiety around them (Stephan and Stephan 1985, Tsui et al. 1992). Thus, because it fosters categorization and intergroup bias, diversity can be expected to result in affective conflict in work groups.

Social psychologists (e.g., Taylor et al. 1978, Turner 1982) have noted that a major factor determining the strength of the categorization tendency is the perceptual salience of social or physical dimensions. Immediately apparent physical features tend to be more accessible than other characteristics; consequently, it is easier to use them as a basis for categorization (Stephan 1985, Tsui et al. 1992). Within a work group, then, demographic diversity variables that are more visible are more apt to trigger categorization than less visible diversity variables, and they should be a stronger predictors of affective conflict.

PROPOSITION 1. *As the visibility of demographic diversity variables within a work group increases, affective conflict within the group increases.*

Just as there have been cases of demographic diversity inducing affective conflict, there have been cases of it leading to substantive conflict. Hoffman and Maier (1961, p. 406) reported that mixed-sex groups had greater "conflict resulting from opposing viewpoints" than same-sex groups. Also, the Strauss (1964) study mentioned earlier described how functional background differences (between engineers and purchasing agents) resulted in task conflicts because engineers tended to be more interested in quality than price, while purchasing agents were more interested in price. For example, purchasing agents and engineers frequently disagreed on how many restrictions there should be in the engineers' specifications for parts; engineers wanted a particular brand name while purchasing agents wanted the freedom to search for a less expensive brand.

A mechanism by which such effects may occur is *selective perception*, a mental process in which information is interpreted after being filtered through a cognitive base (Hambrick and Mason 1984). An individual's demographic background is a determinant of his or her cognitive base, i.e., "assumptions about future events, knowledge of alternatives, and knowledge of consequences attached to alternatives" (Hambrick and Mason 1984, p. 195, Wiersema and Bantel 1992). When members of a group differ with respect to attributes such as gender and functional background, they may have different interests, values, and mental scripts—i.e., expected sequences of actions or events (Ancona 1990). Selective perception may lead them to have different understandings of the group's task. Butler's (1973, p. 91) description of cross-functional interaction in project teams helps to capture how selective perception based on demographic differences may trigger substantive conflict:

... their professional reference groups tend to remain either in the functional departments or with some external professional aggregations. Conflict tends to emerge when professionals of diverse disciplines, or professionals and nonprofessional technicians of related disciplines, are required to work together as a team ... .

Research has confirmed that an individual's interpretation of a problem is altered to align with his or her vested interests. Dearborn and Simon (1958) performed a perceptual study of 23 executives (5 from production, 4 from accounting, 6 from sales, and 8 in

miscellaneous functions). Each manager was asked to read a case and identify the most important problem he found in it. The result was that participants identified those aspects of the problem that related specifically to the activities and goals of the unit to which they were attached.[7] More recent evidence is offered by Cohen's (1981) review of literature on goals and schemata, which found support for the proposition that people's goal orientations guide their processing of information.

Background attributes that are more directly related to occupational experience—e.g., functional background—are apt to be more influential in the selective perception of problems or tasks in the workplace. Indeed, references to selective perception (e.g., Brightman 1988, Dougherty 1992) often describe it as a phenomenon triggered by different functional or departmental backgrounds. Also, empirical evidence attesting to the phenomenon's existence (Dearborn and Simon 1958) focused on the effects of different departmental backgrounds. While differences with respect to other demographic attributes—e.g., gender—may also trigger selective perception in certain situations, their influence on the interpretation of problems or tasks facing work groups is apt to be weaker, for they are generally less directly related to job skills and activities.

PROPOSITION 2. *As the job-relatedness of demographic diversity variables within a work group increases, substantive conflict within the group increases.*

A Moderator of the Diversity-Conflict Link

The strength of the hypothesized effects of work group diversity variables' visibility and job-relatedness on conflict may depend on group longevity, the amount of time group members have spent working together.[8] When group members have worked together for a long time, they may have less tendency to categorize and stereotype based on highly visible demographic attributes such as age or race.

Initially, people rely on crude, observable characteristics to categorize others. Familiarity, however, makes these categories less salient so that interpretations of the in-group and out-group change over time. For example, after an extended period of time, one group member may begin to perceive another as "Fred, a member of my work group," instead of "the old guy." The category of the group as a whole becomes more salient than the category of age, and the individual becomes a member of the in-group rather than the out-group. As Kramer (1990, p. 17) observed, "An important implication of the categorization perspective, then, is that an individual's identity in the organization is not fixed. Instead, it can vary over time and across situations."

An explanation for this variable nature—i.e., the process of *de*categorization that occurs over time—is offered by Allport (1954) in his seminal book on prejudice. The following paragraph by Brewer and Kramer (1985, p. 232) concisely summarizes Allport's reasoning:

> ...the presence of extended contact between members of different social groups or categories necessitates a shift from representations at the level of the group as a whole to the level of interpersonal perceptions and behavior. The so-called 'contact hypothesis' rests on the general assumption that this very shift from the abstract and unfamiliar to the interpersonal and familiar will engender more positive intergroup attitudes and social acceptance.

Although direct interpersonal contact is no longer viewed as a panacea (see Pettigrew 1986), the results of some studies (e.g., Slavin 1979, Stephan and Rosenfield 1978) suggest that it can help reduce the antagonism that stems from categorization and stereotyping. Thus, as the longevity of the group increases, the relationship between diversity, visibility and affective conflict should become weaker.

Group longevity can be expected to have a similar effect in the case of diversity job-relatedness and substantive conflict, but through a different process. As group members build a history with one another, informational social influence leads them to develop shared understandings of the group and its task (Katz 1982), and the relationship between diversity job-relatedness and substantive conflict diminishes. Based on this reasoning,

PROPOSITION 3a. *As a work group's longevity increases, the positive relationship between demographic diversity variables' visibility and affective conflict within the group weakens.*

PROPOSITION 3b. *As a work group's longevity increases, the positive relationship between demographic diversity variables' job-relatedness and substantive conflict within the group weakens.*

Indirect Effects of Diversity: The Conflict-Turnover Link

As mentioned earlier in this paper, research has consistently shown that work group diversity variables are associated with turnover. One explanation for this as-

sociation is the affective conflict generated by diversity. Affective conflict is characterized by emotions such as frustration, anxiety, dislike, and other forms of negative affect. As Kramer (1989) has noted, group members may begin to experience tension or uneasiness due to expectations of negative consequences associated with group interactions. Also, individuals may experience psychological strain when other group members dislike them (Walton and Dutton 1969). To reduce their anxiety and strain, they may lessen contact with others in the group via absence or, ultimately, turnover. Indeed, Newcomb (1947) has suggested that there is a strong tendency for people to avoid those encounters that they expect to produce unpleasant consequences in them; he labeled this tendency *autistic hostility*. More recently, Ross (1989) pointed out that when people experience the intense frustration and fear associated with emotional conflict, they often resort to various forms of escape, including mental paralysis, i.e., disengaging from interactions and typically appearing disinterested or extremely tired—and "escape in the *literal* sense. You walk away from a marital confrontation by going fishing; you resign from the church; you quit school" (p. 150). It is therefore reasonable to expect that when a group has high levels of affective conflict resulting from demographic diversity, its members will be more inclined to leave.

PROPOSITION 4.   *As affective conflict within a work group increases, individual and group turnover increases.*

The proposed link between affective conflict and turnover implies that, because their greater salience makes them more apt to promote affective conflict, high-visibility diversity variables should have stronger indirect effects on turnover than low-visibility variables. Research findings are generally consistent with this pattern. For example, Wiersema and Bird (1993) found that age and team tenure (i.e., group tenure) diversity (highly visible) were significantly related to turnover in top management teams, while organizational tenure diversity (a low-visibility variable) was not. Also, Jackson et al. (1991) found that the effect of age diversity had a stronger association with top management team turnover than educational and organizational tenure diversity.[9]

Several studies of group diversity and turnover have either looked exclusively at high-visibility attributes (O'Reilly et al. 1989) or low-visibility attributes (McCain et al. 1983), making it difficult to compare the effects of variables differing in visibility. Nevertheless, they provide support for the notion that all types of

demographic diversity (high- and low-visibility) can produce affective conflict leading to turnover. O'Reilly et al. (1989) found that two high-visibility diversity variables, age and group tenure heterogeneity, were associated with individual turnover in work groups, and McCain et al. (1983) found that a low-visibility variable, organizational tenure diversity, predicted turnover in university departments. (Organizational tenure and group tenure may be somewhat confounded in their study, for in universities, those who join a department (group) for the first time are typically also those joining the organization for the first time.) Additional studies of both high- and low-visibility attributes are required to be certain that attributes that are less visible will have weaker indirect effects on turnover because of their weaker relationshp with affective conflict.

Indirect Effects of Diversity: The Conflict-Performance Link

Most studies of work group diversity and performance have focused on cognitive task performance—that is, outcomes of groups' efforts to generate plans or creative ideas, solve problems, or make decisions. While studies have consistently found that the effect of work group diversity on turnover, when significant, has been positive, the effects of diversity on cognitive task performance have been mixed. The two-dimensional conceptualization of conflict is useful in explaining this mixture of performance effects.

Substantive conflict generated by diversity is apt to increase cognitive task performance. Churchman (1971) has suggested that in unique, unclear decision situations, unconflicted decision making may be inferior to dialectical inquiry, an approach to problems that fosters debate over opposing positions. Along the same lines, Janis (1982) has argued that when group members fail to criticize each other's ideas because they are too concerned about maintaining unanimity, they may overlook important details. He has identified several decision fiascoes (e.g., the Bay of Pigs disaster) that resulted from such suppressed controversy, or "groupthink."

Substantive conflict allows group members to test their ideas by exposing them to criticism. Exploration of opposing positions can help them gather new data, delve into issues more deeply, and develop a more complete understanding of problems and alternative solutions (Tjosvold 1985).

Several early social psychological studies support this logic. In a laboratory setting, Hoffman and Maier (1961)

found that groups with conflicting opinions produced better solutions to standardized sets of problems. Similarly, in a field setting, Torrance (1957) found that aircraft crews were more effective when they had more disagreements. More recently, Nemeth (1986) conducted a series of experiments that showed that groups containing members with different viewpoints and approaches to a task were more creative than groups whose members shared the same viewpoint.

An organizational strategy study mentioned earlier (Eisenhardt and Bourgeois 1994) further advances the notion that substantive conflict improves performance on cognitive tasks; top management teams in high-performing firms had high task conflict without interpersonal animosity, while those teams in the low-performing firms either lacked conflict altogether or were characterized by "interpersonal dislike and politicking" (p. 32). Thus,

PROPOSITION 5.   *As substantive conflict within a work group increases, the group's performance on cognitive tasks improves.*

A Moderator of the Conflict-Performance Link

Affective conflict generated by diversity may impair performance through a negative interaction with substantive conflict. Specifically, affective conflict may reduce the ability of substantive conflict to benefit the group. First, according to Zajonc (1965) and Staw et al. (1981), people who experience threat and anxiety (emotions that characterize affective conflict) have difficulty processing new or complex information. Such restricted information processing could reduce the ability of group members to understand the information that they share and to weigh each other's opinions carefully. Second, the hostility that characterizes affective conflict may make individuals in the group more resistant to the task-related ideas expressed by other group members. A third reason for a negative interaction effect is that affective conflict may consume much of group members' time and energy; consequently, there may be less opportunity for the group to resolve its substantive conflicts. Thus,

PROPOSITION 6.   *As affective conflict within a work group increases, the positive relationship between the group's substantive conflict and cognitive task performance weakens.*

If substantive conflict improves performance on cognitive tasks while affective conflict reduces performance through a negative interaction effect, then

diversity variables that are high in job-relatedness and low in visibility (i.e., strong predictors of substantive conflict and weak predictors of affective conflict) should be associated with enhanced performance on such tasks. Typically, studies have shown these associations. In an early study reflecting the effect of heterogeneity with respect to educational specialization, Pelz (1956) found that scientists and engineers were more productive when they had daily contact with colleagues whose training was dissimilar to their own. A later study of 100 Fortune 500 manufacturing firms (Wiersema and Bantel 1992) found that educational specialization heterogeneity predicted the ability of organizations to respond to opportunities or pressures for change.

Functional background diversity, too, has had a positive effect on cognitive task performance. Using questionnaire data to assess the effect of top management team composition on the innovativeness of 199 banks, Bantel and Jackson (1989) found that functional diversity predicted firm innovation. Similarly, when examining the effect of founding team characteristics on the financial performance of 36 new ventures, Roure and Keeley (1989) found that team completeness (a measure of variation in founders' functional backgrounds) was positively related to performance.

Although there is a lack of evidence regarding educational *level* diversity, the notion that it enhances cognitive task performance is advanced by the study of Laughlin et al. (1969) of ability level diversity.[10] When the researchers formed groups containing different combinations of high (H), medium (M), and low (L) intelligence individuals and told the members of each group to work together to complete a portion of a reasoning exercise, they found that the average score of HML groups was significantly greater than the average score of HHH, MMM, and LLL groups. While intelligence and educational level are not identical, both variables indicate a certain level of skill and knowledge; moreover, evidence has shown that they are highly correlated (Duncan 1968, Miller 1970).

Thus, studies have generally revealed that diversity that is low in observability and high in job-relatedness has favorable effects on cognitive task performance. An exception is the Ancona and Caldwell (1991) study described earlier, which found that organizational tenure and functional background diversity had favorable indirect effects on cognitive task performance (via external communication and internal task process) and unfavorable direct effects on cognitive task performance. Their finding, however, may not be inconsistent with the proposed model. It is conceivable that substantive conflict, which may be strongly related to

external communication and internal task process, was the true force behind the favorable performance consequences, and—through its negative interaction effect—affective conflict from tenure and functional background diversity may account for the unfavorable performance consequences.

Consistent with the notion that the interaction of affective and substantive conflict diminishes group performance on cognitive tasks, variables that are highly visible and low in job-relatedness—i.e., strong predictors of affective conflict and weak predictors of substantive conflict—have been associated with impaired cognitive task performance. (The implication is that a highly visible, less job-related variable produces an amount of affective conflict that—through a negative interaction effect with substantive conflict—overshadows the beneficial, main effect of the minimal substantive conflict produced by the variable.) An early lab study by South (1927) found that groups of one sex were more efficient and accurate at solving multiple choice problems, completing puzzles related to the game of bridge, and grading English compositions than groups of both sexes. Also supporting the idea that gender diversity impairs cognitive task performance is a lab study by Kent and McGrath (1969), which reported that sexually homogeneous groups generated more original products than sexually heterogeneous groups in an intellectual task. Similarly, Murnighan and Conlon's (1991) field study of British string quartets found that those quartets whose members were the same sex were more successful than mixed-sex quartets; age homogeneity, too, was associated with greater quartet success. Only Hoffman and Maier (1961) reported that a highly visible diversity type (gender diversity) *enhanced* group performance on cognitive (problem-solving) tasks, but, as Shaw (1981, p. 245) pointed out, "this study was concerned primarily with homogeneity-heterogeneity of personality, and it was not always clear which effects were due to that variable and which to sex composition. The fact that no all-female groups were included also clouds the interpretation of these findings... ."

Like sex and age differences, race differences have been linked to poor group performance on cognitive tasks. In a lab study of groups that were either all white, 25 percent black, 50 percent black, 75 percent black, or all black, Ruhe and Allen (1977) found that racially homogeneous groups completed a problem-solving task (finding the shortest route of travel) more quickly than racially heterogeneous groups. Also, Watson et al. (1993) found that groups with members from the same nationality and ethnic background performed less effectively on complex problem-solving tasks (case analyses) than groups that had members from two or more nationalities and three or more ethnic backgrounds. (Over time, however, there was no difference in the performance of the two types of groups—a finding that may be explained by the group longevity effect described earlier.) Thus, consistent with Proposition 6, studies assessing the performance consequences of gender, age, and race diversity—diversity variables that, due to high visibility and low job-relatedness, are apt to be strong predictors of affective conflict and weak predictors of substantive conflict—have generally found unfavorable effects on cognitive task performance.

Discussion

Several years ago, Levine and Moreland (1990, p. 594) noted that "research on the effects of group composition is often atheoretical." Recently, researchers have made greater efforts to explain the effects of diversity, but they typically have adopted what Lawrence (1994, p. 30) has referred to as "convenience explanations," theories accounting for the specific findings of a study (e.g., diversity leading to turnover) rather than a broader set of findings. The proposed model in Figures 1 and 2 improves on previous theories by accounting for both turnover and the mixture of cognitive task performance outcomes that have been linked to demographic diversity in work groups. Also, by elaborating on the intervening role of conflict, the model improves on previous diversity literature that has only briefly mentioned that conflict may be an intervening variable without developing the idea or considering two dimensions of conflict. Finally, rather than taking an extreme approach to the concept of demographic diversity, either ignoring the different properties of various types of diversity or ignoring the similarities among the various types, the model takes a middle-ground approach, identifying both similarities and differences via a classification system that distinguishes those types of diversity with one set of properties in common from those types with another set of properties in common.

Several issues related to the model warrant further discussion. The first is the question of how diversity across multiple dimensions influences conflict in a group. A limitation of most diversity studies is that they consider only one or two types of diversity simultaneously rather than a larger set; they do not deal with the combined effects of diversity across multiple dimensions. There are several possible ways for diversity variables to act in combination. The most straightfor-

ward possibility is that those variables at the highest levels will have the strongest effect on the nature of conflict in the group. For example, if a group has a high degree of gender diversity and minimal functional background diversity, then gender diversity will have a stronger influence, making the conflict predominantly affective. Ultimately, then, whether the conflict is more affective or more substantive will depend on the full set of diversity variables and whether those present in the greatest amounts are highly visible or highly job-related. It is also possible, however, that when a group has high levels of diversity along many dimensions, the tendency for categorization based on demographic attributes and, consequently, the tendency for affective conflict, decreases; that is, there is such a mix of races, ages, and other attributes that differences are less salient. Clearly, this is a complex issue that calls for greater attention in future research.

A second issue is the set of boundary conditions that affect the generalizability of the proposed model. One such condition is the task of the group. Proposition 5, which suggests that substantive conflict enhances performance on cognitive tasks, may not necessarily generalize to behavioral tasks. When a group is engaged in behavioral tasks, in which speed and precision tend to be more desirable outcomes than, say, creativity, substantive conflicts may be detrimental, consuming time unnecessarily. If substantive conflict reduces performance on behavioral tasks, then those diversity variables with a strong tendency to induce substantive conflict (i.e., variables high in job-relatedness) should be associated with poor performance on such tasks. Consistent with this idea is Tziner's (1985) finding that when military crews performed psychomotor tasks requiring synchronization of members' activities, those crews whose members were uniformly high in ability (indicated by educational level, intelligence, and language fluency) outperformed crews with a mixture of abilities. Additional studies are needed to confirm that task type affects the generalizability of the model in the manner suggested here.

A related boundary condition that may affect generalizability is the organizational level of the group—specifically, whether the group is at the top management team level or at a lower level. The model may be more applicable to top management teams because such teams generally face cognitive tasks such as strategic decision making, while lower-level work groups may face either cognitive or behavioral tasks.

Finally, contextual factors may influence the generalizability of the model. One such factor, group longevity, is explicitly incorporated in the model. Incorporating

the complete list of variables that constitute the social context of groups (see reviews by Gladstein 1984 and Mowday and Sutton 1993) would sacrifice the parsimony of the model. Still, it may be worthwhile to consider the impact of several additional conditions that may affect generalizability. Tjosvold (1984, 1985) and other scholars (Maier 1970, Mann and Janis 1983) have identified several key factors that may influence the extent to which substantive conflict occurs in groups, including whether there is a group leader that creates openness norms rather than pressuring subordinates to conform and whether there is sufficient time for group members to consider task issues carefully and develop a thorough understanding of each other's ideas. One condition that may influence the extent to which *affective* conflict occurs is the existence of training programs, which can make group members more aware of the tendency for stereotyping and hostility. Training programs may also enhance the impact of substantive conflict on cognitive task performance. Specifically, groups that are not taught to manage controversies constructively—e.g., through collaboration (seeking maximum satisfaction of both parties' concerns) rather than forcing (one party imposing a solution on another)—may not realize benefits of that controversy to the same degree as groups that are trained in conflict management (Chan 1989, Tjosvold 1985).

Thus, certain conditions in the setting of a group may determine the extent to which relationships in the proposed model hold true. These conditions should be considered in empirical tests of the model.

Endnotes

[1]Although some authors (e.g., Robbins 1993) consider two people a group, this paper reviews studies of groups having at least three members, for Levine and Moreland (1990) have suggested that dyads have very different dynamics. This approach differs from that of some authors—e.g., Shaw (1981) and Wood (1987)—who have attempted to draw conclusions about the different effects of heterogeneity and homogeneity by reviewing studies of dyads as well as larger units.

[2]Typically, when researchers (e.g., Jackson et al. 1991, McCain et al. 1983, Wagner et al. 1984) have measured the effects of heterogeneity on turnover, they have focused on turnover at the group level. Only O'Reilly et al. (1989) examined the impact of group heterogeneity on individual turnover. They concluded (p. 33), "The results presented here confirm the potential importance of group processes in affect-

ing individual decisions to stay or leave an organization." Thus, based on their argument that individual turnover may not only be determined by individual attributes, but also by features of the social context, the present paper suggests that group diversity indirectly affects both individual-level and group-level turnover.

[3] In his taxonomy of tasks for which performance can be measured, McGrath (1984) described *generation tasks* as those that involve generating plans or creative ideas, *choice tasks* as those that involve solving problems or making decisions, and *execution tasks* as those that require physical manipulations, motor behaviors, and complex psychomotor activities. In this paper I collapse these three task types into two: cognitive (i.e., generation and choice tasks) and behavioral (i.e., execution tasks), following Jackson's (1992, p. 150) distinction between tasks that "emphasize thinking" and tasks that "emphasize doing." While the primary performance measures for cognitive tasks tend to be quality, practicality, originality, and/or correctness, the key performance criteria for behavioral tasks tend to be speed and precision.

[4] This paper (as Ancona and Caldwell's, 1992) treats the terms social integration and cohesiveness as interchangeable since there is no clear difference in their definitions and since research on cohesiveness is generally used to support the theory of social integration as an intervening variable.

[5] Since the focus of the proposed model is cognitive, rather than behavioral, task performance, job-relatedness refers to a demographic variable's relevance to jobs involving cognitive tasks. While education, functional background, and tenure may directly shape perspectives and skills related to cognitive tasks, they may have little to do with tasks involving physical manipulations, motor behaviors, and psychomotor activities.

[6] I have defined conflict in terms of perceptions because the degree to which members *experience* disagreement among task issues determines the extent to which they engage in efforts to express their views and understand others' views—i.e., exchange task-related information that enhances cognitive task performance. As Pinkley and Northcraft (1994, p. 194) note in their discussion of cognitive frames (ways of perceiving/experiencing conflict), "...conflict frames... guide, perhaps at a subconscious level, individuals' information search, processing, and evaluation." Likewise, it is the degree to which members experience interpersonal clashes that determines their levels of anger, distrust, fear, and other emotions that distract them from the task at hand and increase their desire to withdraw from the group. Perhaps the simplest, yet the most powerful, argument for defining conflict in terms of perceptions is that of Russell and Black (1972, p. 33), who stated, "We cannot know any more about objective reality than that which we allow ourselves to know."

[7] This early study by Dearborn and Simon continues to be cited in management literature as evidence of selective perception. It should be noted, however, that Walsh (1988), obtained few significant results in his recent effort to replicate and extend Dearborn and Simon's work. He found only marginal support for the hypothesis that in ill-structured decision situations, managers identify problems from the same functional domain as the content of their belief structures.

[8] Katz (1982) defined group longevity as the average amount of time group members have belonged to the group (i.e., average group

tenure). Zenger and Lawrence (1989) have pointed out, however, that, defined as this average, the term group longevity can be misleading. For example, a group could have a moderate longevity because some of its members have belonged to the group for a very long time while the others have belonged for a very short time; the group could also, however, have a moderate longevity because all of its members have belonged to the group for the same period of time —a period that is neither long nor short. Compared to the former case, average group tenure in the latter case would be far more representative of the length of time group members have worked together. When designing empirical tests of the model in this paper, therefore, researchers should carefully consider this problem with the use of average group tenure as a measure of group longevity.

[9] Although Wagner et al. (1984) found that organizational tenure, not age, heterogeneity predicted top management team turnover, their study measured fewer diversity attributes than the Jackson et al. (1991) and Wiersema and Bird (1993) studies; thus, its results are more apt to be confounded by unmeasured variables.

[10] Numerous other studies (see Slavin (1987) for a review) have investigated the impact of heterogeneous ability level grouping on *individual* performance in classroom settings, but these do not provide information about the impact of educational/ability level diversity on *group* performance.

References

Alagna, S. W., D. M. Reddy, and D. Collins (1982), "Perceptions of Functioning in Mixed-sex and Male Medical Training Groups," *Journal of Medical Education*, 57, 801–803.

Allport, G. W. (1954), *The Nature of Prejudice*, Reading, MA: Addison-Wesley.

Ancona, D. G. (1990), "Outward Bound: Strategies for Team Survival in an Organization," *Academy of Management Journal*, 33, 334–365.

——— and D. F. Caldwell (1992), "Demography and Design: Predictors of New Product Team Performance," *Organization Science*, 3, 321–341.

Bacharach, S. B. (1989), "Organizational Theories: Some Criteria for Evaluation," *Academy of Management Review*, 14, 496–515.

Bantel, K. A. and S. E. Jackson (1989), "Top Management and Innovations in Banking: Does the Composition of the Top Team Make a Difference?", *Strategic Management Journal*, 10, 107–124.

Brewer, M. B. (1979), "In-group Bias in the Minimal Intergroup Situation: A Cognitive-motivational Analysis," *Psychological Bulletin*, 86, 307–324.

——— and R. M. Kramer (1985), "The Psychology of Intergroup Attitudes and Behavior," *Annual Review of Psychology*, 36, 219–243.

Brightman, H. J. (1988), "Better Decision Making for Better Business," *Business*, 38, 2, 28–34.

Butler, A. G. (1973), "Project Management: A Study in Organizational Conflict," *Academy of Management Journal*, 16, 84–101.

Chan, M. (1989), "Intergroup Conflict and Conflict Management in the R & D Divisions of Four Aerospace Companies," *IEEE Transactions on Engineering Management*, 36, 95–104.

Churchman, C. (1971), *The Design of Inquiring Systems*, New York: Basic Books.

Clement, D. E. and J. J. Schiereck, Jr. (1973), "Sex Composition and Group Performance in a Visual Signal Detection Task," *Memory and Cognition* 1, 251–255.

Cohen, C. E. (1981), "Goals and Schemata in Person Perception: Making Sense from the Stream of Behavior," in N. Cantor and J. D. Kihlstrom (Eds.), *Personality, Cognition, and Social Interaction*, Hillsdale, NJ: Lawrence Erlbaum Associates, 45–68.

Coser, L. (1956), *The Functions of Social Conflict*, Glencoe, IL: Free Press.

Dean, J. W. and S. A. Snell (1991), "Integrated Manufacturing and Job Design," *Academy of Management Journal*, 34, 4, 776–804.

Dearborn, D. C. and H. A. Simon (1958), "Selective Perception: A Note on the Department Identifications of Executives," *Sociometry*, June, 140–144.

Dougherty, D. (1992), "Interpretive Barriers to Successful Product Innovation in Large Firms," *Organization Science*, 3, 179–202.

Duncan, O. D. (1968), "Ability and Achievement," *Eugenics Quarterly*, 15, 1–11.

Eisenhardt, K. M. and L. J. Bourgeois III (1994), "Conflict and Strategic Choice in High-Velocity Environments," Working Paper, Stanford University, Stanford, CA (this paper is available from the author upon request).

Fiske, S. T. and S. E. Taylor (1991), *Social Cognition*, New York: McGraw-Hill, Inc.

Frost, R. (1915), "Mending Wall," *North of Boston*, New York: Henry Holt & Co.

Giffin, K. and B. Patton (1971), *Fundamentals of Interpersonal Communication*, New York: Harper & Row.

Gladstein, D. L. (1984), "Groups in Context: A Model of Task Group Effectiveness," *Administrative Science Quarterly*, 29, 499–517.

Guetzkow, H. and J. Gyr (1954), "An Analysis of Conflict in Decision-making Groups," *Human Relations*, 7, 367–381.

Haiman, F. S. (1951), *Group Leadership and Democratic Action*, Boston, MA: Houghton Mifflin.

Hambrick, D. C. and P. A. Mason (1984), "Upper Echelons: the Organization as a Reflection of its Top Managers," *Academy of Management Review*, 9, 193–206.

Hoffman, L. R. and N. R. F. Maier (1961), "Quality and Acceptance of Problem Solutions by Members of Homogeneous and Heterogeneous Groups," *Journal of Abnormal and Social Psychology*, 62, 401–407.

Hughes, E. C. (1944), "Dilemmas and Contradictions of Status," *American Journal of Sociology*, 50, 353–359.

Izraeli, D. N. (1983), "Sex Effects or Structural Effects? An Empirical Test of Kanter's Theory of Proportions," *Social Forces*, 62, 153–165.

Jackson, S. E. (1992), "Team Composition in Organizational Setting: Issues in Managing an Increasingly Diverse Workforce," in S. Worchel, W. Wood, and J. A. Simpson (Eds.), *Group Process and Productivity*, Newbury Park, CA: Sage.

____, J. F. Brett, V. I. Sessa, D. M. Cooper, J. A. Julin, and K. Peyronnin (1991), "Some Differences Make a Difference: Individual Dissimilarity and Group Heterogeneity as Correlates of Recruitment, Promotions, and Turnover," *Journal of Applied Psychology*, 76, 675–689.

____, V. K. Stone, and E. B. Alvarez (1993), "Socialization Amidst Diversity: The Impact of Demographics on Work Team Oldtimers and Newcomers," in L. L. Cummings and B. M. Staw (Eds.), *Research in Organizational Behavior*, Vol. 15, JAI Press, Greenwich, CT: 45–109.

Janis, I. L. (1982), *Victims of Groupthink*, Boston, MA: Houghton Mifflin.

Jehn, K. A. (1994), "Enhancing Effectiveness: An Investigation of Advantages and Disadvantages of Value-based Intragroup Conflict," *The International Journal of Conflict Management*, 5, 223–238.

Kanter, R. M. (1977), *Men and Women of the Corporation*, New York: Basic Books.

Katz, D. and R. L. Kahn (1978), *The Social Psychology of Organizations*, New York: Wiley.

Katz, R. (1982), "The Effects of Group Longevity on Project Communication and Performance," *Administrative Science Quarterly*, 27, 81–104.

Kent, R. N. and J. E. McGrath (1969), "Task and Group Characteristics as Factors Influencing Group Performance," *Journal of Experimental Social Psychology*, 5, 429–440.

Kramer, R. M. (1989), "The More the Merrier? Social Psychological Aspects of Multi-party Negotiations in Organizations," in R. Lewicki, M. Bazerman, and B. Sheppard (Eds.), *Research on Negotiations in Organizations*, vol. 4, Greenwich, CT: JAI Press.

____ (1990), "Intergroup Relations and Organizational Dilemmas: The Role of Categorization Processes," in L. L. Cummings and B. M. Staw (Eds.), *Research in Organizational Behavior*, Vol. 13, Greenwich, CT: JAI Press.

Laughlin, P. R., L. G. Branch, and H. H. Johnson (1969), "Individual versus Triadic Performance on a Unidimensional Complementary Task as a Function of Initial Ability Level," *Journal of Personality and Social Psychology*, 12, 144–150.

Lawrence, B. S. (1994), "The Black Box of Organizational Demography," Working Paper, Graduate School of Management, University of California, Los Angeles, CA (paper available from author upon request).

Levine, J. M. and R. L. Moreland (1990), "Progress in Small Group Research," *Annual Review of Psychology*, 41, 585–634.

Loden, M. and J. B. Rosener (1991), *Workforce America! Managing Employee Diversity as a Vital Resource*, Homewood, IL: Business One Irwin.

Maier, N. R. F. (1970), *Problem-solving and Creativity in Individuals and Groups*, Belmont, CA: Brooks/Cole.

Mann, L. and I. Janis (1983), "Decisional Conflict in Organizations," in D. Tjosvold and D. W. Johnson (Eds.), *Productive Conflict Management: Perspectives for Organizations*, New York: Irvington Publishers, 19–40.

McCain, B. E., C. A. O'Reilly III, and J. Pfeffer (1983), "The Effects of Departmental Demography on Turnover: The Case of a University," *Academy of Management Journal*, 26, 626–641.

McGrath, J. E. (1984), *Groups: Interaction and Performance*, Englewood Cliffs, NJ: Prentice Hall.

Messick, D. M. and D. M. Mackie (1989), "Intergroup Relations," *Annual Review of Psychology*, 40, 45–81.

Miller, G. W. (1970), "Factors in School Achievement and Social Class," *Journal of Educational Psychology*, 61, 260–269.

Mondy, R. W., A. Sharplin, R. E. Holmes, and E. B. Flippo (1986), *Management: Concepts and Practices*, Boston, MA: Allyn and Bacon.

Morrow, P. C. (1981), "Work Related Communication, Environmental Uncertainty, and Subunit Effectiveness: A Second Look at the Information Processing Approach to Subunit Communication," *Academy of Management Journal*, 24, 851–858.

Mowday, R. T. and R. I. Sutton (1993), "Organizational Behavior: Linking Individuals and Groups to Organizational Contexts," *Annual Review of Psychology*, 44, 195–229.

Murnighan, J. K. and D. E. Conlon (1991), "The Dynamics of Intense Work Groups: A Study of British String Quartets," *Administrative Science Quarterly*, 36, 165–186.

Murray, A. I. (1989), "Top Management Group Heterogeneity and Firm Performance," *Strategic Management Journal*, 10, 125–141.

Nemeth, C. J. (1986), "Differential Contributions of Majority and Minority Influence," *Psychology Review*, 93, 23–32.

Newcomb, T. M. (1947), "Autistic Hostility and Social Reality," *Human Relations*, 1, 69–86.

Offerman, L. R. and M. K. Gowing (1990), "Organization of the Future: Change and Challenges," *American Psychologist*, 45, 95–108.

O'Reilly III, C. A. and D. F. Caldwell (1985), "The Impact of Normative Social Influence and Cohesiveness on Task Perceptions and Attitudes: A Social-information Processing Approach," *Journal of Occupational Psychology*, 58, 193–206.

____, ____, and W. P. Barnett (1989), "Work Group Demography, Social Integration, and Turnover," *Administrative Science Quarterly*, 34, 21–37.

Pace, R. C. (1990), "Personalized and Depersonalized Conflict in Small Group Discussions: An Examination of Differentiation," *Small Group Research*, 21, 79–96.

Parker, G. M. (1994), *Working with Allies, Enemies, and Other Strangers*, San Francisco, CA: Jossey-Bass.

Pelled, L. H. (1993), *Work Group Diversity and its Consequences: The Role of Substantive and Affective Conflict*, Doctoral Dissertation, Stanford University, Stanford, CA.

____ and P. S. Adler (1994), "Antecedents of Intergroup Conflict in Multifunctional Product Development Teams: A Conceptual Model," *IEEE Transactions on Engineering Management*, 41, 21–28.

Pelz, D. C. (1956), "Some Social Factors Related to Performance in a Research Organization," *Administrative Science Quarterly*, 1, 310–325.

Pettigrew, T. F. (1986), "The Intergroup Contact Hypothesis Reconsidered," in M. Hewstone and R. Brown (Eds.), *Contact and Conflict in Intergroup Encounters*, Oxford/New York: Basil Blackwell, 169–195.

Pinkley, R. L. and G. B. Northcraft (1994), "Conflict Frames of Reference: Implications for Dispute Processes and Outcomes," *Academy of Management Journal*, 37, 193–205.

Robbins, S. P. (1993), *Organizational Behavior*, Englewood Cliffs, NJ: Prentice Hall.

Ross, R. S. (1989), *Small Groups in Organizational Settings*, Englewood Cliffs, NJ: Prentice Hall.

Roure, J. B. and R. H. Keeley (1990), "Predictors of Success in New Technology Based Ventures," *Journal of Business Venturing*, 5, 201–220.

Ruhe, J. A. and W. R. Allen (1977), "Differences and Similarities Between Black and White Leaders," *Proceedings of the American Institute of Decision Sciences, Northeast Division*, 30–35.

Russell, G. H. and K. Black, Jr. (1972), *Human Behavior in Business*, New York: Appleton-Century-Crofts.

Schermerhorn, Jr., J. R., J. G. Hunt, and R. N. Osborn (1991), *Managing Organizational Behavior*, New York: John Wiley & Sons.

Secord, P. F. and C. W. Backman (1974), *Social Psychology*, 2nd ed., New York: McGraw-Hill.

Shaw, M. E. (1981), *Group Dynamics: The Psychology of Small Group Behavior*, New York: McGraw-Hill.

Slavin, R. E. (1979), "Effects of Biracial Learning Teams on Cross-racial Friendships," *Journal of Educational Psychology*, 71, 382–387.

____ (1987), "Ability Grouping and Student Achievement in Elementary Schools: A Best-evidence Synthesis," *Review of Educational Research*, 57, 293–336.

Solomon, C. M. (1992), "Keeping Hate Out of the Workplace," *Personnel Journal*, July, 30–36.

South, E. B. (1927), "Some Psychological Aspects of Committee Work," *Journal of Applied Psychology*, 11, 437–464.

Staw, B. M., L. E. Sandelands, and J. E. Dutton (1981), "Threat-rigidity Effects in Organizational Behavior: A Multilevel Analysis," *Administrative Science Quarterly*, 26, 501–524.

Stephan, W. G. (1985), in *Handbook of Social Psychology*, 3rd ed., New York: Random House.

____ and D. Rosenfield (1978), "Effects of Desegregation on Racial Attitudes," *Journal of Personality and Social Psychology*, 36, 795–804.

____ and C. W. Stephan (1988), "Intergroup Anxiety," *Journal of Social Issues*, 41, 157–175.

Strauss, G. (1964), "Work-flow Frictions, Interfunctional Rivalry, and Professionalism: A Case Study of Purchasing Agents," *Human Organization*, 137–149.

Tajfel, H. (1982), "Social Psychology of Intergroup Relations," *Annual Review of Psychology*, 33, 1–39.

Taylor, S. E. and S. T. Fiske (1976), "The Token in the Small Group: Research Findings and Theoretical Implications," in J. Sweeney (Ed.), *Psychology and Politics: Collected Papers*, New Haven, CT: Yale University Press.

____, ____, N. L. Etcoff, and A. J. Ruderman (1978), "Categorical and Contextual Bases of Person Memory and Stereotyping," *Journal of Personality and Social Psychology*, 36, 778–793.

Tjosvold, D. (1984), "Effects of Crisis Orientation on Managers' Approach to Controversy in Decision-making," *Academy of Management Journal*, 27, 130–138.

____ (1985), "Implications of Controversy Research for Management," *Journal of Management*, 11, 21–37.

Torrance, E. P. (1957), "Group Decision-making and Disagreement," *Social Forces*, 35, 314–318.

Tsui, A. S., T. Egan, and C. A. O'Reilly III (1992), "Being Different: Relational Demography and Organizational Attachment," *Administrative Science Quarterly*, 37, 549–579.

____ and C. A. O'Reilly III (1989), "Beyond Simple Demographic Effects: The Importance of Relational Demography in Superior-Subordinate Dyads," *Academy of Management Journal*, 32, 402–423.

Turner, J. C. (1982), "Toward a Cognitive Definition of the Group," in H. Tajfel (Ed.), *Social Identity and Intergroup Relations*, Cambridge, England: Cambridge University Press.

Tziner, A. (1985), "How Team Composition Affects Task Performance: Some Theoretical Insights," *Psychological Reports*, 57, 1111–1119.

Wagner, W. G., J. Pfeffer, and C. A. O'Reilly III (1984), "Organizational Demography and Turnover in Top Management Groups," *Administrative Science Quarterly*, 29, 74–92.

Wall, V. D. and L. L. Nolan (1986), "Perceptions of Inequity, Satisfaction, and Conflict in Task-oriented Groups," *Human Relations*, 39, 1033–1052.

Walsh, J. P. (1988), "Selectivity and Selective Perception: An Investigation of Managers' Belief Structures and Information Processing," *Academy of Management Journal*, 31, 873–896.

Walton, R. E. and J. M. Dutton (1969), "The Management of Interdepartmental Conflict: A Model and Review," *Administrative Science Quarterly*, 14, 73–84.

Wanous, J. and M. Youtz (1986), "Solution Diversity and the Quality of Group Decisions," *Academy of Management Journal*, 29, 149–158.

Watson, D., L. A. Clark, and A. Tellegen (1984), "Cross-cultural Convergence in the Structure of Mood: A Japanese Replication and a Comparison with U.S. Findings," *Journal of Personality and Social Psychology*, 47, 127–144.

Watson, W. E., K. Kumar, and L. K. Michaelsen (1993), "Cultural Diversity's Impact on Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups," *Academy of Management Journal*, 36, 590–602.

Wiersema, M. F. and K. A. Bantel (1992), "Top Management Team Demography and Corporate Strategic Change," *Academy of Management Journal*, 35, 95–121.

____ and A. Bird (1993), "Organizational Demography in Japanese Firms: Group Heterogeneity, Individual Dissimilarity, and Top Management Team Turnover," *Academy of Management Journal*, 36, 996–1025.

Wolman, C. and H. Frank (1975), "The Solo Woman in a Professional Peer Group," *American Journal of Orthopsychiatry*, 45, 164–171.

Wood, W. (1987), "Meta-analytic Review of Sex Differences in Group Performance," *Psychological Bulletin*, 102, 53–71.

Zajonc, R. B. (1965), "Social Facilitation," *Science*, 149, 269–274.

Zenger, T. R. and B. R. Lawrence (1989), "Organizational Demography: The Differential Effects of Age and Tenure Distributions on Technical Communication," *Academy of Management Journal*, 32, 353–376.