

Some Differences Make a Difference: Individual Dissimilarity and Group Heterogeneity as Correlates of Recruitment, Promotions, and Turnover

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Schneider's (1987) attraction-selection-attrition model and Pfeffer's (1983) organization demography model were used to generate individual-level and group-level hypotheses relating interpersonal context to recruitment, promotion, and turnover patterns. Interpersonal context was operationalized as personal dissimilarity and group heterogeneity with respect to age, tenure, education level, curriculum, alma mater, military service, and career experiences. For 93 top management teams in bank holding companies examined over a 4-yr period, turnover rate was predicted by group heterogeneity. For individuals, turnover was predicted by dissimilarity to other group members, but promotion was not. Team heterogeneity was a relatively strong predictor of team turnover rates. Furthermore, reliance on internal recruitment predicted subsequent team homogeneity.

Currently, several changes in the nature of work organizations in the United States are highlighting the relative paucity of available knowledge about work group functioning. Relevant changes include new manufacturing technologies designed around work teams (see Majchrzak, 1988; Piore & Sabel, 1984), increasing acceptance of and experimentation with management styles that emphasize the collective over the individual (Walton & Hackman, 1986), and a slow shift toward competitive strategies that are best implemented by redesigning jobs to take advantage of the benefits of group interaction (Banas, 1988; M. E. Porter, 1990; Schuler & Jackson, 1987). Changes such as these seem to be increasing the proportion of workers whose jobs require teamwork (Sundstrom, DeMeuse, & Futrell, 1990). At the same time, the work force population has become more diverse (Johnston & Packer, 1987). As organizations have begun to realize, this diversity may change patterns of behavior established during an era when work groups were relatively homogeneous (Jackson, 1991).

Psychologists have traditionally approached the study of behavior in organizations from a perspective that emphasizes individual-level constructs and processes. Contrasting sharply with the psychological approach is the more sociologically oriented research of organization theorists, who attempt to explain macro patterns of organizational behavior through consideration of organization-level constructs, such as structure and technology. Research on work groups, which is relatively rare in comparison with research conducted at the levels of individuals and organizations, falls midway between these two extremes

and often draws on research conducted at both the individual and organization levels of analysis.

Two recently developed theoretical perspectives—Schneider's (1987) attraction-selection-attrition (ASA) model and Pfeffer's (1983) organizational demography model—illustrate the differences that characterize the psychological and sociological approaches. In this article, we demonstrate the complementarity of these two theoretical perspectives and show how an integration of the two can be used to improve understanding of groups in organizational settings. In particular, we used these two perspectives to derive hypotheses that relate individual similarity versus dissimilarity and group homogeneity versus heterogeneity to patterns of promotion, turnover, and recruitment.

Theoretical Overview

The ASA and organizational demography models reflect differences between psychological and sociological theory, yet they share many features. Both assert that the personal attributes of the individuals who constitute an organization's work force, and the interpersonal context created by the mix of personal attributes represented in the work force, are key determinants of behavior. Furthermore, both models build on the fact that similarity is one of the most important determinants of interpersonal attraction (see Berscheid, 1985; Byrne, 1971; Levine & Moreland, 1990; Lott & Lott, 1965; Sears, Freedman, & Peplau, 1985), which in turn creates a social context for relationships among organizational members. Finally, both models address the way in which interpersonal context affects organizational behavior.

Attraction-Selection Attrition Model

The ASA model is drawn from the perspective of interactional psychology and emphasizes the role of "person effects" as determinants of behavior in organizations. It was presented by

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Schneider (1983) as an antidote to "the overwhelming tendency in contemporary I/O [industrial/organizational] psychology to assume that situational variables (groups, technology, structure, environment) determine organizational behavior" (p. 439).

Schneider (1983) argued that, through the processes of attraction, selection, and attrition, organizations evolve toward a state of interpersonal homogeneity. Early in the process, a similarity $\rightarrow$ attraction effect results in people being attracted to organizations whose members they believe are similar to themselves. Their attraction to such organizations leads people to seek organizational membership. When current members screen potential new members, they too are attracted to similar others, so they are more likely to admit new members like themselves. After entering the organization, the new member and the more tenured members become better acquainted, and the similarity $\rightarrow$ attraction effect can again affect the feelings and behaviors of both parties. The arrangement is likely to be judged satisfactory to the extent that perceived similarity is maintained (Tsui & O'Reilly, 1989). If a match is judged unsatisfactory, pressures form to encourage dissimilar members to leave the organization. Over time, these processes create psychologically homogeneous work groups (George, 1990).

In the ASA model, personality, interests, and values are the dimensions of similarity assumed to influence attraction to organizations and the people in them. Research on such topics as vocational choice (Holland, 1976; 1985), organizational choice (Tom, 1971), the use of biodata survey questions to predict job-related behaviors (Neiner & Owens, 1985; Owens & Schoenfeldt, 1979), and the use of realistic job previews as tools for recruitment and socialization (Premack & Wanous, 1985) supports this assumption. Such research seems to refute the often-made assumption that people (and their personal attributes) are randomly distributed across organizations; it suggests instead that a restriction of range occurs within organizations, with similar kinds of people who exhibit similar kinds of behavior being clustered together. According to Schneider (1987), the homogeneity of personalities, values, and interests that characterize members within an organization are what account for the organization's apparent unique quality. Thus, the ASA model reflects a psychological perspective. The emphasis is on using an understanding of individuals as a route to explaining phenomena that other theorists might conceptualize at the level of the group or organization.

Organizational Demography Model

Closely related to Schneider's (1987) ASA model is Pfeffer's (1983) model of organizational demography. Pfeffer used the term *organizational demography* to refer to the demographic composition of formal organizations. According to Pfeffer, the demographic compositions of organizations influence many behavioral patterns, including communications, job transfers, promotions, and turnover. Included among the dimensions of demographic composition Pfeffer considered important were age, tenure, sex, race, socioeconomic background, and religion. Sociological studies and marketing research have both shown that differences in people's attitudes and values are reliably associated with differences in their standing on demographic characteristics such as these. Given this evidence, the similarity

effect provides a rationale for how and why demographic compositions of organizations are likely to be related to organizational phenomena. The focus on organizations as the unit of analysis clearly distinguishes Pfeffer's sociological perspective from Schneider's psychological perspective. Thus, in place of Schneider's discussion of the individual-level constructs of similarity and attraction, Pfeffer provided a discussion of the organization-level constructs of homogeneity and cohesiveness. And, in place of Schneider's discussion of the individual feelings and behaviors that shape the selection of new members and attrition from organizations, Pfeffer emphasized communication networks and patterns of employee flow.

Hypotheses

Despite the similarity of the phenomena and processes implicated in Schneider's (1987) ASA model and Pfeffer's (1983) organizational demography model, research to date has not integrated the two perspectives. In this study, we drew on each model to develop a series of hypotheses about how interpersonal context relates to organizational behavior. Our hypotheses were stated at both the individual and the group level of analysis. By including both levels of analysis and explanation, we illustrate the complementarity of these two emerging streams of research; we do not intend to demonstrate the superiority of one over the other.

For the conceptual logic that led to our hypotheses, we relied most heavily on the theoretical propositions of Schneider (1987). However, in a departure from Schneider's emphasis on psychological attributes, such as personality and values, we assumed that demographic attributes are powerful determinants of both perceptions of similarity and perceptions of person-environment fit. This assumption is consistent with the organizational demography perspective and with research on social cognition, intergroup relations, self-categorization, and social identity theory (e.g., see Hastie et al., 1980; Hogg & Abrams, 1988; Sorrentino & Higgins, 1986; Taylor & Moghaddam, 1987; Turner, 1987), all of which supports the assertion that information about a person's demographic characteristics influences both attributions regarding the person's psychological character and behavior toward the person.

In the following sections, we present our hypotheses and related rationale. Hypotheses about group-level phenomena are presented first, followed by hypotheses about individual-level phenomena. We use the term *personal attribute* as a generic reference to individual characteristics. Our hypotheses are stated with specific reference to the population we studied: executives who were members of top management teams.

Groups as the Units of Analysis

Hypothesis 1. Top level executives are not randomly distributed across management teams. Instead, they are grouped into teams characterized by greater homogeneity of personal attributes than would be expected by chance.

Schneider (1987) argued that, because the similarity effect operates on attraction, selection, and attrition processes, organizations evolve to have unique compositions of organizational members who are relatively similar to each other. Therefore, the

demographic differences between people who are members of different organizations should be greater than the differences between people within organizations.

The ASA model postulates several processes that cause groups to evolve toward homogeneity. The attraction process has been well documented elsewhere and was not addressed in this study. Hypotheses 2 and 3 address the attrition process. Hypothesis 4 addresses the selection process.

Hypothesis 2. Demographically heterogeneous teams have higher turnover rates than demographically homogeneous teams.

Hypothesis 2 follows from the ASA model if one assumes that demographic attributes are associated with differences in some attitudes, values, and beliefs that have the potential to create conflict among team members, and thus influence group outcomes and behavior (Daft & Weick, 1984; Hambrick & Mason, 1984; Pfeffer, 1983). For some personal attributes, there is direct empirical evidence showing a link between the attribute and associated attitudes, values, and beliefs. Evidence of age-related differences is abundant. Age has been shown to be negatively correlated with risk-taking propensity (Vroom & Pahl, 1971) and the cognitive processes adults use for problem solving (Datan, Rodeheaver, & Hughes, 1987); such differences could easily create conflicts among members of high-level decision-making teams. There is also evidence suggesting that societal conditions (e.g., economic depressions vs. booms and periods of war vs. peace) associated with different age cohorts influence attitudes and values (see Elder, 1974, 1975; Thernstrom, 1973). Regarding tenure, several researchers have argued that, as tenure accrues, executives become increasingly committed to the status quo (see Hofer, 1980; Starbuck, Greve, & Hedberg, 1978), and recent empirical evidence provides some support for this assertion (Finkelstein & Hambrick, 1990; Hambrick, Geletkanycz, & Fredrickson, 1990). Regarding education experiences, evidence indicates that curriculum choices are associated with personality, attitudes, and cognitive styles (Holland, 1976), as well as with subsequent job experiences (National Science Foundation, 1963).

In comparison with the abundance of empirical evidence relating age, tenure, and education to personality, values, and cognitive and interpersonal styles, evidence relating attitudes and values to specific job and industry experiences is scarce and inconsistent (see Dearborn & Simon, 1958; Walsh, 1988). Nevertheless, the assumption that differences in such experiences are associated with cognitive variables is widely accepted in the management literature. Similarly, direct evidence about differences in leadership styles among executives with and without military experience is scarce, but because the US military invests heavily in designing and delivering leadership training, it is likely that military experience affects leadership style (see Bass, 1981).

Hypothesis 3. Subgroup status interacts with team heterogeneity to affect turnover rate. The relationship between heterogeneity and turnover is weaker for the subgroup of elite top executives than for the subgroup of nonelite executives.

We examined and compared the relationship between heterogeneity and turnover for (a) executives who were members of the uppermost echelon, whom we refer to as the *elite subgroup* and

(b) executives just below this level, whom we refer to as the *nonelite subgroup*. There are several reasons for expecting the relationship between heterogeneity and turnover to be different for these two subgroups of executives. One reason is that members of the uppermost echelon ought to be more homogeneous than members of the team as a whole; this restriction in range at the top ought to attenuate any relationship between group composition and turnover rate. The expectation of range restriction follows from published studies showing that, in the United States, top-level executives in large organizations come from similar backgrounds and do not represent the broader population of employees (e.g., Useem & Karabel, 1986). Another reason for predicting different effects for the elite and nonelite subgroups is that these differences in status are likely to be related to differences in the rewards offered for effective organizational performance (see Gomez-Mejia & Welbourne, 1989). If rewards for effective performance are greater for executives at the higher status level, tolerance of disagreements and conflicts may be greater also; this should weaken the relationship between team composition and turnover rates.

Hypothesis 4. Top management teams that rely on internal (within-firm) sources when recruiting new team members are more homogeneous than teams that rely more on external sources.

The ASA model postulates that selection processes create homogeneity by limiting the types of people admitted into the group. One way that selection bias can occur is if some types of people are excluded from the pool of applicants considered for a position. Such a situation would be likely if a homogeneous organization relied mostly on applications from its own work force as the source of candidates for job openings (cf. Rynes & Barber, 1990). If managers within an organization are more similar to each other than they are to managers in other organizations, then a reliance on internal recruitment for top team members should be associated with greater homogeneity within the top management team.

Individuals as the Units of Analysis

Hypothesis 5. Executives who are dissimilar to their teammates are more likely to leave the firm than executives who are similar to their teammates.

The relationship between group heterogeneity and turnover rates predicted by Hypothesis 2 could arise as a result of at least two different processes. On the one hand, a relationship between group heterogeneity and turnover rates could arise because dissimilar group members in particular are more likely to leave the group. Dissimilar members might leave because they feel uncomfortable in the group, because their dissimilarity may limit how well they are integrated into the group, or because they are perceived as poor performers and other group members pressure them to leave (O'Reilly, Caldwell, & Barnett, 1989; Schneider, 1987; Tsui & O'Reilly, 1989; Wagner, Pfeffer, & O'Reilly, 1984). On the other hand, an association between group heterogeneity and group turnover rates could occur even if the more dissimilar group members were no more likely to leave the group than their less dissimilar peers. Heterogeneity may create equal levels of discomfort for all group members. It may limit integration and the development of cohesiveness at

the level of the group as a whole. As a consequence, the probability of turnover may increase equally for all group members. If an association between group heterogeneity and team turnover rates is due solely to such group-level processes, then no relationship should be found between individual dissimilarity and individual turnover.

Hypothesis 6. The relationship between personal dissimilarity and turnover is weaker for executives in the elite subgroup than for executives in the nonelite subgroup.

The rationale for expecting the relationship between personal dissimilarity and individual turnover from the team to be different for members of the elite and nonelite subgroups parallels the rationale presented to support Hypothesis 3. For members of the elite subgroup, a restriction in range for the dissimilarity measure may attenuate the relationship between dissimilarity and turnover. In addition, rewards for team performance may be greater for these executives than for the other members of the team, and these greater incentives may counteract any internal or external pressures on them to leave the group. Also, their position of relative power may insulate them from the pressures to leave that might otherwise be exerted by the lower status group members. Finally, even if lower status members attempted to pressure dissimilar high-status members to leave, these influence attempts would probably be less effective than similar influence attempts directed at lower status members by higher status members (Shaw, 1981).

Hypothesis 7. Lower status team members who are similar to their higher status team mates are more likely to be promoted than are lower status team members who are less similar.

This hypothesis follows from the expectation that biases favoring selection of similar others into the group operate during the selection of new group members. When the elite subgroup considers who to select to fill a vacancy within their ranks, they are likely to more favorably evaluate those who are most similar to themselves because these people are assumed to be more predictable and trustworthy (Kanter, 1977; Useem & Karabel, 1986), their past job performance may be evaluated more positively (Tsui & O'Reilly, 1989), and they may be perceived as having the characteristics needed to continue implementing the organization's current strategy (see Vancil, 1987). It is reasonable to assume that nonelite group members represent a significant proportion of the "applicant" pool for vacancies that arise at the next organizational level (Dalton & Kesner, 1985), that is, vacancies at the elite level within the top management team. Applying the logic of the ASA model to the special case of promotions suggests Hypothesis 7.

Control Variables

The topic of turnover has generated a large number of empirical studies of numerous variables that might be correlated with turnover patterns, and elaborate models of the turnover process have been developed. The objective of the present study was not to test the adequacy of the available models of turnover. However, some known correlates of turnover could also be expected to correlate with the personal attributes or team composition variables assessed in this study, and they were examined. In the

following paragraphs, we discuss several variables that might produce spurious correlations between our predictor and outcome variables. Differences in results found across studies might also be related to these extraneous variables.

Industry

The typical length of tenure for chief executive officers (CEOs) varies as a function of industry characteristics, such as the number of firms in the industry, the productivity growth rate of the industry, and the volatility of the economic environment (Pfeffer & Leblebici, 1973; Osborn, Jauch, Martin, & Gluck, 1981). It is possible that the personal attributes of top executives also differ across industries, with some industries being more likely to have relatively younger or more educated top executives than others. In this study, we controlled for possible industry effects by studying top management teams within a single industry.

Age and Tenure

Many studies of voluntary turnover have found that older, more tenured employees are *less* likely to leave than are younger employees (see Cotton & Tuttle, 1986; Mobley, Griffeth, Hand, & Meglino, 1979; Mowday, Porter, & Steers, 1982; Muchinsky & Tuttle, 1979). In this study, we expected turnover to be *positively* associated with age because some top level executives are likely to be near retirement age; both mandatory retirement and optional early retirement could be significant reasons for higher turnover among older team members. By controlling for age, we controlled for retirement effects. Tenure also has been found to correlate with turnover among employees who hold positions below the level of the top management team. Explanations offered for the relationship between tenure and turnover emphasize the increasing organizational commitments and investments that bind more tenured employees to their employers.

Organization Size

Numerous reasons have been advanced for expecting a positive relationship between organization size and turnover rates among top level executives (Harrison, Torres, & Kukalis, 1988). The empirical literature provides modest support for this expectation for employees in general (Berger & Cummings, 1979; L. W. Porter & Lawler, 1966) and for top level executives in particular (Harrison et al., 1988). Organization size has also been suggested as a correlate of internal promotion rates for executives (Dalton & Kesner, 1985; Guthrie, Olian, & Gupta, 1990). All of these results suggest the importance of considering organization size as a potentially important control variable.

Organization Life-Cycle Stage

Contingency approaches to leadership effectiveness posit that the personal attributes needed from leaders of organizations in the early stages of organizational growth differ from the personal attributes needed from leaders of organizations at the later stages of development (Gerstein & Reisen, 1983; Hambrick & Mason, 1984; Szilagyi & Schweiger, 1984). Conse-

quently, the personal attributes of top executives may be associated with organization life-cycle stage (Gupta & Govindarajan, 1984). Furthermore, staffing and turnover patterns are likely to correlate with organizational life-cycle stage (Kerr & Slocum, 1987; Kotter & Sathe, 1978). To the extent that organization life-cycle stage is associated with the personal attributes of top level executives and turnover and promotion rates, any association found between top management team characteristics and turnover or promotion patterns may be due to their shared association with life-cycle stage. We assessed life-cycle stage to address this possibility.

Group Size

As groups grow in size, they experience increasing problems of communication and coordination (Blau, 1970). Perhaps because of these problems, larger teams tend to be less cohesive (Shaw, 1976). Alternatively, differences in the amount of heterogeneity present in large and small teams may account for the empirical relationships found between team size and cohesiveness. The potential for heterogeneity is greater for larger teams than for smaller teams, so it may be that higher levels of heterogeneity account for the low levels of cohesiveness found in larger teams. In this case, the association between team size and turnover should not be significant after the variance in turnover attributable to heterogeneity is accounted for.

Method

Sources of Information

Public archival data were used in this study. The primary source of information about the employment status and personal attributes of top management team members was Dun & Bradstreet's (1985-1988) *Reference Book of Corporate Managements*. To obtain reliability estimates for the information published in the Reference Book, we queried officials at Dun & Bradstreet, who indicated that all information published is obtained in writing from the firm and then confirmed by telephone. Dun & Bradstreet officials explained that, because they are in the business of selling information, accuracy is considered essential. As a further check, we contacted directly a 25% random sample of the firms we selected to obtain the names of the 1987 top management team members. This telephone survey yielded information that was in nearly complete agreement (96%) with the published lists of team members. For some top team members in our sample, the information about personal attributes listed in Dun & Bradstreet was incomplete or ambiguous. In these instances, Dun & Bradstreet entries were supplemented by referring to other sources, including *Who's Who in Finance and Industry* (25th ed., 1987-1988) and the national and regional versions of *Who's Who*. *Moody's Bank and Finance Manual* (Moody's Investor Service, 1985-1988) was used to assess organization size and growth.

Sample

A sample of bank holding companies was drawn from those listed in Dun & Bradstreet's *Reference Book of Corporate Managements* for the years 1985 through 1988. The following procedures were used to select companies for inclusion in this study. We began by selecting firms listed in 1988 with standard industry classification (SIC) codes of 6711 (holding company) and 6022 (state banks, members of the Federal Reserve System) or 6025 (national banks, members of the Federal Reserve

System). Firms from this list were retained only if listings also appeared for each of the three preceding years. Because we were interested in groups, we imposed a minimum team size of three members. Consequently, large firms are overrepresented in our sample: Of the 100 largest U.S. bank holding companies that were operating in 1988, our sample included 51. The bank holding companies in our sample had total assets ranging from \$237 million to \$150 billion (*Mdn* = \$5.22 billion); they employed between 127 and 87,000 people (*Mdn* = 5,215 employees); and they were founded between 1925 and 1983 (*Mdn* = 1968).

A team member was defined as an executive who was listed as an officer in Dun & Bradstreet's *Reference Book of Corporate Managements*. The number of executives in the top management teams in our study ranged from 3 (because of our sampling criteria) to 18 (*M* = 7.44, *SD* = 3.60). For these 93 firms, the total number of executives listed for the years 1985 through 1988 was 939. Of these, 625 were members of a top management team in 1985; the remainder joined in one of the following three years.

To verify that team members listed in Dun & Bradstreet's Reference Book constituted a co-acting executive team, we contacted a randomly selected subsample of 25% of the firms in the study. Replies indicated that most teams (88%) met formally at least once per month. The distribution of regularly scheduled meetings was as follows: 46% met at least weekly; 42% met once or twice a month; 4% met quarterly; 4% met twice a year; and 4% met annually.

Coding Procedures

Coding instructions were developed and pilot tested with a sample of 15 firms. Three research assistants were trained to code information. Each bit of information was coded independently by two trained coders. Then, Susan E. Jackson reviewed the coded results and identified discrepancies between coders. (For a 25% random sample of the codings, a count of these discrepancies indicated 86% interrater agreement.) Coders resolved discrepancies by first referring to the archival data sources to locate and correct simple inaccuracies. When discrepancies were due to disagreements over how to interpret available information, resolution was accomplished by consensus.

Measurement of Variables

Personal Attributes of Executives

For each team member, personal attributes were coded as follows:

Age. Date of birth was recorded and then used to calculate age as of 1985.

Tenure. The year the person first joined the bank holding company was recorded and used to determine length of tenure with the organization as of 1985. Checks were conducted to detect interruptions in employment status. If an individual left the firm and then returned, the years spent away from the firm were not counted toward the person's total tenure.

Level of education attained. Level of education attained was assessed as no college degree (0), four-year degree (1), master's degree (2), or doctoral degree (3).

College curriculum. This dichotomous variable (0 = no, 1 = yes) indicated whether a person had an undergraduate or graduate degree that designated specialization in business administration.

Military experience. Coders recorded whether a team member had served in the military, his or her military rank, and military branch. The analyses reported in this article were based on a dichotomous variable (0 = no, 1 = yes) that indicated whether the person served in any branch of the armed forces. Analyses of alternative variables that captured differences in rank and military branch were also conducted:

comparable results were obtained regardless of which measure was used.

Experience outside the financial industry This dichotomous variable indicated whether a team member had held a job in another industry (0 = no, 1 = yes).

College alma mater. The names of colleges attended by members were recorded, and number codes were assigned to this polychotomous variable. For measures of individual dissimilarity and group-level heterogeneity, we used only information about undergraduate colleges attended because most team members reported that they had completed at least some undergraduate course work but some had not attended graduate school. We chose to treat 2 people who attended the same college but at different stages in their educational career (undergraduate vs. graduate) as if they had attended different colleges. We assumed that undergraduate and graduate students at the same school share few common experiences and may not develop the same degree of school loyalty. To the extent that these assumptions are inaccurate, our measures may overestimate dissimilarity and heterogeneity with respect to college attended.

Functional area of expertise. In addition to the background characteristics described above, we attempted to code functional area of expertise, which is a variable of some theoretical interest (see Dearborn & Simon, 1958; Hambrick & Mason, 1984; Walsh, 1988). However, because coders were unable to generate adequately reliable data for this variable, we did not include it in our analyses.

Sex. Sex was recorded, but severe range restriction (2% female) required us to exclude this variable from our analyses.

Status within the team. Job titles were used to determine a person's status within the team. Following the procedure of Murray (1989),¹ we defined elite team members (for 1985, $n = 203$) as those with job titles of president, CEO, chairman, or vice-chairman. All other members of the executive team were coded as nonelites (for 1985, $n = 422$). The size of the elite subgroups ranged from 1 to 5 executives. Nonelite subgroups ranged in size from 0 to 17 executives. For analyses focusing on the elite and nonelite subgroups, we included only subgroups composed of at least 3 people (for 1985, $ns = 71$ elite subgroups and 76 nonelite subgroups).

An alternative way to measure status might be to assess whether or not a team member also served on the board of directors. We recorded board membership and assessed the association between these alternative measures of status. A strong association ($\chi^2 = .67$) was found, $\chi^2(1, N = 939) = 630.43, p < .05$: Most elite team members (92%) were also members of their board of directors, whereas very few (5%) nonelite members were members of the board of directors.

Attribute Dissimilarity and Group Heterogeneity Measures

Attribute dissimilarity of individual team member. Following the procedures of Wagner et al. (1984) and O'Reilly et al. (1989), we used the Euclidean distance measure to measure an individual's dissimilarity from the group (or relevant status subgroup) for a given year. For each personal attribute, individual dissimilarity equalled

$$\frac{(s_i - \bar{s})^2}{(n - 1)}, \quad (1)$$

where n is the number of group (or subgroup) members, s_i is the individual's value on the attribute, and $\bar{s}$ is the j th member's value on the attribute.²

Group heterogeneity measures. Group heterogeneity for a given year was computed for each demographic characteristic assessed. Two types of heterogeneity indices were computed. For interval variables, the coefficient of variation (standard deviation divided by the mean) was computed; its psychometric properties (in particular, the fact that

it is a scale-invariant measure) are preferred over the standard deviation (Allison, 1978). For categorical variables, Blau's (1977) index of heterogeneity was computed. This index varies from a low of 0 (if all group members are the same) to a theoretical high of 1. Heterogeneity is defined as follows:

$$\text{Heterogeneity} = (1 - Z_p, 2), \quad (2)$$

where p is the proportion of group (or subgroup) members in a category and i is the number of different categories represented on a team.³

Turnover Measures

Turnover was operationalized as turnover from the team. Because we studied top level executives, it is likely that our indices represent turnover from the organization. We note, however, that the archival records used in this study did not permit us to verify this assumption. Hypothetically, a top team member could leave the top management team yet remain in the firm. For example, in some firms, poor performers are effectively demoted rather than fired. We assumed that such events were quite rare, although hypothetically possible.

Individual turnover. A dichotomous variable was created: A code of 0 indicated that a 1985 team member had remained on the team through 1988, and a code of 1 indicated that a 1985 team member had left the team by 1988. Both voluntary and involuntary turnover are included. Although measures of turnover that include both voluntary and involuntary turnover have been criticized as imprecise (e.g., Muchinsky & Tuttle, 1979), we had two reasons for not attempting to differentiate between these forms of turnover. First, when top level executives are the focus of study, the distinction between voluntary and involuntary turnover is often unclear. Because of the high visibility of these positions and the potential effects that executive turnover can have on stockholder reactions (see Friedman & Singh, 1989), the labeling of an executive's departure as voluntary more likely reflects political objectives than individual preferences and intentions. Second, the argument that heterogeneity creates group conflict, which in turn causes turnover, is equally applicable to understanding voluntary and involuntary leaving (Wagner et al., 1984). On the one hand, conflict may increase the group members' desire to leave the group, leading to voluntary turnover. On the other hand, group members may exert pressure on those perceived to be the cause of the conflict, leading to involuntary leaving.

Group turnover rate. When the team was the unit of analysis, the turnover index used was the proportion of 1985 team members who were no longer on the team in 1988. When status subgroups were the units of analysis, the index used was the proportion of 1985 subgroup

¹ Whereas Murray (1989) referred to inclusive and exclusive team members, we refer to nonelite and elite team members.

² For college attended, the value for $(s_i - \bar{s})^2$ was 0 if the two group members attended the same college and 1 if they did not attend the same college.

³ Information about individuals was sometimes unobtainable. When individual-level variables must be combined to produce group-level variables, as in this study, missing data are particularly problematic. A group-level index is most accurate when it is based on information about all group members; confidence in the fidelity of a group measure declines as the proportion of group members for whom information is missing increases. The decision to either discard a group for which only partial information are available or include that group and accept the loss of measurement fidelity is a necessarily subjective one, for which no standard rules are available. The decision rule we adopted to handle missing data was to calculate a team score only if the needed information was available for at least 75% of the team's members.

members who were no longer on the team in 1988; thus, members who left one subgroup to join the other subgroup were not counted as cases of turnover.

Individual Promotion

For the individual-level analyses, promotion was defined as a change from nonelite status to elite status within the top management team. A dichotomous variable was computed for executives who were members of the nonelite subgroup in 1985, 1986, or 1987 ($n = 606$). If an executive's job title in one of these years indicated he or she was a nonelite member of the team, and a subsequent listing (in 1986, 1987, or 1988) indicated a change to a title classified as elite, a promotion was recorded (value = 1). If no change in job title occurred, or if a new title appeared that was classified as being at the nonelite status level, then no promotion was indicated (value = 0). People who joined the top management team after 1985 may have arrived in their position as a result of a promotion from the ranks of middle management, but they are not included in the tests of our hypotheses about individual promotions. This is because, to test our individual level hypotheses about promotion, we would need to know the personal attributes of *all* middle managers eligible for promotion to the top management teams. This information was not available.

Promotion can also occur within the elite subgroup, as when a senior vice president becomes CEO. However, because of the complex nature of the succession processes through which new CEOs come into power (see Friedman & Singh, 1989), we concluded that promotions within the elite subgroups might not be validly indicated by the timing of title changes.

Groups' Reliance on Internal Sources for Recruitment of New Members

Top management teams can recruit new members from inside or outside their firm. To assess the propensity of a team to rely on internal sources, we determined the percentage of new team members (all members who joined the team in 1986, 1987, or 1988) who had been employed by the firm in the year immediately prior to the one in which they joined the top management team. This index should *not* be interpreted as an aggregated index derived from our measure of individual promotion, which indicates whether a nonelite team member was promoted to elite status within the team. In contrast, propensity to use internal sources for filling team vacancies captures the extent to which teams recruited new members from among any of their firms' current employees.

Organization Characteristics

Size. Two indicators of organization size were recorded: total number of employees and total assets (dollars).

Life-cycle stage. Following the procedure of Smith, Mitchell, and Summer (1985), we used growth rate and founding date as indicators of life-cycle stage. Growth rate was operationalized as the percentage increase in the size indicators between 1985 and 1988. Thus, growth in number of employees and growth in total assets were both determined. Founding date was the year the bank holding company was established.

Results

Descriptive Statistics

The means, standard deviations, and correlations among the group level measures are shown in Table 1. Comparable individual level statistics are shown in Table 2.

Hypothesis 1

One-way multivariate analysis of variance (MANOVA), employing Householder transformations for unbalanced designs (Anderson, 1984), was used to test the hypothesis that executives would be clustered into groups that were more homogeneous with respect to personal attributes than would be expected by chance. All individuals who had been employed by the firms in our sample during the four years of the study were included in this analysis ($N = 939$). Place of employment (93 categories) was the independent variable. The dependent variables were age, tenure, education level, college curriculum, experience outside the industry, and military experience.⁴ A test of homogeneity of covariance matrices (**Box's M**) indicated that our distributions met the assumption of normality, $F(504, 17637) = 1.09$, ns. Results for the multivariate test revealed a significant effect of place of employment. When unequal sample sizes are present, alternative statistics can lead to differing conclusions about the significance of results (Bray & Maxwell, 1985), but for our data, three commonly used statistics all supported the conclusion to reject ($p < .05$) the null hypothesis: Wilks' $\lambda = .21$, Pillai-Bartlett trace = 1.39, and Hotelling's $T^2 = 1.96$. Effect sizes (q^2) associated with these alternative statistics were all approximately .24. Univariate tests revealed significant effects ($p < .05$) for all of the dependent variables except experience outside the industry, for which the effect was marginally significant ($p < .06$). Thus, Hypothesis I was supported. As predicted by the ASA model, top management executives in our sample were clustered together into teams that were relatively homogeneous with respect to the personal attributes we assessed.

Consideration of Control Variables

Before testing the remaining hypotheses, we examined the role of several potentially important organization, team, and person characteristics to determine whether it was necessary to include them as control variables in subsequent analyses.

Organization Characteristics

To examine the association between turnover rate and the organization characteristics of size (number of employees and assets) and date of founding, we conducted three regression analyses: Dependent variables were the turnover rates for whole teams, elite subgroups, and nonelite subgroups. Predictor variables were the organization characteristics as of the year 1985. No significant relationships were found. To test for possible curvilinear relationships, such as those hypothesized by Blau (1970), we transformed the predictors to their natural log values and conducted a second, parallel set of analyses. No significant

College alma mater was not included. Although chi-square or multiway frequency table analyses are usually appropriate for polychotomous data, the large number of schools resulted in the observed frequency per cell being below the preferred value of 5 (Hays, 1981). Because of the severity of the violation, corrections for low observed frequencies were not attempted. Visual inspection of the college information clearly indicated a nonrandom distribution for this variable, however.

Table I

Means, Standard Deviations, and Correlation Coefficients for Group Level Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Team size	7.44	3.60	—	.27*	.20	-.30*	.20	.01	.37*	.55*	.34*	.33*	.32*	.25*
2. Assets (\$ millions)	14.75	25.31		—	.91*	-.03	-.02	.14	.03	.28*	.28*	.18	.19	.06
3. Number of employees (in thousands)	9.86	3.20			—	-.04	-.03	.14	.10	.24*	.27*	.15	.22*	.02
4. Founding date	1,966.25	2.12				—	-.15	-.05	-.05	.03	-.07	-.21	-.13	-.12
5. Age heterogeneity	.18	.13					—	.20	.17	.11	.15	-.08	.31*	.25*
6. Tenure heterogeneity	.58	.24						—	.07	.11	.29*	.05	.12	.02
7. Education heterogeneity	.50	.31							—	.28*	.00	.21	.22*	.12
8. College heterogeneity	.79	.09								—	.33*	.21	.24*	.20
9. Curriculum heterogeneity	.26	.18									—	.20	.18	.28*
10. Other industry experience heterogeneity	.40	.12										—	.02	.27*
11. Military experience heterogeneity	.31	.20											—	.00
12. Turnover rate (3 years)	.32	.23												—

Note. *N* = 93 teams in 1985.* $p < .05$ (two-tailed).

relationships were found. Next, we regressed the three turnover rates on the two indices of organizational growth. Turnover rates were not significantly associated with organizational growth rate. To check for the unlikely possibility of suppressor effects, we regressed turnover rates on the control variables plus the demographic characteristics. No evidence of suppression was found. A parallel set of analyses examined the associations between promotion rates and these organization characteristics, and similar results were found. Therefore, organization characteristics were not included in subsequent analyses.

Age and Tenure

When individuals were treated as the unit of analysis, turnover was significantly and positively correlated with age for the sample as a whole ($r = .18$, $p < .05$) and for both the elite ($r = .24$, $p < .05$) and nonelite ($r = .18$, $p < .05$) subsamples. Turnover was not significantly correlated with tenure for the sample as a whole or for the elite and nonelite subgroups ($r_s = .05, .05$, and

.06, respectively, all *ns*). When turnover was regressed on age and tenure together, a significant positive beta coefficient was obtained for age but not for tenure; this was true for the sample as a whole and for both the elite and nonelite subsamples. When analyses were conducted that included age and tenure along with all other predictors of interest, the tenure coefficients remained nonsignificant for the sample as a whole and for both subgroups, indicating the absence of a suppression effect for tenure. Therefore, in all analyses related to individual turnover, we included age but not tenure as a control variable.

When groups were treated as the unit of analysis, the relationships of interest were between group turnover rate and the average age and average tenure of group members. For groups as wholes, turnover rate was unrelated to average age ($r = .00$, *ns*) and average tenure ($r = .07$, *ns*). For nonelite subgroups, a similar result was found ($r_s = .00$ and $.02$, both *ns*, for age and tenure, respectively). For elite subgroups, turnover rate was significantly correlated with both average age ($r = .36$, $p < .05$) and average tenure ($r = .20$, $p < .05$). However, when turnover rate

Table 2

Means, Standard Deviations, and Correlation Coefficients for Individual Level Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	55.15	8.39	—	.26*	-.07	-.17*	.03	.29*	.07	.13*	.03	-.04	-.02	.03	-.08	.18*
2. Tenure	6.41	8.56		—	.13*	.01	-.16*	.04	-.12*	.41*	-.08	-.07	.02	-.12*	-.09*	.05
3. Education level	1.63	0.86			—	.30*	.07	-.01	.05	.01	.24*	.06	.22*	.01	.03	.00
4. Curriculum	.24	.42				—	-.14*	-.01	-.01	.07	-.27*	.01	.60*	-.06	.05	-.02
5. Other industry experience	.42	.45					—	.01	.10*	-.04	.10*	.01	-.03	.23*	.07	.05
6. Military experience	.56	.46						—	.08	-.05	-.13*	-.02	-.03	-.05	-.19*	.05
7. Age distance	10.46	4.05							—	.10*	.03	-.07	-.03	.07	.12*	.03
8. Tenure distance	10.07	5.01								—	.01	-.01	.17*	-.06	.02	.02
9. Education distance	1.13	0.41									—	.12*	-.08	.09*	.07	.09*
10. College distance	1.03	0.09										—	.01	.03	.06	-.05
11. Curriculum distance	.50	.29											—	.07	.18*	.10
12. Other industry experience distance	.67	.16												—	.13*	.13*
13. Military distance	.55	.26													—	.01
14. Turnover (3 years)	.35	.48														—

Note. *N* = 625 executives in 1985.* $p < .05$ (two-tailed).

for the elite subgroup was regressed on these two variables, a significant beta coefficient was obtained for average age only. Finally, a check for suppression effects revealed none.

The mean of the average ages of the teams in this study was 54.23 years ($SD = 5.09$). The mean of the average ages of the elite subgroups ($M = 59.64$, $SD = 5.54$) was significantly higher than the mean of the average ages of the nonelite subgroups ($M = 52.75$, $SD = 5.37$) paired $t(70) = 6.28$, $p < .001$. Interestingly, the elite and nonelite subgroups had nearly the same rates of turnover ($Ms = .33$ and $.32$). Given these results, it appears that age was a more important predictor of turnover for groups whose members were older and closer to retirement age than for groups with younger members. In all subsequent regression analyses involving turnover rates, we included average age as a control variable. We included this control variable regardless of whether we were examining relationships for the whole team or for the elite and nonelite subgroups to facilitate comparisons across results for these different units of analysis.

Group Size

Regression analyses conducted to assess the relationship between group size and turnover rate revealed a significant relationship as expected ($R^2 = .06$, $p < .05$). For the group as a whole, when team turnover rate was regressed on average age and the seven heterogeneity indices, entered first, and team size, entered second, the effect of team size was nonsignificant ($\Delta R^2 = .00$, ns). For the elite subgroup, subgroup size and subgroup turnover rate were significantly related ($R^2 = .10$, $p < .05$); however, when turnover rate was regressed on average age and the seven heterogeneity indices, entered first, and subgroup size, entered second, the effect of size was nonsignificant ($R^2 = .00$, ns). For the nonelite subgroup, no significant relationship was found between subgroup size and turnover rate, regardless of whether size was considered alone ($R^2 = .02$, ns) or in combination with the heterogeneity indices ($\Delta R^2 = .00$, ns). Overall, these analyses indicated that size did not need to be included as a control variable in subsequent analyses.

Hypothesis 2

To test the hypothesis that attribute heterogeneity would predict team turnover rates, we regressed team turnover rate on average age, entered first ($R^2 = .00$, ns), and the seven indices of heterogeneity, entered second. The set of heterogeneity variables explained a significant proportion of the variance in team turnover ($\Delta R^2 = .22$, $p < .05$). The beta coefficients revealed significant unique effects for heterogeneity of age ($\beta = .35$, $p < .05$) and experience outside the industry ($\beta = .22$, $p < .05$) and a marginally significant effect for college curriculum heterogeneity ($\beta = .20$, $p < .10$). These results, shown in Table 3, supported Hypothesis 2.

Hypothesis 3

To test the hypothesis that subgroup status would interact with team heterogeneity to predict turnover rate, we conducted regression analyses in which status-based subgroups were treated as the units of analysis. First, elite and nonelite sub-

groups were both included in a single regression analysis. In analyses carried out for each heterogeneity index, turnover was regressed on average subgroup age, entered on the first step, subgroup status and the relevant heterogeneity index, both entered on the second step, and the relevant interaction term (Status X Heterogeneity), entered on the third step. These seven analyses revealed only one significant interaction (for college alma mater). Next, elite and nonelite subgroups were examined separately. Turnover was regressed on age, entered first, and the seven heterogeneity indicators, entered second. The results, summarized in Table 3, reveal that group heterogeneity was equally predictive of turnover from the elite and nonelite subgroups ($\beta = .22$, $p < .05$). Thus, Hypothesis 3 was not supported.

Hypothesis 4

We predicted that reliance on internal recruitment as a means for filling team vacancies would result in greater homogeneity, in comparison with reliance on external recruitment. Bivariate correlation coefficients were evaluated and three regression analyses were conducted to test this hypothesis. In all analyses, the predictor variable was percentage of new team members who had been recruited from inside the firm during the time period studied, and the dependent variables were the team heterogeneity indices for the 1988 team. The average team in our sample recruited 43% of all new team members from inside the firm.

The percentage of new members who were recruited from within the firm was significantly ($p < .05$) correlated in the predicted direction with four of the attribute heterogeneity variables: age ($r = -.30$), college curriculum ($r = -.22$), experience outside the industry ($r = -.25$), and military experience ($r = -.20$). Canonical correlation analysis also provided support for Hypothesis 4: Reliance on internal recruitment accounted for 21.1% of the variance in the canonical variate of heterogeneity indices for the 1988 teams (Wilks' lambda = .80, Pillai-Bartlett trace = .19, and Hotellings $T^2 = .24$, all $ps < .01$). Inspection of the standardized canonical function coefficients indicated that reliance on internal recruitment was most predictive of homogeneity with respect to age, industry experience, and military experience.

Hypothesis 5

Hypothesis 5 predicted that team members whose personal attributes were dissimilar to their teammates would be more likely to leave the team than would team members with similar personal attributes. Multiple regression analyses were used to test this hypothesis. Age was entered on the first step ($R^2 = .03$, $p < .05$). When the seven attribute-dissimilarity variables were entered on the second step, a significant but small amount of additional variance in turnover was accounted for ($\Delta R^2 = .04$, $p < .05$). Beta weights for the full equation indicated that members were significantly ($p < .05$) more likely to leave if they were older ($\beta = .18$) and dissimilar to their teammates in terms of education level ($\beta = .10$), college curriculum ($\beta = .12$), and experience outside the industry ($\beta = .11$). These results, shown in Table 4, support Hypothesis 5.

Table 3
Regression Results for Equations Relating Turnover Rate to Team and Subgroup Heterogeneity

Predictors	Whole teams (<i>N</i> = 93)		Nonelite subgroups' (<i>n</i> = 71)		Elite subgroups' (<i>n</i> = 76)	
	<i>f</i> ^b	<i>AR</i> ² _{CP}	<i>q</i> ^b	<i>AR</i> ² _{CP}	<i>f</i> ^b	<i>AR</i> ² _{CP}
Step 1: age	.12	.00	.09	.00	.28**	.13**
Step 2: dissimilarity indices		.22**		.22**		.22**
Age	.35**		.19		.06	
Tenure	-.08		-.02		-.03	
Education level	.03		.10		-.06	
College alma mater	.08		-.13		.33**	
Curriculum	.20*		.29**		.11	
Experience outside industry	.22**		.34**		.18	
Military experience	-.13		.07		-.13	

^a Only subgroups with three or more members were included in the analyses. ^b Values are for final equation, after all variables have been entered.

p* < .10. *p* < .05.

Consideration of each of these significant predictors raises the question of whether these results truly reflect a dissimilarity effect. An alternative explanation might be that those who are dissimilar on these variables also have more job mobility. This would be the case if the more dissimilar members were also the more highly educated and the more broadly experienced members. To test this possibility, we conducted a regression analysis in which age was entered on the first step, other personal attributes *per se* (e.g., education level) were entered on the second step, and dissimilarity measures (e.g., dissimilarity in education level) were entered on the third step. This analysis indicated that personal attributes other than age were not predictive of turnover; significant beta coefficients were obtained only for age and the dissimilarity measures.

Hypothesis 6

The strength of the relationship between attribute dissimilarity and turnover was predicted to be weaker for elite team

members than for nonelite team members. For elite team members, turnover was significantly associated only with age ($AR^2 = .06$, $p < .05$). Attribute dissimilarity did not account for a significant amount of variance when entered in the second step ($AR^2 = .02$); no beta coefficients for dissimilarity were significant in the final equation. For nonelite team members, both age ($AR^2 = .03$, $p < .05$) and the set of attribute-dissimilarity indicators ($AR^2 = .06$, $p < .05$) were significantly associated with turnover. Beta weights for the full equation indicated that nonelite team members were more likely to leave ($p < .05$) if they were older ($\beta = .18$) and dissimilar to their teammates with respect to education level ($\beta = .12$), college curriculum ($\beta = .14$), and experience outside the industry ($\beta = .13$). These results, shown in Table 4, appear to support Hypothesis 6. However, when moderated regression was used to test the statistical significance of the interaction effects, none reached acceptable levels of significance. Thus, although the direction of the results was as predicted, the strength of the results was weak.

Table 4
Regression Results for Equations Relating Turnover Rate From the 1985 Team to Personal Attribute Dissimilarity

Predictors	All team members (<i>N</i> = 625)		Nonelite members only (<i>n</i> = 422)		Elite members only (<i>n</i> = 203)	
	<i>O</i> ^a	<i>step</i>	#	<i>AR</i> ² _{CP}	<i>O</i> ^a	<i>AR</i> ² _{CP}
Step 1: age	.18*	.03*	.18*	.03*	.26*	.06*
Step 2: dissimilarity indices		.04*		.06*		.02
Age	.01		.05		-.08	
Tenure	-.02		-.05		.06	
Education level	.10*		.12*		.01	
College alma mater	-.06		-.06		-.01	
Curriculum	.12*		.14*		.08	
Experience outside industry	.11		.13*		.08	
Military experience	-.04		-.05		-.01	

Values are for final equation, after all variables have been entered.

**p* < .05.

Hypothesis 7

Our final hypothesis predicted that promotion from nonelite to elite status within the team would be more likely for nonelite members who were relatively similar to their elite-status teammates than for nonelite members who were dissimilar. A multiple regression analysis in which age was entered first ($R^2 = .00$), followed by the set of attribute-dissimilarity scores ($AR^2 = .01$), provided no support for this hypothesis. We conducted several exploratory analyses to determine whether the use of alternative indices of dissimilarity would yield different results. The alternative indices included dissimilarity from nonelite team members, dissimilarity from the team as a whole, and dissimilarity from the longer tenured elite members. Regardless of the dissimilarity index used, there were no significant relationships between demographic dissimilarity and promotion from nonelite to elite status. However, because only 5% of nonelite team members experienced a promotion during the time period for which data were available, range restriction for the promotion variable limits our ability to draw conclusions about the effect of similarity on probability of promotion.

Discussion

This study contributes to the existing literature in three ways: (a) It elaborates and tests hypotheses based on Schneider's (1987) ASA model, which is grounded in an interactionist perspective on organizational behavior; (b) it elaborates and tests hypotheses based on Pfeffer's (1983) organizational demography model, which is grounded in a sociological perspective on organizational behavior; and (c) it highlights the complementary nature of these two models and illustrates the potential value of integrating the two theoretical perspectives. We address each of these contributions in turn.

Attraction-Selection-Attrition Model

Schneider's (1987) ASA model begins with the assumption that organizations are composed of individuals who are relatively homogeneous with respect to psychological attributes, such as attitudes, values, and personality. Psychological attributes are known to be associated with demographic attributes, so we extended Schneider's arguments to hypothesize that organizations would be relatively homogeneous with respect to their demographic backgrounds. The empirical evidence was consistent with this hypothesis. Executives within firms were more similar to each other than they were to executives in other firms in our sample with respect to age, education level, college curriculum, military experience, and length of tenure in their firm.

In contrast to studies of psychological attributes, which can be influenced by experiences subsequent to group entry, most of the personal characteristics we assessed were attributes that characterized individuals prior to their entry into the teams we studied and would not be influenced by their experiences within those groups (length of tenure is an exception to this statement). Therefore, conformity and group socialization processes, which might cause group members to become similar over time with respect to values and attitudes (see Newcomb, 1953, 1961), can be ruled out as explanations for group homogeneity. With conformity and socialization effects ruled out as

explanations for the clustering together of similar executives, Schneider's (1987) assertion that selection and attrition processes explain within-group homogeneity is bolstered.

Schneider's (1987) description of how selection and attrition processes create homogeneous organizations emphasized individual psychological processes. He argued that, in organizational settings, the tendency of people to be attracted to similar others and to feel uncomfortable among dissimilar others leads them to (a) seek membership in groups composed of people perceived to be similar to themselves, (b) select into their groups people they perceive to be similar to themselves (the similarity - selection effect), and (c) discontinue their membership in groups whose members are uncomfortably dissimilar to themselves (the dissimilarity - attrition effect). We tested hypotheses about the latter two processes only.

Similarity - Selection Effect

To assess the similarity - selection effect, we examined promotions from lower to higher status positions within the top management team. For promotions, our analyses revealed no direct evidence to support the hypothesized similarity bias, which has been found in other studies (Arvey & Campion, 1982). Several explanations for this are possible: The small number of promotions that occurred may have limited our ability to detect a similarity bias; the similarity bias may operate for promotions within top management teams, but not for the particular variables we assessed; the value of promoting the most qualified people may be sufficiently great for executives selecting new members of top management teams that no similarity bias occurs; or the similarity among executives within top management teams may be so great that there is little potential for a similarity bias to create effects in the promotion process. This latter explanation is consistent with our first result, that is, that executives are clustered into homogeneous teams. Thus, it may be that the similarity - selection bias has its greatest effects on entry-level selection decisions and promotions at the lower levels of organizations. Additional research is needed to examine these possible explanations.

Dissimilarity - Attrition Effect

To assess the dissimilarity - attrition effect, we examined individual turnover. Our results support the conclusion that dissimilar members were more likely to leave the team. Dissimilarity with respect to education level, college curriculum, and industry experience were most predictive of turnover. With the exception of age, personal attributes per se did not predict turnover from the group. This latter finding provides strong support for the interactionist perspective, which highlights the role of person-environment fit in determining behavior and argues for the importance of taking interpersonal contexts into account when explaining behavior.

Status as a Moderator

Status inequality is a fact of life in hierarchically organized work settings. We studied individuals with positions high in the status hierarchy. Although Schneider (1987) did not discuss hier-

archical status as a potentially important mediator of the effects of a similarity bias, we suggested that weaker effects of a similarity bias might be found for executives at the highest status level. The direction of our results was consistent with this expectation (see Table 4), although tests for interaction effects failed to reach statistical significance.

Because the two status levels compared in this study were only modestly unequal, we believe future research should continue to attend to status as a theoretically important construct. Future studies that compare the strength of the similarity bias for people at more discrepant organizational status levels may find stronger effects.

Consideration of status level as a potential moderator variable is important for at least two reasons. First, because the sample for this study was made up of top level executives, it is possible that the effects we found are weaker than those that would be found at the lower status levels, where the majority of people are employed. Second, evidence of an interaction of the form we predicted between status level and dissimilarity effects would support the conclusion that strong situational incentives for maximizing the effectiveness of a work team, which are generally more salient at higher organizational levels, can effectively reduce the tendency of people to allow the similarity bias to influence their behaviors in detrimental ways. Research is needed to learn more about how situational incentives might be used to inhibit the similarity bias as an influence on both selection of new group members and the turnover decisions of employees because, for employers, the dysfunctional consequences of turnover decisions stimulated by feelings of poor person-organization fit can be as significant as the dysfunctional consequences of bias during selection of new organization members.

Demography Model

Several previously published studies have tested hypotheses derived from Pfeffer's (1983) demography model of organizational behavior. These studies share several common features, including use of intact organizational groups as the targets of study, use of demographics (age and tenure, in particular) as the basis for defining predictor variables, and use of sociometric indices for assessing group heterogeneity. The outcomes studied have included turnover (McCain, O'Reilly, & Pfeffer, 1983; O'Reilly et al., 1989; Pfeffer & O'Reilly, 1987; Wagner et al., 1984), communications (Zenger & Lawrence, 1989), innovation (Bantel & Jackson, 1989), and liking, role ambiguity, and performance ratings (Tsui & O'Reilly, 1989). The present study adds to the demography literature in general and to the studies of turnover in particular in two significant ways. First, several methodological improvements were made: The number of firms studied was considerably larger than in most previous research; more demographic attributes were examined simultaneously and some new demographic attributes were included; and we conducted a variety of analyses designed to rule out possible confounding variables that might spuriously create associations between group heterogeneity and our outcome variables. Sec-

ond, some theoretical extensions were suggested: We extended the demography arguments to generate hypotheses about recruitment patterns and we showed how the interactionist perspective could be integrated with the demography literature to develop hypotheses about the behavior of individuals.

The design features noted above, in combination with findings that generally supported predictions based on the demography model, increase the strength of the evidence accumulating in this research area. In addition, the design and analysis features of this study may account for the differences between our results and those of others. Specifically, whereas others have concluded that tenure heterogeneity, but not age heterogeneity, is predictive of group turnover rates (McCain et al., 1983; Wagner et al., 1984), our results suggest that, when age level is controlled for, age distributions may be more powerful predictors of turnover rates than are tenure distributions; we found no evidence of a significant effect for tenure level or tenure heterogeneity.

Caution is called for when drawing conclusions about the relative predictive power of age and tenure heterogeneity, however. In general, whether age or tenure heterogeneity is more predictive of turnover in a particular instance may be affected by the extent to which cohort differences reflect significant differences in experiences, for it is these differences in experiences that are likely to account for the differing attitudes and perspectives that are assumed to explain the demographic effects. (Note, however, that age effects may be due, in part, to developmental phenomena that operate independently of societal conditions) For example, age heterogeneity may have more substantial consequences if members of the age cohorts being studied experienced meaningful differences in societal conditions, such as economic booms versus busts or times of peace versus war. Tenure heterogeneity may have significant consequences primarily when organizational cohorts have experienced meaningfully different organizational conditions, such as expansion versus decline or reliance on fundamentally different competitive strategies.

In the present study, age heterogeneity was not the only demography variable found to be predictive of group turnover rates. Significant bivariate correlations were found between six of the seven heterogeneity indices included in the study; regression analyses showed that the set of seven heterogeneity indices explained 22% of the variance in turnover. These results show that attributes other than age and tenure can be successfully incorporated into research on organizational demography. Research that includes additional background characteristics would serve the demography literature well because it would produce a closer match between Pfeffer's (1983) theoretical model and empirical tests of his model. However, we caution researchers against searching for "the most important" (i.e., most predictive) types of demographic heterogeneity. For statistical reasons and for a variety of theoretical reasons that are beyond the scope of this discussion (but see Turner, 1987), the particular demographic attributes that affect the feelings and behaviors of group members are likely to depend on the distributions of a large set of demographic attributes, including those we assessed but also including others, such as sex, race, ethnicity, and religion.

Complementarity and Integration of the Two Models

Demographic and Psychological Attributes

A salient difference between the ASA and demography models is that the former emphasizes psychological attributes whereas the latter emphasizes demographic attributes. The predictive power of demographic dissimilarity and demographic heterogeneity has been investigated in several field studies. Although reports of those studies generally reveal the researchers' assumption that differences in psychological attributes explain why demographic attributes are predictive of behavior, the explanatory value of psychological attributes has not yet been demonstrated empirically in field studies of selection or turnover. In the future, research that assesses both demographic and psychological attributes is needed to test this assumption and provide an empirical basis for integrating the ASA and demography models.

Individual, Relational, and Group Level Predictors of Turnover

Traditionally, industrial and organizational psychologists have favored theories and propositions relating individual characteristics per se to behaviors such as turnover, and they have ignored the explanatory power that might be gained by considering either relational measures, which are indicators of how the characteristics of individuals compare with those of others within their work group, or measures of group characteristics. Conversely, sociologists tend to ignore individual characteristics when formulating theories to explain group- and organizational-level phenomena.

For this study, we obtained three types of measures: Individual attributes were assessed, primarily for methodological reasons rather than because of their theoretical interest. The seven dissimilarity measures were, by definition, relational measures that carried information about people in the context of their particular groups: they were obtained to test hypotheses derived from an interactional psychology perspective, which were stated as predictions about individual outcomes (turnover and promotion). The seven heterogeneity indicators were measures of group characteristics, obtained to test hypotheses derived from a sociological perspective, which were stated as predictions about group outcomes.

Neither Schneider's (1987) ASA model nor Pfeffer's (1983) organizational demography model specifically include propositions about cross-level effects, and we did not formally state hypotheses about cross-level effects. Nevertheless, the development of explicitly stated cross-level propositions are a potential means for integrating the two models. Although a full treatment of the theoretical integration that might be achieved by cross-level hypotheses is beyond the scope of this discussion, we illustrate here the form such propositions might take.

One form of cross-level propositions that could be used to integrate the two models would be those that treat group characteristics (e.g., heterogeneity) as predictors of individual behavior. A recently published study (O'Reilly et al., 1989) suggests that group heterogeneity may predict individual turnover. O'Reilly et al. found that group heterogeneity affects group dy-

namics. Group dynamics may, in turn, affect the turnover propensities of each group member, regardless of his or her own dissimilarity. For example, if heterogeneity tends to generate conflict among members, the higher level of conflict within heterogeneous groups may cause similar and dissimilar members alike to leave the group. If this proposition is true, then group heterogeneity should explain some of the variance in individual turnover behavior even after dissimilarity effects have been taken into account.

In a supplemental regression analysis, we tested for a cross-level effect between group heterogeneity and individual turnover. Age was entered as a predictor on the first step, the seven dissimilarity indicators were entered on the second step, and the seven heterogeneity indicators were entered on the third step. The results indicated that individual turnover was significantly ($p < .05$) associated with both the relational measures of dissimilarity ($A R^2 = .04$, as reported earlier) and the group measures of heterogeneity ($AR' = .03$). This finding is consistent with Schneider's (1987) argument that individual attributes create group contexts, and it underscores the important point that group behaviors in turn influence individual behavior. The latter type of cross-level influence loop, from the group context back to individual behavior, has received almost no attention in research on turnover, in particular, or in organizational behavior research, in general. The lack of such cross-level influence loops in models of organizational behavior reflects a tendency to formulate models to predict either individual behavior or group behavior. Our supplemental analysis illustrates how the predictive power of theories about turnover could be enhanced by theoretical extensions that use cross-level propositions to integrate theories formulated at the individual and group levels of analysis (see Rousseau, 1985).

Role of Personnel Practices in Creating Homogeneity

Finally, we note that this study provides some support for Pfeffer's (1983) suggestion that personnel policies and practices are partial determinants of the demographic distributions created in organizations. On the basis of an integrative interpretation of the demography and ASA models, we predicted that recruitment practices would predict demographic distributions. Our results indicate that reliance on internal recruitment contributes to the creation of homogeneous top management teams. This finding, in combination with research which shows that firms headed by homogeneous top management teams are less innovative, is consistent with Schneider's (1987) assertion that recruitment processes are key to creating organizations capable of change.

Taken as a whole, this study illustrates the value of investigating the multiple influences of personnel practices, group processes, and individual psychology when attempting to understand behavior in organizations. Given the increasing demographic diversity of the American work force (Johnston & Packer, 1987), findings such as those we have presented here suggest that additional research designed to improve understanding of how group heterogeneity affects behavior in work organizations is likely to have both practical and scientific utility (see Jackson, 1991).

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