DEMOGRAPHY AND DIVERSITY IN ORGANIZATIONS:
A REVIEW OF 40 YEARS OF RESEARCH

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ABSTRACT

It is now accepted wisdom that a major challenge facing managers in the next century will be an increasingly diverse workforce. But what conclusions can be drawn from the research on demography and diversity about meeting this challenge? Is there, as some researchers suggest, a "value in diversity", or, as suggested by others, does diversity make group functioning more difficult? The purpose of this paper is to provide a systematic review of the literature on organizational demography and diversity as it applies to work groups and organizations. We review over 80 studies to determine the effects of demography as it applies to management and organizations. Based on this review, we summarize what the empirical evidence tells us about the effects of diversity and suggest areas for further research.

References in Organizations: Behavior, Volume 20, pages 77-140.
Much research and popular writing on the management challenges of the next cen-
tury hinge on a recognition of the changing nature of work and the workplace (Johansen & Packer, 1987; Offeman & Gowing, 1990). While this observation is true, it is sometimes difficult to translate these macro-skills in job setting into the practical problems faced by participants in management. What are the issues that managers in the new environment will face and how do these compare to mana-
gers of the previous generation? To make these differences concrete, consider the task faced by the supervisor of a hypothetical marketing team in a continuous produc-
tion company in 1975 compared with the same task in 2005.

In 1975 the firm has just hired three new employees who will join a production marketing group to handle the growth of new business brought on by the baby boom. This department is headed by a manager, a 55-year-old white male with a college degree, who has been with the firm since joining the company after serving in the Navy in WW II. The current group has four members, all white males ranging in age from 25 to 35. All joined the company with the promise of a career within the firm. Three of the four have college degrees and two of them have served in the military. One of them has a reputation as a hard worker. The three new hires, two white males and one white female, have all served in the military. The new hires are all college graduates, but two of them have a college degree, while two have attended two-year colleges, which does have negative implications to a product marketing team to man-
de the growth of new business. This phenomena of the Mexican-American trend to the south. The new hire is the only one of these four who has been in the firm for two years after a successful trial at another firm. The current man-former team has four mem-
mbers, two women and two men. The two women are married, and the other two men divorce. A white male is married with two children and two other white males are married with two children, for a total of 12 high school students. One of them is 60 years old with a white male in sales and two-
business administration who served in the military during Vietnam. The other is 25 years old white male who is gay. Now of the team has been with the firm for more than five years.

Consider the very different challenges in successfully managing these two teams. In 1955 the manager dealt with what is comparatively a very homoge-
neous group with little variation in the composition in terms of sex, race, educa-
tion, values, and previous experience. To be effective at managing this varied group 50 years later, a manager must be able to accommodate large differences in background and attitudes. Yet, in both instances success of the group depends on its ability to function as a group and to meet its customer’s needs. The manager in 1975 faces a more difficult task than an equivalent 50 years earlier, although the nature of the work remains essentially the same.

This is the kind of demographic diversity that is critical to understood in Amer-
ican organizations in the next decade. Over the next decade, women and people of color are expected to fill 75 percent of the 30 million jobs created (Freeman & Drucker, 1996; Lodero & Bursuck, 1991). By the year 2000 the workforce is expected to have nearly equivalent numbers of men and women. In 1995, about 17 percent of new entrants into the workforce will be African Americans (Freeman, 1992). In addition, differences in values, such as...
much more ambiguity in the findings from the field. Reasons for this ambiguity will be discussed in the final section of this chapter.

Second, much of the literature that supports the claim that diversity is beneficial for organizations is often based on variations in individual attributes such as gender, ability, and functional backgrounds, and not on specific attributes such as ethnic

ity, age, or race. However, as noted by Albas and Haydnan (1987), Hoffman (1987), Lowry (1987), and others, Hall, & Ewen, 1989), and Zelezny (1954), with the changes in the demography of the workforce, understanding the effects of visible attributes is even more important than it used to be. Although there is evidence from laboratory research that diversity in ascriptive characteristics can be beneficial to groups (Cost, Lobel, & McEntier, 1991; Watson, Kramer, & Michaelson, 1993), this is based on only a few studies when considered against the large number of field studies suggesting that homogeneity in race and gender often have negative effects on group process and performance (e.g., Campbell, Zhou, & O'Fallon, 1993; Kittles, Pelled, & Cam-

pinneg, 1996; Rivkin & Short, 1997; Zander & Lawrence, 1989).

Based on a number of previous reviews of the diversity literature (Alba-den & Thomas, 1988; Davis-Baker, 1992; Geen & Dickson, 1996; Jackson, 1992; Jel-

son, Store, & Albemar, 1992; Knudsen & Chase, 1987; Miller & Martin, 1986; Phaenex, 1996; Sawatwinyhia, 1988; Triandis et al., 1994) as well as our own search, we reviewed over 80 studies of the effects of diversity on group process and performance. This is not intended to be an exhaustive review of all diversity and diversity research, but focuses on demographic diversity relevant for groups and organizations. Our intent is to state what we know and what we don't know about the effects of diversity in organizational settings. To do this, we first clarify what is meant by "diversity" and then define what we mean by "group perfor-
mance." We then consider the three primary theories underlying much of the research: organizational demography and diversity; social categorization, simi-
larity, and interaction; and informational diversity and decision making. Next we review the effects of the most common demographic variables used in the research (i.e., tenure, age, sex, race and ethnicity, and background). For each of these five demographic variables we examine the evidence for its impact on group process and performance. We conclude with the implications for future research and theory.

THE MEANING OF "DIVERSITY" AND "PERFORMANCE" IN ORGANIZATIONS

In a recent review of the literature on groups and teams in organizations, Guzzo and Dickson (1996, p. 331) concluded that, in spite of its recent popularity, there is little consensus on what constitutes "diversity" and how it affects group perfor-
mance. They suggest that "there is a need to develop theory and data on the ways in which similarity among members contributes to task performance (p. 331). For example, Jackson, Store, and Albemar (1993, p. 53) use diversity to refer to situations in which the actors of interest are not alike with respect to some attribute(s). They further differentiate between demographic and personal differences. The former being inestimable characteristics such as sex, race, or age, while the latter are subjectively conceived characteristics such as status, expertise, or style. Kinicki and Gerst (1997) focus on characteristics of group composition that are salient, have some social meaning, and affect predictable "outcomes from which decision-making researchers typically define diversity in terms of variants in expertise or information (Witzelmann & Simon, 1996), but not demo-
graphic or group affiliation. Organizational demography researchers have concentrated mainly on characteristics that are visible, such as sex, race, or age, and job-related attributes such as function, background, and tenure (e.g., Dabell & Jackson, 1982; Vogna, Pfeffer & O'Reilly, 1981; Winstead & Bird, 1993). While useful, these studies do not provide a common metric from which to judge the effects of diversity on groups. What is clear is that diversity is not a unitary concept (Phineev, 1996; Smith, Smith, O'Fallon, & Smith, 1996). Therefore, in order to understand the effects of diversity on group performance, it is important to know what the terms "diversity" and "group performance" mean.

Defining "Diversity"

For purposes of this review, we adopt a social psychological perspective on diversity and draw on social categorization theory (Tatum, 1987) to define it as "the status, process, and outcomes associated with perceiving and processing information about attributes that determine group membership. This approach echoes Allport (1954) who observed that individuals have a natural tendency to use categories to simplify the world of experience. Therefore, for purposes of this review, the effects of diversity can result from any attributes used to stigmatize others that are different. A specific situation and social context may make salient certain attributes whether or not they are relevant in the task situation. If salient, these distinctions, regardless of how task-relevant they are, may lead to in-group/out-group distinctions and potentially allow for group functioning (e.g., Eibler & Eibler, 1996; Mullen, 1983).

Two features of this broad definition are particularly useful for understanding the effects of diversity in organizations. First, any attribute or social category that is underrepresented in a group is likely to become salient as a possible basis for categorization (Kanter, 1977). For instance, being a Southerner in a group of Northerners or a post-retiring mathematician highlights differences that might otherwise go unnoticed. Second, as several studies have noted, certain demo-
graphic characteristics such as sex, age, and race are more visible and likely to be salient under most circumstances (e.g., Campbell, Zhou, & O'Fallon, 1996).
Pelled, (1996), Tosi, Egan, & O'Reilly, (1992). Previous research has shown that salient or visible characteristics are those most frequently used for social categorization (Rothbart & Jones, 1993, Stagner, Lynch, Duan, & Gias, 1992). Hence, although a large number of possible attributes can be used to differentiate individuals, those that are most salient or visible in a given situation are those that are most important markers of diversity. This definition is largely consistent with other researchers who have distinguished between types of diversity based upon how observable or readily detectable the attributes are and their relevance for performance (e.g., Cunningham, Zhou, & Ohlmam, 1995, Jackson, 1992; Pelled, 1997). Attributes that are readily detectable, such as race, age, and sex are more likely to be used for categorization than less salient attributes such as education, experience, or personality characteristics. However, some visible characteristics such as age, sex, and race are in the workplace, may be low in job-relatedness, while education and experience are high. From a social categorization viewpoint, any characteristic made salient in a given situation may be the basis for categorization (Tajfel, 1982). Once created, stereotypes, biases, and prejudices are likely to be based upon these differences, leading ultimately to poorer process and performance, in-depth sort of their job-relatedness (Hofstede, 1985).

With this definition in mind we have chosen to thoroughly review the following demographic characteristics: age, sex, ethnicity, organizational and group tenure, and education and functional background. Several other variables that have been studied in the research will be discussed briefly in a final part of the chapter. We believe that the five variables mentioned here have been the most thoroughly researched to date and are characteristics relevant for U.S. managers to understand given the changing demographics of the labor force.

Defining “Group Performance”

Second, drawing on Hackman (1987), we consider “work groups” to be composed of individuals who both see themselves and are seen by others as an interdependent social entity embedded in a larger organization whose performance affects others, such as suppliers or customers. Task interdependence among group members is a necessary condition. In Hackman's (1987) view, “group performance” is defined by three criteria: (1) the productive output of the group members exceeds the performance standard of the customer; (2) the social processes used in carrying out the work materials enhance the capability of the members to work together on subsequent team tasks; and (3) the group experience satisfies rather than frustrates the personal needs of the group members. This definition calls attention to the fact that when considering group performance one must consider not only group-produced outputs, but also the consequences the group has for its members, and the capacity of the group to perform in the future (Czarniawska, 1984).

THE THEORETICAL UNDERPINNINGS OF DIVERSITY RESEARCH

Researchers have used a number of theories to explore the effects of diversity on organizational process and performance. Different theories often lead researchers to offer plausible but contradictory predictions of the effects of diversity on groups and individuals. This section begins with a brief discussion of the three most common theoretical bases for investigating diversity: social categorization, similarity/attraction, and informational diversity and decision making. While not comprehensive, these theories, or their variants, are used in the majority of studies of organizational diversity and are important for interpreting the empirical evidence. Based on these three perspectives, we provide a model that summarizes and integrates the majority of research reviewed in the following section and highlights similarities and differences among the theoretical predictions offered.

Social Categorization

The theory most often used by diversity researchers asserts that variations in the demographic composition of work groups or teams affects group process in a conflict, cohesion, communication, and that this process, in turn, affects group performance. The majority of this research is predicated upon the logic of social categorization theory (Tajfel, 1981; Turner, 1987) and social identification theory (Hogg & Abrams, 1988; Turner, 1982). The basic elements of these theories are straightforward. First, individuals are motivated to have a desire to maintain a high level of self-esteem. This is often done through a process of social comparison with others. In making these comparisons, individuals must first define themselves. They do this through a process of self-categorization in which they classify...
themselves and others into social categories using salient characteristics such as age, race, organizational membership, status, or religion. This process permits a person to define himself or herself in terms of a social identity (Tajfel & Turner, 1986), either as an individual or as a member of a social category or a member of one group compared to members of other groups. Insofar as the self-categorization process permits the individual to assume a positive self-identity, he or she may seek to maximize intra-group or inter-group distinctions and to perceive others as less attractive (Kramer, 1991). Research has documented that categorizing people into groups, even on trivial criteria, can lead members to perceive out-group members as less trustworthy, honest, and cooperative than members of their own (arbitrary) group (Brewer, 1979; Tajfel, 1982). For example, Stephan (1985) has shown that once the categorization has occurred, positive behaviors of in-group members and negative behaviors of out-group members are attributed to stable, internal causes.

The process of self-categorization has been shown to be both fundamental and powerful. Messick and Massie (1989) noted that the process of self-categorization often relies on "primitive generic social categories such as race, gender, and age." "Otherness" is typically seen as a deficiency (Loden & Rosener, 1991). This process results in increased stereotyping, polarization, and anxiety. In heterogeneous groups these effects have been shown to lead to decreased satisfaction with the group, increased turnover, lowered levels of cohesiveness, reduced within-group communication, decreased cooperation, and higher levels of conflict (e.g., Crocker & Major, 1989; Martin & Shraarhan, 1983; Moreland, 1985; Stephan & Stephan, 1985; Triandis, Kurouski, & Gelfand, 1994).

Further, the effects of self-categorization have been shown, under some circumstances, to lead to self-fulfilling expectations; that is, individuals evoke in others behavior that matches their expectations (Klayman & Ha, 1988; Snyder, Tanke, & Berscheid, 1977). And Cooper (1974) showed how interviewers of African Americans conducted shorter interviews with more displays of negative nonverbal cues. Such signals are likely to evoke similar responses from the recipients, leading to what Zanna and Kieger (1983, p. 205) refer to as "the chaining of nonproductive behavior." Researchers in this tradition conclude that stereotyping and prejudice are largely inevitable stemming from the automatic categorization process associated with cognitions of differences (Hamilton, 1979; Tajfel, 1981).

An extension of the social categorization approach to understanding the impact of diversity on cognition and group process is proposed by Gaertner and his colleagues (e.g., Gaertner, Mann, & Dovidio, 1986; Gaertner, Mann, Murrell, & Pomare, 1990). They propose that under some circumstances social categorization may lead to what they refer to as "aversive racism." This refers to the compensatory actions taken when individuals, confronted with a situation which threatens to make negative or prejudiced attitudes salient, react by amplifying those positive behaviors in ways that reaffirm their egalitarian convictions. For example, in diverse groups this tendency may lead individuals to positively override any biased attitudes or behaviors, lest they and others see them as biased.

Although social categorization has been traditionally thought of as a theory of intergroup relations, the majority of empirical research on diversity and demography has proceeded by noting how individuals within groups may differ from one another, sometimes referred to as "relational" demography. In either case, diversity can promote the creation of in-groups/out-groups and other cognitive biases (e.g., Ely, 1994; Pelled, 1997; Riordan & Shore, 1997; Smith et al., 1994; Tsui, Egan, & O'Reilly, 1992). Results from these studies typically confirm the negative effects of diversity on group process and outcomes.

**Similarity/Attraction**

Another common theoretical foundation for studies of diversity rests on the similarity/attraction paradigm (e.g., Berscheid & Walster, 1978; Byrne, 1971). In his original paper on organizational demography, Pfeffer (1983) pointed out that it was the distribution of demographic differences in groups and organizations that could affect process and performance. Pfeffer called attention to the fact that the demographic composition of groups could result in variations in communication, cohesion, and integration. Underpinning this effect was the degree to which members perceived themselves to be similar or different from others in the group.

The findings from decades of research on similarity/attraction confirm the theory's basic predictions; that is, similarity on attributes ranging from attitudes and values to demographic variables increases interpersonal attraction and liking (e.g., Byrne, Clare, & Worchel, 1966). Individuals who are similar in background may share common life experiences and values, and may find the experience of interaction with each other easier, positively reinforcing, and more desirable. Similarity provides positive reinforcement for one's attitudes and beliefs, while dissimilarity is seen as a punishment. For instance, similarity/attraction theory has been embedded in the principle of homophily and the effects it may have on communication in groups (Rogers & Bhowmik, 1971). In a free choice situation, when an individual can interact with any of a number of people, there is a strong tendency for him or her to select a person that is similar (e.g., Burt & Reagans, 1997; Lincoln & Miller, 1979). Homophily has been observed in friendship and voluntary interactions (Blu, 1977; McPherson & Smith-Lovin, 1987), as well as in organizational settings (e.g., Brass, 1985; Barua, 1992; Mehra, Kilduff, & Brass, 1996). Several laboratory studies demonstrate that heterogeneity leads to decreased communication, message distortion, and more errors in communication (e.g., Bartlett & Harad, 1963; Triandis, 1960).

Some of the earliest organizational demography research was based on the notion that similarity/attraction would operate to make heterogeneous groups less...
effective. For instance, McCrae, O'Reilly, and Pfeffer (1983) used similarity attraction theory to hypothesize that members of academic departments who were significantly younger or older than the majority of their colleagues would be more likely to leave. Tisdale and O'Reilly (1985) invoked similarity attraction to explain the effect of demographic differences between superiors and subordinates on the quality of performance evaluations and friendship. An assumption in these studies is that a similar time of entry into the organization may be associated with increased homogeneity; that is, individuals who come to the organization at the same time have increased opportunities for interaction and shared experience (Pfeffer, 1985). This gives them more opportunity to discover similarities in background and values than individuals who enter the organization in different cohorts. In addition, people who have already been in the group or organization will have already developed extrinsic communication networks which may be difficult to penetrate for new members (Katz, 1960; Roberts & O'Reilly, 1979).

Numerous other studies of diversity in organizations have also invoked this theoretical framework (e.g., Flatt, 1996; Jackson, Brett, Senor, Cooper, Niles, & Peyton, 1991; Pfeffer & O'Reilly, 1987; Zenger & Lawrence, 1989). The similarity/attraction paradigm yields predictions that are consistent with social identity and social categorization theories. Jaccard, Stone, and Alwine (1990), for example, noted that social categorization and social identity offer a partial explanation for similarity-attraction theory in that reinforcement of one's attitudes and beliefs helps maintain a positive self-identity. The empirical findings from these studies suggest that organizational actors are sensitive to social identity differences and frequently organize around them. A higher likelihood of turnover from the group, especially among those who are most different (John, Northcraft, & Neale, 1997; O'Reilly, Snyder, & Boeke, 1991; Robinson & Shaver, 1997).

Information/Decision Making

Also implicated partly in the similarity/attraction framework is a third theoretical perspective on the effects of diversity on groups: how information and decision making can be affected by variations in group composition (e.g., Eisenstadt & Weisberg, 1995; Whittams & Sasser, 1994). For example, given that there is a propensity for individuals to communicate more with similar others, individuals in diverse groups may have greater access to informational networks outside their work group. This added information may enhance group performance even as the diversity has negative impacts on group process. Researchers have found some support for this proposition (Aronson & Caldwell, 1992; Zins, Northcraft, & Neale, 1997; Zenger & Lawrence, 1989). Similarly, the same tendency to seek similarity within a group can lead the group to fail to capture all information possessed by group members, either through the isolation of demographic and diversity in organizations.

members who are different or the emphasis on common knowledge (Fiske & Taylor, 1995).

Information and decision-making theories propose that variance in group composition can have a direct positive impact through the increases in skills, abilities, information, and knowledge that diversity brings. Independent of what happens in the group process (Tipton & Eden, 1983). Demographically diverse individuals are expected to have a broader range of knowledge and experience than homogeneous individuals. For example, the proponents of "dilemmas of leadership" argue that diversity promotes creativity in the workplace. To accommodate this, Lauter (1997) argues that new immigrants must have information that is different from the existing workforce, have information that is relevant and useful, and must be able to communicate this to others. From this perspective, diversity is valuable when it adds new information. Clearly, this positive impact of diversity can be expected when the task context brings multiple perspectives and diverse knowl-
edge, such as innovations, complex problems, or product design. Research is largely agreed that functional or background diversity provides the range of knowl-
edge, skills, and contacts that enhance problem solving (e.g., Aronson & Caldwell, 1992; Bartel & Jackson, 1989; Pedel, Eisenhardt, & Xin, 1997). "Members who have entered the organization at different times know a different set of people and often have both different technical skills and different perspectives on the organization's history" (Aronson & Caldwell, 1992, p.325).

Little information and decision-making research has been conducted exploring the effects of visible demographic characteristics on group decision making. A few laboratory studies have suggested that sex and ethnic or nationality differences may have positive effects on group process (cooperation) by expanding the number of alternatives considered and the perspectives taken (Ree & McGhee, 1969; Kirchmayer & Cohn, 1992; McCleod & Lobel, 1992; Watson, Kumar, & McManus, 1993). For instance, Cox, Lobel, and McLeod (1991, p. 118) reported that "differences in cultural norms and values among ethnic groups in the United States will manifest themselves in different work-related behaviors... Asians, Hispanics, and Blacks have roots in various "subcultural" traditions, whereas Anglos have roots in the Euro-American tradition. They argue that these differences may be related to cooperative behavior, with minority individuals and ethnoculturally diverse groups manifesting more cooperative behavior that Anglos or homogenous white groups of Anglos. These studies, although provocative, are few in number and not strongly supported by studies on organizational work groups.

An Integrated Model

Figure 1 provides an overall perspective showing how these three theoretical perspectives (link variables in the composition of groups to group process and outcomes. Each begins with the proposition that demographic variation within groups will affect the ability of the group to function. From a decision-making perspec-
1. The composition of the group is proposed to increase the information available for problem-solving and, in turn, enhance the ability of the group to generate correct or creative solutions to problems; that is, the emphasis is on an enhanced capability for problem solving. Although never explicitly investigated, it is reasonable to presume that the effect of increasing information availability has a curvilinear effect such that some initial diversity has a monotonically increasing relationship with group performance; that is, there is a diminishing value to added information.

Social categorization and similarity/attraction theories highlight the potentiality of demographic diversity effects. Increased cognitive biases and increased liking on a pro-group functioning that results from "othersness." Diversity is proposed to reduce increased conflict, factionalism, and communication difficulties. These processes are often hypothesized to result in a diminished ability of the group to solve problems, in spite of possible gains in information, and a reduced commitment to the group by individuals since a diverse group is less likely to satisfy the member's needs. Again, while not explicitly hypothesized, it is likely that increasing diversity has an exponential effect such that some small increase in diversity is less likely to be disruptive to group process than subsequent increases, that is, having one dissimilar member in a group creates less disturbance than two or more (e.g., Paterson & Nye, 1996).

As also suggested in Figure 1, the effects of diversity can be moderated by the situation. Since some of the potentially negative effects of increased diversity result from cognitive processes (e.g., stereotyping), it is reasonable that the same cognitive processes may offer a means for reducing the negative effects. For instance, creating a common identity or goal may, as Sherif (1935) demonstrated over 50 years ago, reduce group-level biases and promote solidarity. More recently, research has shown that strong, cohesive cultures may reduce in-group social categorization effects (e.g., Chua, Pomazal, Bawden, & Nye, 1997; O'Reilly & Chua, 1996). Similarly, other actions that call attention to similarities or differences may accentuate or diminish social categorization and similarity processes. Some types of diversity training may unwittingly highlight differences and create exclusive rather than inclusive categorizations (Nordh & Chui, 1998). Finally, other contextual influences such as technology or task design may also increase or decrease normative and informational influences on interpretations. For example, jobs may be designed that signal to people that they are interdependent or independent (Johns, Northcraft, & Nye, 1997). These contextual influences can act to focus attention in ways that can modify focus interpretations or similarities or differences. As such, they may unwittingly help or hinder group process and performance.

Summary

Overall, the theoretical foundations for most research on diversity and demography in organizations rest on variants of these three primary theories: social categorization, similarity, and cognition.
organization, similarity-attraction, and information and decision making. As from, these theories can lead to contradictory predictions. Taken separately, there is good empirical confirmation from careful laboratory studies for the integrity pro-
posed in each of these theories. However, it is the extant validity of these final
theses, in conjunction with institutional settings that need to be examined. Both social categorization and similarity-attraction argue for the positive benefits of heterogeneous
group process. If, as many group researchers have argued, effective group
process is a prerequisite to effective group performance, then theory would predict
that, unless mandated by other process, diversity should have negative impacts on both group process and performance (e.g., Blockman, 1987; McClear & Grovesfield, 1997). Informational and decision theories, on the other hand, make the opposite prediction and argue for the positive effects of diversity offered through increased skills and information sets. These theories also predict that sim-
ilarity may diminish group performance through the failure to obtain and use all available information. Taken together, the overall effect of increasing diversity is likely to have a U-shaped form with some increments of diversity having large posi-
tive increases in group problem-solving capability with comparatively small neg-
ative effects on group functioning. Large amounts of diversity in groups may offer little in the way of added value from unique information and make group cohesion and functioning difficult. Further, as discussed above, these correlational effects may be moderated by contextual influences such as informational influence or organi-
sational culture and environment or attenuation the fundamental processes of social categorization and decision making. The following section reviews the empirical evidence for the effects of diversity in group process and performance.

THE EFFECTS OF DEMOGRAPHIC DIVERSITY ON GROUP PROCESSES AND PERFORMANCE

Before attempting to review the empirical literature on organizational demogra-
phy and diversity, a brief caveat is in order. As suggested by the definition of diversity-proposed earlier, not every aspect of diversity is expected to have the
same effects on group process and performance. The concept itself is a primary
determinant of what differences are likely to be salient and task-related (Tjosvold, 1995). In this sense, any interpretation of research findings should be sensitive to
the context. For instance, research has shown that the proportion of individuals who possess a particular characteristic (e.g., race or ethnicity) grows smaller, that characteristic may become more important in defining social identity (Alonzo, Satterfield, & Hogg, 1996; Etter & Drasch, 1996; Hogg, 1995). Further, combina-
tions or interactions among a person’s social content and social identity may result in
complex effects (Chambers et al., 1997). For example, being an African-American
female physician in a hospital with a diverse workforce may result in different
effects on group process than being the only American female resident in a hospital

![Table 1. Summary of Number of Studies by Type of Demographic Variable (Studies contained in Figures 1A and 2A)](https://example.com/table1.png)

<table>
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<th>Type of Study</th>
<th>Caucasian</th>
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<th>Sex</th>
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<td>8</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Field</td>
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<td>15</td>
<td>20</td>
<td>20</td>
<td>13</td>
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</table>
Table 2. Summary of Studies by Pincus and O'Keefe (Studies contained in Figures 1A and 2A)

<table>
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<th>Dependent Variables</th>
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<th>Field Study</th>
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<td>Outcome Variables</td>
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</table>

been conducted in field settings, with the majority of attention paid to diversity in tenure and background variables. Understandingly, laboratory studies have not investigated the effects of either tenure or age on group process or performance. Although not shown in the table, the average publication date for the laboratory studies reviewed was 1979 and 1950 for field studies, reflecting the fact that laboratory research is driven by studies of organizational demography. The evidence from Table 2 shows a roughly even number of studies have examined group process and performance outcomes. A more fine-grained look shows that 40 percent of the laboratory studies reviewed tested reflective tasks with creativity or quality of decisions making as an outcome variable. In contrast, more than 40 percent of the field studies have used organizational-level performance measures such as a strategic choice or financial return. Another 40 percent of field studies have examined individual-level outcomes such as turnover or performance evaluations. Only 13 laboratory studies have examined group process, usually measured as cooperation or conflict. Field researchers, however, have conducted over 25 stud- ies examining a rich set of group process variables and sometimes linking these effects to performance outcomes (e.g., Barley, 1979; John, Northcraft, & Neal, 1987; Goffee, 1987; Caldwell, & Barnes, 1989; O'Keefe, Synder, & Barone, 1993; O'Keefe, Williams, & Baradale, 1992; Pelled, 1997; Pelled, Eisenhardt, & Xin, 1997). These studies offer a picture of the dynamics of group process and perfor- mance.

Although not broken out separately, Figures 1A and 2A also offer some insight into how demography has been conceptualized and measured. Laboratory studies most often operationalize diversity in terms of the number or proportion of "dif- ferent" members in the group (e.g., Edelman & Garza, 1985; Kirschenheiter, 1993). Field studies typically rely on four related measures of diversity: (1) the propor- tions of those considered different (e.g., Kac/ & Tushman, 1987; Konrad, Winston, & Glik, 1992); (2) the coefficient of variation of the group level of analysis for continuous demographic variables such as age or tenure (e.g., Smith et al., 1994); (3) the Eylander-Rivlin measure that calculates the proportion of a given category of categorical variables such as sex or race (e.g., Pfeffer & O'Keefe, 1987); and (4) a Euclidean-distance measure that assesses the degree to which an individual is insu- lated from other members of the group (e.g., Wagner, Pfeffer, & O'Keefe, 1986). This last measure is used to assess "behavioral demography" or the comparative


demographic characteristics of members of dyads or groups who are in a position to engage in regular interactions" (Tosi & O'Keefe, 1989, p. 403).

While roughly comparable, there are two notable differences among these vari- ables. First, the Eylander-Rivlin measure operationalizes diversity at the indi- vidual level and is suitable for investigating individual outcomes such as attitudes and behavior. It does not provide an overall measure of group diversity. Second, both, the coefficient of variation and entropy measures provide accurate assess- ments of group-level diversity but do not offer a fine-grained understanding of where the variance is occurring. Since the coefficient of variation is the mean divided by the standard deviation, variations may occur from other terms. This requires additional analyses to uncover the source of variation. Neither of these measures adequately captures proportional differences in group diversity that may be important (e.g., Atchane, Thoms, & Hopf, 1990). O'Keefe, Williams, and Phar- rade (1997), for example, found positive effects of ethnic diversity on innovation using an entropy measure. Subsequent analyses of the proportion of ethnic minority- ness in the groups revealed that this effect resulted from the proportion of Asians.

Tenure Diversity

Interest in variation in group and organizational tenure was stimulated by Pfeffer's (1983) seminal paper on organizational demography. Drawing on earlier demography research (e.g., Ryder, 1963), Pfeffer suggested that the demographic composition of groups could be an important determinant of group and perfor- mance. He argued that similarity in terms of entry leads to increased communi- cation which can promote integration and cohesiveness, as well as increased similarity (Pfeffer, 1983). Since then, most organizational demography researchers have examined this variable, with more than 30 studies investigating the effects of group or organizational tenure. Arguments for the positive effects of tenure homogeneity are consistent with social-cognitive and similarity-attraction theories. The assumption is that individuals identify with others who share the organization or group at the same time (Moreland, 1983; Tosi, Eigen, & O'Keefe, 1992). The identification with others of similar tenure can positively affect group process and, in turn, improve performance.

As shown in Table 1, all research on tenure diversity has been conducted using field studies of actual work groups and management teams. Overall, there is strong evidence showing that tenure homogeneity is associated with less effective group process as indexed by outcomes such as cooperation, communication, and conflict. The results for group performance are more complicated, with some evidence for both positive and negative effects of heterogeneity (e.g., Haertick, Cho, & Chen, 1996; Smith et al., 1994). Positive effects of tenure diversity may result from the diversity of perspectives, and information that different colors bring to the group (Aragon, 1996; Bastien & Jerkovic, 1989; Eisenhardt, Kovery, & Bourgeois, 1997). On the other hand, homogeneity is expected to benefit the
group by increasing communication frequency (Charmaz et al., 1997; Kiesler & Cohen, 1992; Zenger & Lawrence, 1989) and social integration (Good & Neiss, 1971; O'Reilly, Caldwell, & Barnett, 1989), and discussing department con-
flit (Pelled, 1997; Pelled, Eisenbruch, & Xin, 1997). Upon closer scrutiny, these differences in findings are partially accounted for by variations in the types of groups sampled, outcomes measured, and the presence or absence of control vari-
able.

Group Process

The close correspondence of evidence shows that heterogeneity in tenure has negative effects on group process. Much early evidence from small group experi-
ences documented the relationship of similarity of group members to social intepre-
tation and cohesion (e.g., Good & Neiss, 1971; Lorr & Lent, 1963). Indeed, a

Several studies have reported significant associations between tenure diversity and conflict (e.g., O'Reilly, Williams, & Baronade, 1997; Pelled, 1993). For ex-
ample, O'Reilly, Snyder, and Boehle (1993) found that teams with more tenure heter-
ogeneity had higher levels of conflict and political activity than did groups with homogenous tenure distributions. Thus, a consistent finding from field research is the positive association of tenure diversity and conflict in groups. Although researchers have long been made that conflict can have beneficial effects for the groups performance (e.g., Schneider, Barong, & Ragan, 1986), the empirical planner has, until very recently, been unclear. As reviewed in the next section, four recent studies have helped understand the complexity of the associations between tenure diversity, group process, and performance.

Group Performance

Consistent with Hackman's (1965) definition, these outcomes are relevant for assessing group performance: see a group's ability to solve problems; its ability to implement these solutions; and, in ability to meet group members' needs. The argument for the positive effects of diversity on group performance rests on two ideas. First, heterogenous groups are seen as being more likely to produce a diversity of ideas and perspectives useful for problem solving than are homoge-

Many of the early studies of tenure composition centered on the positive asso-
ciations between tenure diversity and tenure were mediated by group conflict. For instance, McCain, O'Reilly and Pfeffer (1983) studied gauge in a time of entry of the groups. They found that the diversity or gaps in the departments' tenure distribution (tenure diversity) were associated with the voluntary and involuntary turnover of the faculty. They argued that these
gaps were likely to increase conflict, reduce communication, and increase the likelihood that less central members would exit. Wagner, Pleifer, and O'Reilly (1984) in a study of 31 Fortune 500 top management teams, and Jackson and colleagues (1991) in a study of 93 banks' top management teams also found heterogeneity to be positively related to turnover. Similar results can also be found in a large number of other studies (e.g., Alexander, Nochols, Bloom, & Lee, 1995; Cope and Lyon, 1996; O'Reilly, Caldwell, & Barnett, 1989; O'Reilly, Snyder, & Boote, 1993; Pleifer & O'Reilly, 1987; Wamsley & Bantel, 1993). The evidence from these studies is conflicting: increased tenure diversity in a group leads to higher turnover, especially among those who are most different. What is less clear, is what accounts for this outcome.

To clarify the causality of these findings, O'Reilly, Caldwell, and Barnett (1986) examined both the direct and indirect effects of heterogeneity to tenure on social integration and turnover. They found that tenure diversity had an indirect effect on turnover through its effect on social integration. Increased diversity led to lower social integration which resulted in high turnover among those who were not socially integrated. These individuals who were most different and least integrated were most likely to exit the group. No studies have found that tenure heterogeneity reduces turnover and only one reported no association between tenure diversity and turnover (Womack & Bantel, 1995).

An early expectation was that diverse groups would produce more creative outputs. However, as Ansoff and Caldwell (1992) note, the situation is more complicated than this simple logic would suggest. "Diverse groups bring creative potential to problem solving, but fall down on implementation because they lack the knowledge and capability to translate their insights into practical outcomes." (p. 538). The question is, can a team capture the benefits and avoid the detrimental effects of diversity at the same time? Research on the effects of tenure diversity has offered mixed support for this hypothesis. A number of studies have shown that heterogeneous groups may be more innovative and perform better than homogeneous ones (Michaell & Hambrick, 1992; O'Reilly, Snyder, & Boote, 1993; O'Reilly & Platt, 1989), for example, found a positive relationship between top management team tenure heterogeneity and ratings of organizational innovation. Goodman and his colleagues (Goodman & Garibe, 1988; Goodman & Leyden, 1991; Goodstein, Rawls, & Schelske, 1987), in a study of underground mining firms, found that familiarity, which includes an assessment of how long the crew had worked together, was positively related to higher levels of productivity and lower accident rates. Other studies have found that heterogeneity may have negative effects on performance (O'Reilly, Williams, & Barsade, 1997; Pollet, 1997; Smith et al., 1994). Overall, there is reasonable evidence that groups with heterogeneous tenure may perform better.

In contrast, other researchers have reported positive performance effects for increased tenure heterogeneity (e.g., Eisenhardt, Kaluwy, & Bouknight, 1997; Eisenhardt & Schoonhoven, 1990; Keck & Tushman, 1993; Kornil, 1990; Mor-

Demography and Diversity in Organizations

(1989), Vesper, Tushman, & Rappaert, 1992). In a study of 232 teams in a consumer products firm, Koines, Pullen, and Cummings (1996) found that tenure diversity was positively associated with more customer-oriented procedural behaviors among sales staff. Mersmann and Tushman (1997), in a longitudinal study of 62 current firms, found that increased heterogeneity in tenure within the top management team was associated with shorter response times to environmental jobs. In a study of the top management teams of 32 airlines, Hambrick, Cho, and Chen (1996) reported increased tenure heterogeneity to be associated with the firm's tendency to undertake competitive initiatives. Nevertheless, consistent with other studies, they also found that more heterogeneous teams were slower in their implementation than more homogeneous teams. In this regard, they also found that heterogeneous top management teams were more likely to respond to their adversaries' initiatives. The authors concluded that "the lack of homogeneity team's general similarity, shared vocabulary, and relatively fluid exchange properties enhanced its ability to interpret the company's move and facilitate to make countermeasures" (p. 679, italics added). Ansoff and Caldwell (1992) also found a direct negative effect of tenure diversity on adherence to the group budget and schedule, but overall the effect of diversity was positive. Flat (1996) has attempted to reconcile these contradictions by showing that at the organizational level the top management team is really two separate groups, the executive team comprised of the CEO and direct reports, and the managerial team consisting of vice presidents below this level. In his study of 47 firms across 11 manufacturing industries, he found that firms with up management teams characterized by comparative heterogeneity in terms and vice presidents or senior management teams that were comparatively more heterogeneous with regard to tenure composition were more innovative (measured as the number of patents awarded in a five-year span). He argued that it is the homogeneity of the executive team that allows the firm to implement, while heterogeneity of the vice presidential team led to increased creativity; that is, creative alternatives are provided to the senior team who chooses among the alternatives. Four more studies have replicated these effects. John, Noe, and Neck (1997), for example, found that a study of 108 work groups, showed that demographic and value diversity increased relational conflict (conflict characterized by interpersonal disagreement) and decreased group functioning. However, informational diversity was associated with task conflict (conflict about the work itself), which was related to ratings of group performance. In a similar study of 45 teams, Pullen, Eisenhardt, and Xin (1997) also found both tenure and race heterogeneity to be positively associated with relational or emotional conflict. Functionally, a good proxy for variations in information and perspectives, was positively linked to task conflict and job performance. In both of these studies, relational-conflict was not associated with performance. O'Reilly, Snyder, and Barsade (1995) demonstrated that increased heterogeneity in tenure led to less-effective group functioning and a diminished capacity of the group to adapt to change. O'Reilly,
Williams, and Barnes (1997) suggest that this effect might occur. In a study of 23 project teams they found tenure heterogeneity to diminish the ability of the group to implement decisions. Together these studies, using over 200 social work groups, suggest that tenure diversity has negative effects on group process. However, this diversity also provides relevant information, and if the group can avoid the negative effects of emotional conflict, the mixing task conflict may lead to better group performance. Overall, only a few studies have found no relationship between tenure diversity and performance (Barnett & Jackson, 1980; Joann, Hochstein, & Hix, 1993). Wartman and Bannet, 1992).

Summary
In general, there is strong evidence that diversity in tenure is associated with lower levels of social integration, poorer communication, and higher turnover in groups. Although under some circumstances turnover may have positive effects, (Slone, 1980), the effects of tenure diversity found in the research reviewed here are considered negative; that is, those who are more different in terms of tenure are most likely to fail. This is common with social categorization theory research that has shown that newcomers to a group may be affected by its preexisting group biases (Morland, 1983). This pattern suggests that those who are least like the majority of the group, and who may offer a different perspective, are also those most likely to be isolated and excluded. Thus, other comparative newcomers who are being different perspectives or oldtimers who may have valuable firm-specific knowledge, are likely to leave the group or organization. Although research using information and decision theory has not investigated this phenomenon, it seems likely that a lack of social integration stemming from tenure diversity should be associated with less effective information availability and decision making.

The negative effects of tenure diversity on performance are generally explained as indirect effects, operating through group process variables such as communication, conflict, or social integration. However, several researchers have also reported direct effects of tenure diversity on performance after controlling for group process variables (e.g., Ansara & Caldwell, 1992; Smith et al., 1995; O'Reilly, Williams, & Bureau, 1997). These findings suggest that intervening process variables are not capturing all of the effects of diversity. In contrast to the "consistent effects of tenure diversity on affective outcomes, the effects of diversity in tenure on group cognitive performance are mixed at best. That (1996) has suggested that both the positive and negative effects of tenure diversity are valid. She suggests that the problem resides in how the groups of interest are defined.

Second, critics of this research have suggested that many of these studies include too few data points. This limited number of data points makes it difficult to generalize the findings of this research. However, given the large number of studies, this criticism seems faceted. The combination of laboratory studies demonstrating the hostility
being strange (Greenfield, Morris, Williams, & Noe, 1996). If this is the case, functional diversity may have positive effects on information use when the group is more stable (e.g., homogeneous with respect to tenure) or has developed an explicit structure designed to overcome any process loss from diversity. Consistent with these arguments, Hasson, Storow, and Whittam (1995) found that the assignment of expert roles (which can be seen as a function of functional background) improved the sharing of unseen information and enhanced performance. Pelldi, Eibenholtz, and Xia (1998) observed that emotional conflicts decreased in groups that had been together longer. Although not reviewed here, research on group decision making and information use may provide insights suggesting how and when the benefits of informational diversity can be obtained and the extent to which group process is influenced.

**Group Process**

Smith and his colleagues (1994) examined the effects of the functional diversity of top-management teams and found no effects on social integration or communication. In a longitudinal study of 141 young managers, Kitchener (1995) found those who were most dissimilar in their work groups in terms of age, education, and lifestyle reported the least job challenge and poorest integration nine months after job entry. Several other studies have examined communication as an outcome variable. Ainsworth and Caldwell (1992) found that functional diversity increased the frequency of communication with those outside the project group, leading to higher managerial ratings of performance. Glueck, Miller, and Hober (1992) found that functional diversity had a positive effect on the frequency of communication within the top-management team of 59 strategic business units. With regard to conflict, Pelldi (1993) found an association between functional diversity and substantive or task conflict. Recently, John, Northcutt, and Noe (1997) have shown that functional diversity is related to task conflict and, subsequently, to improved performance on cognitive tasks. Consistent with social categorization and similarity/reaction theories, they also found functional diversity to be related to increased relationship conflict, but this was unrelated to subsequent performance. Other studies of background diversity have shown effects consistent with social similarity (e.g., Westphal, 1996). Research in this area may be important in clarifying how and when cross-functional teams are likely to work and when functional diversity may have negative effects on group process and performance.

**Group Performance**

In general, research shows that functional diversity has positive effects on group performance. Several laboratory studies (Tindall, Hall, & Ewen, 1966; Thoms, 1991; Zelens, 1953) demonstrated that variations in students' functional backgrounds in (e.g., academic majors) were positively associated with group performance. More compelling evidence of this effect comes from field studies (Pelldi, Eibenholtz, & Xia, 1998). Based on Jackson (1989) examined the top management teams of banks and found that diversity in functional background was positively related to the number of administrative innovations made by the bank. Ainsworth and Caldwell (1992) found that functional diversity had a direct negative effect on management-rated innovation and that it did not increase the frequency of communication with those outside the project group which was positively related to innovation. Kishon, Pelldi, and Cummings (1986) found that functional diversity was positively associated with prototypical organizational behavior (POB), arguing that increased levels of substantive conflict in these groups led to more creative and oriented POB. Korn, Milliken, and Lane (1998) measured performance in increases in returns on assets in a study of top management teams in the framework and software industries. They found that increasing functional diversity was associated with positive performance in the furniture industry, but not in the software industry. Functional diversity on firm performance was found as effects on organizational losses, Simms and Pelldi (1996) found that heterogeneity was associated with positive group behavior in the furniture industry, but not in the software industry. Smith and colleagues (1994) examined the effects of top management team performance. Concerned with the need to align against potential group process was only advantageous when the groups were able to engage in open debate. Finally, several studies of top management teams (e.g., Eisenberg & Schoenfelder, 1993; Hambrick, Cho, & Chen; 1996; Wexner & Beatty, 1992) reported that increased functional and educational heterogeneity were associated with increased firm growth and strategic initiatives. Tindall and his colleagues (1988; 1993) and others (Korn & Tannenbaum, 1993; Mommers & Tannenbaum, 1993) have provided evidence that functional heterogeneity is in top management teams is an important factor in Hambrick, Cho, and Chen (1996) study, heterogeneous teams were slower in their implementation of heterogeneous teams, but overall, teams with more functional diversity outperformed more homogeneous teams. These authors concluded, "despite the low response propensity and slowness of the heterogeneous top-management team, in other benefits appear to more than compensate, and in general the airlines with diverse top-management teams advanced in their competitive arena" (p. 610).

**Summary**

Functional background may serve as a proxy for the information, knowledge, and expertise that individuals bring to a group. The research suggests that the diversity of information functionally distinguishes individuals being in the group improves performance in terms of creativity, but not necessarily implementation. For example, functionally diverse groups are slower (Hambrick, Cho, & Chen, 1996).
she found that age diversity was negatively related to effective conflict, suggesting that age diversity led to less, instead of more, conflict. She argued that this finding was caused by the negative correlation in her sample between age and tenure diversity; that is, large gaps in tenure were accompanied by small gaps in age and vice versa. In other words, groups composed of individuals who were very different in age happened to have entered the organization closer to the same time and thus were able to identify with a common sense and overlook their differences in age. O'Reilly, Williams, and Batiste (1997) found no effects of age diversity on effective or suboptimal conflict. Overall, these studies suggest that age diversity, while sometimes having a negative effect on group process, appears to be less important than tenure diversity. However, as discussed below, age diversity has been found to have a significant impact on turnover and absenteeism, suggesting that it may have undiscovered impacts on group process.

Group Performance

The evidence for the effects of age diversity on performance (usually defined as innovation) is not strong. O'Reilly and Pfeffer (1989) found no relationship between age diversity and innovation, nor did Huse and Jackson (1989) or Wiersema and Banta (1992). O'Reilly, Styler, and Booske (1993) in a study of top management teams also concluded that age diversity is not an important determinant of organizational innovation. The results of O'Reilly, Williams, and Batiste (1997) also confirmed this view. Only the study by Zajac, Golden, and Gatrell (1991) found age diversity to be negatively related to innovation. Although no major effects of age diversity on organizational performance have been found, age diversity has been shown to be related to positive outcomes of turnover and absenteeism. In three samples of top management teams and one of university faculty groups, researchers found that diversity in terms of age was related to higher turnover levels (Jackson et al., 1991; O'Reilly, Caldwell, & Baron, 1989; Wagner, Pfeffer, & O'Reilly, 1984; Wiersema & Banta, 1993). In addition, a study of tenure diversity, O'Reilly, Caldwell, and Baranow (1989) found that these two measures from their work group in terms of age were most likely to leave. The results from Wagner, Pfeffer, and O'Reilly (1984) and Cummings, Zhao, and Oldham (1993) are consistent with this finding. However, other researchers have also examined turnover and found those more different from their group in terms of age were more frequently and they tended to receive lower performance ratings from their supervisors. Judge and Ferris (1993) did find that age diversity between a supervisor and subordinate can be related to lower levels of supervisor's positive affect toward the subordinate and indirectly to lower performance evaluations. In a similar vein, Truax and O'Reilly (1989) found that supervisors who were different from their supervisors in age experienced more role ambiguity, but found no relationship between similarity in age and perceived effectiveness, experienced role conflict,
or the supervisor's effort toward the subordinate. Finally, Task, Egas, and O'Reilly (1992) found no effect of age diversity on the level of commitment or absorptiveness of the 151 units they studied, but it was associated with a lower intent to remain in the organization.

Summary
Overall, the research on age diversity suggests that groups with higher variations in their age composition may have slightly lower levels of effective group processes than more homogeneous groups. The expectations, drawn from an information and decision-making theory, that age diversity within a group may lead to differences in perspective and value that are useful for collective performance, is not supported by the literature. Instead, the literature suggests that age diversity is associated with increased turnover and withdrawal, especially of those individuals who are most different.

Sex Diversity
Organizational demographics researchers' concerns with the effects of sex or gender diversity has a long history. Several early laboratory studies examined the effects of gender composition on small group performance (e.g., French & Raven, 1959; Homans, 1970). These early investigations generally were predicated on similarity/similarity attraction. However, following Katz's (1977) lead, organizational researchers have focused more attention on the effects of gender diversity on organizational outcomes. These more recent approaches have adopted either social cognition theory or information and decision-making theoretical frameworks (e.g., McLeod & Lofel, 1992; Task, Egas, & O'Reilly, 1992). In most studies of organizational demography, sex has been included as one of a set of demographic variables; however, several researchers have focused explicitly on gender in their studies on diversity (e.g., Ely, 1994; Konrad, Winter, & Granik, 1992; Task, Egas, & O'Reilly, 1992). These studies offer a more fine-grained examination of the effects of sex diversity on group processes and performance.

Group Process
Social categorization and similarity/attractiveness theory suggest that sex diversity can have different attitudinal effects on group process. The presence of others who are "different" may lead to increased social categorization into in-group/out-group groups and increased cognitive biasing (Kramer, 1991). From a similarity/attractiveness perspective, a diverse group provides less opportunity for interpersonal attraction based on similarity (Byrne, 1971). Substantial evidence is available consistent with these predictions. For instance, Alagia, Reddy, and Collins (1982) studied groups of all-male versus mixed-sex medical student groups and found that mixed-sex groups reported higher levels of conflict, interpersonal tension, and group level of friendship. Other studies have also reported process issues in gender diverse groups (e.g., Clancey & Schermer, 1973; Homans, 1970; Pettit, 1977; Sackett, Dinsmoor, & Noe, 1991).

However, the findings with regard to sex are often confounded by other effects (e.g., Lefcourt, 1993). For instance, as highlighted by Kaiser (1977), the relationship between sex diversity and group process is likely to be dependent upon the proportions of men and women present in the unit, not simply the group's heterogeneity (e.g., Abrahams, Thomas, & Heg, 1990; EP, 1994; Konrad, Winter, & Granik, 1993). This expectation is based on research that has shown that as the proportion of individuals in a group who possess a particular characteristic (e.g., sex) grows smaller, those who possess this characteristic will become increasingly aware of their social identity (e.g., Elazar & Deese, 1964; Miller, 1963). Further, research shows that being different in gender can have different effects on males and females (e.g., Schirmer, 1979; Raphael & Sennett, 1983; Sudd, Bourje, Mumford, & Condr, 1962; Spangler, Gresch, & Pipkin, 1970). This makes some of the results from organizational demography research difficult to interpret since the typical measures of sex diversity obscure proportionality effects.

For instance, Schirmer (1979) found that men in primarily female jobs or organizations experienced almost no hostility from female coworkers, while O'Fallon and Statan (1982) found women in predominantly male organizations had been abused by hostility from male co-workers. Furthermore, Firestone and Sennett (1983) found that men were socially integrated into the work group when in the minority, while women have been found to be less integrated into male-dominated groups (e.g., Kaiser, 1977; Sackett, 1992; Ely, 1993). Konrad, Winter, and Granik (1992) found that sexist stereotyping was higher in male-dominated groups, while it was lower in female-dominated groups. In fact, women in the majority showed the most egalitarian attitudes toward the other sex. Although these findings suggest that men in the minority are socially integrated and treated fairly by the other members of the group, some researchers suggest that into the minority are actually less satisfied and have more negative psychological outcomes than women in the minority (e.g., Wharton & Baron, 1987; Task, Egas, & O'Reilly, 1992).

Pettit (1996) hypothesized that sex diversity would have a negative impact on groups through increased levels of affective conflict; however, he found no strong evidence of this (Pettit, 1993; Pettit, Rieseberck, & Xin, 1997). O'Reilly, Williams, and Baronde (1997) also found no relationship between gender diversity and conflict. He has been shown (Pettit 1996) that affective conflict in mixed gender groups was positively associated with increased levels of procedural conflict. These results are broadly consistent with the notion that the proportion of the sex represented in the sample can have a significant impact on the presence and strength of affective conflict.
were greater than 50 percent when they were used even higher than men. However, these proactively effective efforts were not found for men.

In the laboratory, the effect of grade diversity on group performance (regression or creative task) was mixed. Cleaver and Schieren (1973) found that in certain groups performance was more efficient on a task with a higher standard deviation than did heterogeneous groups. This task involved very low creativity, so it is surprising that diversity was not beneficial to the group performance. Conditions with this find-
ing, Kerr and McGrath (1968) also found that heterogeneous groups generated more products that were more original than did homogeneous groups. Huff-
dman, Hufgul, and Marks (1982) p. 77) in a study using 98 groups, also reported that "the mixed men groups produced the smallest proportion of new solutions" or innovative outcomes. This suggests that homogeneous and heterogeneous may promote creativity. On the other hand, Hufgul and Marks (1981) found, in their study of 41 free-people groups, that group diversity improved the quality of the group's solutions on five cognitive tasks over the course of 4 weeks.

In organizational settings, studies examining the effects of sex diversity on group performance outcomes have found negative effects when the sample was randomly assigned and no effect when the sample was female-dominated. Pelled (1997) found in random assignment of sex diversity on group's perceived productivity in a study of 42 organizational teams. Sex diversity led to increased levels of emotional conflict, resulting in decreased productivity. Kizorko, Pelled, and Cummings (1996), using a sample that was less than 10 percent female, stratified the effects of grade diversity on organizational behavior. Recall that grade organizational behavior (POB) includes behavior that is beyond the requirements of the job. The authors found a negative relationship between sex diversity and emotional behavior among women. They suggest that this is because grade is highly visible, but low in job-relevant, which leads to emo-
tional conflict and decreases emotional behavior. In a study using a sample over half of whom were female, O'Reilly, Williams, and Ramirez (1987) found no sig-
ificant difference in emotional behavior between gender diversity and group per-
formance measures.

The effects of gender composition on individual satisfaction, commitment, and turnover were also reviewed in this section. Wharton, 882 987) studied a sample of employed men (n = 197) and women (n = 197) Quality of Employment Survey. They found that men's overall work satisfaction (20% of female) had signific-
antly lower job-related satisfaction, self esteem and n = 9 job-related opposi-
tion than men in other male- or female-dominated male-female settings. In a 199 study using the same data set, they found that women's balanced settings (n = 197) more satisfied than women in female-dominated settings, though the same satisfied men were in male-dominated settings (Wharton & Wharton, 1991). Contented men in male-dominated settings (Wharton & Wharton, 1991) found that being a minority in a group with more negative effects on men than it is for women. When the minority, n = 9 expressed lower levels of psychological stress, increased

Group Performanee

A number of studies have examined the effect of variations in the sex composi-
tions of groups on measures of perceived performance such as performance appraisals. Although subject to debate, there are important work because they can affect behavior (Sarlio, 1977). For instance, Litt-
vilke and hines (1980) compared a laboratory study with 80 undergraduate stu-
dents examining the effects of sex differences on the evaluation of applicants for job positions. They found that our group members, people who were different from the evaluation, were evaluated more negatively in both positive and negative directions than group members in an organizational setting. Two and O'Reilly (1989) found that subordinates were different from their superiors (i.e., our group members from Littvis and hines's perspective in terms of sex, our group members from Littvis and hines's perspective in terms of sex) were more favorable evaluations and supervision, related to have more positive effect for subordinates of the same gender.

Several studies have shown that in male-dominated groups everyone are more negative evaluations that men in these groups, at least until women prove themselves to be competent (Neff & Neff, 1964). Rubin, Cohen, & Ruben, 1964). Swain and hines (1980) found that in male-dominated groups everyone are more negative evaluations and supervision, related to have more positive effect for subordinates of the same gender.

Several studies have shown that in male-dominated groups everyone are more negative evaluations that men in these groups, at least until women prove themselves to be competent (Neff & Neff, 1964). Rubin, Cohen, & Ruben, 1964). Swain and hines (1980) found that in male-dominated groups everyone are more negative evaluations and supervision, related to have more positive effect for subordinates of the same gender.
abuse, and lower intent to stay in the organization. For women, an increasing difference in sex diversity was associated with higher levels of organizational attachment. Several estimates for these asymmetric effects have been offered. For example, the presence of women in male-dominated settings may represent status achievement, with high-status positions being obtained by a previously excluded group. If this is so, the apparent effects of being in the minority may be compensated for by higher status and wages. However, these explanations remain speculative and no multi-wave research has yet explained these findings. More research on the effects of gender diversity on male and female individual outcomes is needed if we are to understand the simultaneous effects of sex diversity and gender on group performance.

Results. Ely (1996) examined the effects of gender distribution at senior levels of law firms on the social identity of lower-level women. She found that women associates in law firms who were more self-assured in the partner-level viewed female partners more positively and were more supportive toward their peers. She argued that having more women at the top levels of the organization resulted in more open discussions about the likelihood of advancement in the organization for women, as well as enhancing gender as a positive basis for identification with other women. Colyer, Brodkin, and Hazemam (1996) also found that the proportion of women holding senior positions increased the likelihood of promotion of women into senior management. These studies again call attention to the importance of proportion when trying to understand how gender diversity affects groups and individuals.

Summary
The results of research on gender diversity suggest that the proportion of men and women present in the sample may be an important predictor of the results. In general, gender diversity has negative effects on groups, especially on males. It is associated with higher turnover rates, especially among those who are most different. The studies also reveal that women and men respond differently, and may have different experiences as a minority. Men display higher levels of satisfaction and commitment when they are in the minority, while women appear less likely to have a negative psychological reaction. This is due in part to the fact that in female-dominated groups are more likely to be accepted, less likely to be treated with hostility, and less likely to be stereotyped. Given the asymmetrical findings, future research on the effects of gender diversity needs to pay close attention to the proportion of men and women in the sample if results are to be interpretable (e.g., Ely, 1994).

Racial and Ethnic Diversity
Research on ethnic and race relations within the United States has received an abundance of attention from psychologists, sociologists, and educators (e.g., Blum, 1977). Hallinan & Smith, 1985; Phinney, 1963), but research on ethnic diversity within organizations has been comparatively lacking (for reviews see Adler & Borman, 1988; Morrison, 1992; Con & Morrison, 1990). Certain organizational psychologists have focused less on racial composition of groups than variables such as tenure and functional diversity. Only one field study reviewed here focused explicitly on race (Thomas, 1993) but examined cross-race mentor relationships rather than group process or performance. One possible reason for this lack of research on group-level race relations within organizations is that very little is known about how group-level racial diversity exists in very few of the studies examined, especially in top management teams. There are exceptions, of course, but comparatively little research focuses on the impact of ethnic diversity on group process and performance (O'Reilly, Williams, & Barley, 1991; Pollock, 1997; Pollock, Eisenhardt, & Xin, 1997; Roeser & Shore, 1997). Nevertheless, there are lessons to be drawn from the research that has been conducted. As the racial composition of the workforce changes there will be more opportunities and needs for organizational researchers to understand how race relations have changed, and how group process and performance are affected by racial diversity. Much of the research from the field to date suggests that this racial diversity will have negative effects on group and individual outcomes. Further laboratory studies have shown that there may be substantial benefits to be captured from racial or ethnic diversity.

Group Process
In a nearly 40-year-old laboratory study, Katz, Goldstein, and Stegman (1958) focused on the relations between whites and blacks. They studied first-person groups (two whites and two blacks) of male college students and found that black men were less likely to initiate communication than whites. When blacks did speak, they began their conversation with whites more than to one another. The authors suggested that this pattern of communication reflected the status hierarchy of the time. Although informative, the findings of some of these earlier studies (e.g., Hoffman & Male, 1984; Levy, 1964) may reflect the social norms of the time and may not be reflective of the current impact of ethnic diversity on groups and organizations. Therefore, when considering the effects of ethnic diversity it is important to be sensitive to the societal content of the period in which the research was conducted, lest we inappropriately generalize findings that may no longer reflect social norms.

For example, in a recent study of an insurance company, Roeser and Shore (1997) investigated the impact of racial diversity using a sample of 98 work groups with 284 subjects. Because of the large number of nonverbal indicators (over 33%), the authors were able to carefully examine the impact of the ethnic composition of groups including groups that were predominantly African Ameri-
cans, Hispanics, and whites. Several interesting conclusions emerged. For instance, all participants exhibited significantly more stress at work group contacts than when they were in work groups composed entirely of minorities. Similar effects were also detected for the perception of discrimination in the workplace. The authors concluded that the tendency to experience increased stress due to the presence of minorities can have a negative impact on overall job satisfaction.

Several studies have explored the idea that the presence of minorities can have a negative impact on job satisfaction. For example, in a study conducted by African Americans and Anglos in competitive settings, rats and mice were exposed to different levels of stress. The results indicated that rats and mice exhibited different stress responses, with rats displaying higher levels of stress than mice.

In the context of the study described, the authors noted that the presence of minorities can lead to increased stress and decreased job satisfaction. This is consistent with previous research that has shown that the presence of minorities can have a negative impact on overall job satisfaction.

In conclusion, the study suggests that the presence of minorities can have a negative impact on job satisfaction. This is consistent with previous research that has shown that the presence of minorities can have a negative impact on overall job satisfaction.
the same for both types of groups. Furthermore, in the first period, homogeneous groups usually scored higher than diverse groups on all performance measures. The authors also found that, for the first three such periods, scores showed no significant differences between homogeneous groups. Only in the last period were significant differences found between homogeneous groups. Therefore, the study supports the idea that diversity is not necessarily detrimental to group performance.

However, the study's findings are not without limitations. The researchers note that the study was conducted with a small sample size and that further research is needed to confirm the findings. Additionally, the study does not control for other variables that may influence group performance, such as the level of group cohesiveness or the presence of a leader. Despite these limitations, the study provides valuable insights into the effects of diversity on group performance and highlights the importance of further research in this area.
of similarity/attraction and social categorization theories than with information and decision making.

A limitation to the existing research is that most studies have only examined blacks and whites, or whites and "others." Yet, as decades of research in cross-cultural psychology has shown, there are important differences within and across ethnic groups (e.g., Kim, Park, & Suzuki, 1990; Phinney, 1996) that may be relevant within organizations (e.g., O'Reilly, Williams, & Barsade, 1997; Riordan & Shore, 1997). It is unclear that Asian Americans, for instance, will have the same experience as African Americans in majority Anglo-American organizations. Further, the effects of proportionality may also have important effects on racial diversity just as it does on sex composition (e.g., Espinosa & Garza, 1985; Garza & Santos, 1991; Tsui, Egan, & O'Reilly, 1992).

Other Important Diversity Variables

Variations in other individual differences have also been studied and found to have important effects on the process and performance of groups. Some of the earliest laboratory studies conceptualized diversity in terms of variations in personality, attitudes, and values and found positive effects for these (e.g., Tannen, 1957). In 1959 Hoffman examined 20 small groups in the laboratory and found that groups that were diverse in terms of their personality characteristics produced higher quality outputs and tended to produce more innovative solutions. Hoffman and Maier (1961) found further support for the positive effects of diversity in terms of personality. Triandis, Hall, and Ewen (1965) also found that heterogeneity in attitudes, but not abilities, was associated with increased creativity.

Bochner and Hesker (1994), using an Australian sample, found that people who were different from others in their work groups on power distance and collectivism perceived that they were discriminated against more frequently, but valued their cultural differences more highly. This finding suggests that heterogeneity in cultural values may have important effects on individual outcomes. For example, Dutch researchers found that individuals who were not Dutch tended to be less satisfied with their jobs than their Dutch co-workers (Verkuyten, de Jong, & Momen, 1993). Although the evidence for cultural diversity is intriguing, organizational demographers have seldom focused on this type of diversity as it affects group process and performance.

Another stream of research of potential relevance for understanding the impact of diversity is studies of the effects of "minority influence" on decision making. Charlan Nemeth and her colleagues (e.g., Nemeth, 1986; Nemeth & Kwan, 1987) have shown that when people hold strong, consistent views different from the majority, they can often have an effect on decisions beyond what their proportion would suggest. Research suggests informational social influence may dampen some of the conformity pressures of normative social influence (Moscovici, 1985). Thus, insofar as demographic differences also index differences in information, a minority in a group may raise issues that can affect the group’s decision making.

ORGANIZATIONAL DEMOGRAPHY AND DIVERSITY: WHAT DO WE KNOW?

As reviewed, the majority of research has been undertaken using one of three general theoretical frameworks: similarity/attraction, social categorization, or information/decision making. These approaches have been characterized by different assumptions about the role and effect of diversity and the modal way to conduct the research. Researchers in the three traditions either implicitly or explicitly accept a model that argues that group or organizational diversity can affect group processes such as social integration, communication, and conflict. Group functioning is then presumed to affect group outputs, including performance and the ability of the group to function effectively in the future. Thus, many of the original studies of demography and diversity began by investigating the linkages between measures of diversity and group or organizational outcomes (e.g., Hoffman & Maier, 1961; Wagner, Pfeffer, & O'Reilly, 1984). After demonstrating that diversity was associated with important outcomes, researchers have focused on opening up the "black box" of organizational demography and explicitly examining the processes by which diversity may affect group outputs (e.g., Ancona & Caldwell, 1992; Jehn, Northcraft, & Neale, 1997; O'Reilly, Williams, & Barsade, 1997; Pelled, Eisenhardt, & Xin, 1997). So what can we say with confidence about the impact of diversity on groups and organizations?

What Do We Know?

Based on the studies reviewed here, two major findings from the research on demography and diversity appear to be well supported. First, there is substantial evidence from both laboratory and field studies conducted over the past four decades that variations in group composition can have important effects on group functioning. These studies show that increased diversity, especially in terms of age, tenure, and ethnicity, typically has negative effects on social integration, communication, and conflict (e.g., Chatman et al., 1997; Ilarra, 1992; Jehn, Northcraft, & Neale, 1997; Lott & Lott, 1965; O'Reilly et al., 1989; Pelled, Eisenhardt, & Xin, 1997; Smith et al., 1994). Diverse groups are more likely to be less integrated, have less communication, and more conflict. Interestingly, the one exception to this pattern is with regard to functional diversity or educational background. For this variable, increased diversity has been shown under some circumstances to increase communication (e.g., Ancona & Caldwell, 1992; Gluck, Miller, & Huber, 1993; Jehn, Northcraft, & Neale, 1997). In addition to the effects on social integration, communication, and conflict, research has also linked group
A recent supportive conclusion is that at the micro level, increased diversity typically has negative effects on the ability of the group to meet its "needs" and functions effectively over time. The literature shows clearly that individuals are affected by the demographic composition of their work groups. The presence of evidence shows that increased diversity within a group can be associated with lower levels of satisfaction and commitment (Rosen & Sharp, 1997; Tusi, Egan, & O'Reilly, 1993; lower performance evaluations for those who are different (Goren, Vanacker, S. Wurmey, 1990; Holahan, 1979; Judge & Furnham, 1993; Kotter, Dubb, & Nix, 1991; Tusi & O'Reilly, 1989); and higher levels of absenteeism and turnover (Cummings, Zhao, & O' Donnell, 1993). Jackson et al., 1991; McCain, O'Reilly, & Pfeffer, 1983; O'Reilly, Caldwell, and Baron, 1989; O'Reilly, Snyder, & Boothe, 1993; Pfeffer & O'Reilly, 1987; Tusi, Eisen- man, and Tusi, 1992; Wagner, Pfeffer, & O'Reilly, 1996; Wiener and Bidd, 1993). In general, more diverse demographic characteristics such as sex and ethnicity have larger negative effects than that are less visible like age (Cun- nings, Zhao, & O'Donnel, 1993; Pfeffer, 1993).

What is less clear from this research is precisely how and when diversity affects group productivity. Though there is evidence that variations in more visible characteristics (e.g., tenure, race, gender) appear to have larger effects than less visible attributes, we still do not understand in any detail why these effects occur. For example, the underpinning mechanism linking functional diversity to increased task conflict and performance different than that linking diversity in race to emotional conflict? A critical unmet assumption underlying the debate is whether increases in diversity are possible in the absence of significant changes in the underlying structure of a group. The failure to control for these differences may have implications for the degree to which increased diversity is seen as being beneficial or detrimental to group performance. For example, the presence of women in a group may be seen as increasing diversity, but the presence of men may be seen as decreasing diversity. Therefore, the question of whether diversity is seen as having positive or negative effects on group performance is critical to understanding the impact of diversity on group performance.
KATHERINE WILLIAMS and CHARLES A. O’REILLY 111

simultaneously between the group and the individual. However, we also suggest that the nature of the conflict in question may be a major factor. For example, in a situation of high conflict, the individual may be more likely to experience anxiety about the outcome of the conflict, leading to a greater likelihood of seeking a solution that is perceived as fair or just. Conversely, in a situation of low conflict, the individual may be more likely to experience a sense of powerlessness or helplessness, leading to a greater likelihood of seeking a solution that is perceived as uncontrollable or uncontrollable.

In summary, the results of this study suggest that the nature of the conflict in question may be a major factor in the way in which individuals experience and react to conflict. The findings also suggest that the relationship between conflict and anxiety may be mediated by the individual’s perception of the conflict as controllable or uncontrollable. Further research is needed to explore these relationships in more detail.
CONCLUSIONS

There is an impressive amount of high-quality laboratory and field research on diversity and demography in organizations. Overall, this research offers convincing evidence for the argument that variations in group demography can have both direct and indirect effects on group process and performance. Under ideal conditions increased diversity may have the positive effects predicted by information and decision theories. However, consistent with social categorization and similarity-rejection theories, the preponderance of empirical evidence suggests that diversity is most likely to impede group functioning. Unless steps are taken to actively counteract these effects, the evidence suggests that, by itself, diversity is more likely to have negative than positive effects on group performance. Simply having more diversity in a group is no guarantee that the group will make better decisions or function effectively. In our view, these conclusions suggest that diversity is a mixed blessing and requires careful and sustained attention to be a positive force in enhancing performance.

We believe that one reason the positive effects of diversity have been comparatively difficult to document has to do with the way research has proceeded. First, the lack of agreement across studies about the definition of "performance" means that diversity and its consequences are too often measured in ways that fail to distinguish between idea generation or "creativity" and the implementation of the idea. For groups to perform successfully, they must have both the ability to develop creative solutions and to implement or execute these ideas (O'Reilly, Williams, & Ford, 1997). Importantly, variation in the types of diversity and conflict may affect creativity and implementation differently. When these distinctions are ignored or combined, misleading conclusions may be drawn. Thus, while some studies suggest that heterogeneous groups may have higher levels of task conflict and thereby make better decisions (Pfeffer, Harrison, & Maie, 1995), the same heterogeneity that provides for different perspectives may also result in increased emotional conflict, making implementation of the task more difficult.

Diversity is a reality for managers and organizations. It is also an important social value in our society. Research and theory show that there is a pervasive cognitive tendency to react to perceived differences. The evidence from 40 years of research suggests that these reactions may have negative consequences for group process and performance. The challenge is to develop ways to accommodate these tendencies so that their negative effects are attenuated and the positive benefits of diversity can be realized. A number of research directions are available. First, the same cognitive compartmentalization processes that highlight differences can also be used to help individuals define inclusive categories which accommodate diverse characteristics (Krauss, 1991). Organizational culture, manifest in the values that define groups and organizations, may be a powerful way for managers to use informational and social influence processes to encourage inclusivity rather than divisiveness (O'Reilly & Chatman, 1996). Second, the same cognitive processes that can highlight differences can also be directed in ways to emphasize inclusive categories rather than exclusive ones. Finally, simply making salient the potential negative effects of social categorization processes may encourage individuals to be aware of the possibility of discrimination and to override these tendencies (Gaertner et al., 1989). Ignoring the negative consequences of diversity is not the answer. Ironically, underestimating these negative effects may provide a solution for its most pernicious effect. This is the good news from this review.

ACKNOWLEDGMENT

We thank Jeff Pfeffer, Mike Tushman, and Barry Nave for their helpful comments on an earlier draft of this manuscript.
APPENDIX

Figure 1A. Laboratory Studies (N = 27)

<table>
<thead>
<tr>
<th>Author</th>
<th>Demographic Variable</th>
<th>Dependent Variable</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglin, Becker, &amp; Collie (1984)</td>
<td>Gender</td>
<td>Conflict, interpersonal tension, facilitation</td>
<td>Children in mixed-sex groups reported higher levels of conflict and facilitation than all-male groups.</td>
</tr>
<tr>
<td>Altman &amp; Haynes (1967)</td>
<td>Sex</td>
<td>Gender and team performance</td>
<td>Women and men showed similar levels of performance in both gender and team contexts.</td>
</tr>
<tr>
<td>Chapman, Peters, &amp; Weeks (1987)</td>
<td>Nationality, Race, Gender</td>
<td>Interaction with other groups, perceived group favoritism, liking</td>
<td>Interaction with other groups was highest when groups were perceived as favoring one's group, followed by perceived group favoritism, and then liking.</td>
</tr>
<tr>
<td>Clement &amp; Skorck (1972)</td>
<td>Gender</td>
<td>Signal detection task</td>
<td>Signal detection performance was higher for women than men.</td>
</tr>
<tr>
<td>Epperson &amp; Green (1981)</td>
<td>Ethnicity</td>
<td>Cooperation</td>
<td>Cooperation levels were similar across ethnic groups.</td>
</tr>
<tr>
<td>Funk &amp; Maguire (1968)</td>
<td>Ethnicity</td>
<td>Manifestation of dominance</td>
<td>Dominance was more pronounced among groups with higher ethnic diversity.</td>
</tr>
<tr>
<td>Glenn &amp; Hafen (1971)</td>
<td>Attitudes</td>
<td>Group attractiveness, preconceptions of cooperation</td>
<td>Group attractiveness was positively correlated with preconceptions of cooperation.</td>
</tr>
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(Continued)
### Figure 1A (Continued)

<table>
<thead>
<tr>
<th>Authors</th>
<th>Demographic Variable</th>
<th>Dependent Variable</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levy (1964)</td>
<td>Heterogeneity of potential group members</td>
<td>Attrition rate of new members</td>
<td>N= 60 undergraduates. Students rated others' attractiveness as a function of perceived similarity. Heterogeneous groups performed better than homogeneous groups.</td>
</tr>
<tr>
<td>McLeod &amp; Liddel (1992)</td>
<td>Efficacy, Quality of ideas, Creativity</td>
<td>Quality of ideas, Creativity</td>
<td>N = 107. Informativeness task. Heterogeneous groups produced higher quality ideas, but more negative or more creative ideas.</td>
</tr>
<tr>
<td>Sackett, Dubois, &amp; Han (1993)</td>
<td>Gender, Ethnicity</td>
<td>Performance evaluations</td>
<td>N= 486 job performance evaluations. Women were favored by male supervisors, and men were favored by female supervisors.</td>
</tr>
<tr>
<td>Starke, Smith, &amp; Winnick (1990)</td>
<td>Expectation of Information, Information sharing</td>
<td>Correct answers, Information sharing</td>
<td>N= 294 undergraduates. Predictive group members were more likely to share information and provide more accurate answers.</td>
</tr>
<tr>
<td>Thoenig (1991)</td>
<td>Student characteristics, Occupational interest, Academic major</td>
<td>Creative performance</td>
<td>N= 294 undergraduates. Heterogeneity did not influence performance in face-to-face discussion groups or in one-on-one task situations. In balanced performance for nominal groups.</td>
</tr>
<tr>
<td>Triandis, Hall, &amp; Ewen (1962)</td>
<td>Heterogeneity of attributes and ability</td>
<td>Creativity</td>
<td>N= 80 male undergraduates. Heterogeneity in attributes and homogeneity in abilities associated with increased creativity. Low intergroup attraction associated with decreased creativity.</td>
</tr>
<tr>
<td>Weiner, Kimmel, &amp; Miller (1983)</td>
<td>Ethnicity</td>
<td>Group process, Performance, Range of perspectives, Problem identification, Quality</td>
<td>N= 50 student groups. Four main conditions: high diversity, high similarity, high diversity, low similarity. Agreement on diversity produced longer, more diverse perspectives, but few outside range of perspectives.</td>
</tr>
<tr>
<td>Wool, Zane, &amp; Cooper (1975)</td>
<td>Ethnicity, Interview behavior</td>
<td>Interview behavior</td>
<td>N= 1548. Interviews of African Americans conducted shortly after interviews with more displays of negative racial role.</td>
</tr>
</tbody>
</table>

### Figure 2A. Field Studies (N= 62)

<table>
<thead>
<tr>
<th>Authors</th>
<th>Dependent Variable</th>
<th>Results</th>
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</thead>
<tbody>
<tr>
<td>Quera &amp; Caldwell (1962)</td>
<td>Functional group processes</td>
<td>N= 40 teams. Team diversity linked to group processes. Functional diversity positively impacts innovation through external communication and has a negative impact on innovation and performance. Team diversity enables teams to manage conflicts which on budget and schedule.</td>
</tr>
<tr>
<td>Briner &amp; Sackett (1999)</td>
<td>Age, Education, Function, Tenure</td>
<td>N = 257 managers. Hypothesis was that performance evaluations are higher for managers in face-to-face discussion groups. Diversity in tenure and educational preparation related to higher tenure. Diversity of employment status positively related to tenure.</td>
</tr>
<tr>
<td>Hart &amp; Sackett (1997)</td>
<td>Age, Background, Gender, Race, Rank</td>
<td>Performance evaluations</td>
</tr>
<tr>
<td>Herson &amp; Sonnenfeld (1997)</td>
<td>Performance of male and female in senior management position</td>
<td>N = 50 managers. Hypothesis was that performance evaluations are higher for managers in face-to-face discussion groups. Diversity in tenure and educational preparation related to higher tenure. Diversity of employment status positively related to tenure.</td>
</tr>
<tr>
<td>Oermann, Moser, &amp; Olbrich (1993)</td>
<td>Team size, Education, Age, Gender</td>
<td>Performance, Abortion, Turnover</td>
</tr>
<tr>
<td>Tonge, Corden, &amp; Kruglanski (1987)</td>
<td>Team size, Education, Age, Gender</td>
<td>Team size, Education, Age, Gender</td>
</tr>
<tr>
<td>Tonge, Chen, &amp; Kruglanski (1987)</td>
<td>Gender, Identification</td>
<td>Gender, Identification</td>
</tr>
<tr>
<td>Authors</td>
<td>Demographic Variables</td>
<td>Dependent Variables</td>
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<tr>
<td>N = 71 firms in 1 industry; Majority of participants were men</td>
<td>Inclusion</td>
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</table>

**Figure 2A.** (Continued)
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<thead>
<tr>
<th>Author(s)</th>
<th>Demographic Variables</th>
<th>Dependent Variables</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>South, Bonn, Marchant, &amp; Corder (1982, 1983)</td>
<td>Gender, Support from opposite sex</td>
<td>Men and women in work groups dominated by the opposite sex felt like they received more support from opposite sex coworkers than those in groups dominated by their own gender. N = 22 cross-race dyads. Positive mentor relationships result from complementarity in how the dyad dealt with race.</td>
<td></td>
</tr>
<tr>
<td>Thomas (1993)</td>
<td>Race</td>
<td>Mentor relationships</td>
<td>N = 151 units in 3 organizations. Teams diverse in race and age had lower levels of commitment. Nonhomogeneous effects for sex and race, with whites and men showing larger negative effects for heterogeneity.</td>
</tr>
<tr>
<td>Tosi, Egas, &amp; O'Reilly (1992)</td>
<td>Gender, Age, Education, Race</td>
<td>Commitment, Absenteeism, Intent to stay</td>
<td>N = 272 superior-subordinate dyads. Increasing dissimilarity in superior-subordinate demographic characteristics is associated with lower effectiveness, less liking, and increased role ambiguity.</td>
</tr>
<tr>
<td>Tosi &amp; O'Reilly (1989)</td>
<td>Age, Gender, Race, Education, Organizational tenure</td>
<td>Perceived effectiveness, Personal attraction, Role ambiguity</td>
<td>N = 39 TMTs. Executive team change positively related to ROA.</td>
</tr>
<tr>
<td>Wagner, Pfeffer, &amp; O'Reilly (1986)</td>
<td>Age, Tenure</td>
<td>Turnover</td>
<td>N = 43 companies. CEO's appoint demographically similar/vary directors. This leads to increased pay and less at risk compensation.</td>
</tr>
<tr>
<td>Wiersema &amp; Bartel (1992)</td>
<td>Education, Diversification strategies</td>
<td>Turnover</td>
<td>N = 40 Japanese firms. Heterogeneity in prestige of university leads to more turnover, especially of those who were most dissimilar.</td>
</tr>
<tr>
<td>Wiersema &amp; Bartel (1995)</td>
<td>Education, Age, Tenure</td>
<td>Turnover</td>
<td>N = 40 Japanese firms. Heterogeneity in prestige of university leads to more turnover, especially of those who were most dissimilar.</td>
</tr>
<tr>
<td>Wiersema &amp; Bird (1993)</td>
<td>Age, Prestige of university, Tenure</td>
<td>Turnover</td>
<td>N = 40 Japanese firms. Heterogeneity in prestige of university leads to more turnover, especially of those who were most dissimilar.</td>
</tr>
<tr>
<td>Jazir, Goldens, &amp; Shattell (1991)</td>
<td>Age</td>
<td>Innovation</td>
<td>N = 40 Japanese firms. Heterogeneity in prestige of university leads to more turnover, especially of those who were most dissimilar.</td>
</tr>
</tbody>
</table>

REFERENCES


KATHERINE Y. WILLIAMS and CHARLES A. ORLOFF


