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TOWARD A CONTEXTUAL UNDERSTANDING OF WORK GROUPS IN A MANUFACTURING SETTING

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Patrick Paul McHugh

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ABSTRACT

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Patrick Paul McHugh

Historically, work groups have been a fundamental component of organizations in the manufacturing sector. While workers still find themselves embedded within work groups, major contextual change has elevated the importance of these groups to the level of business strategy. Manufacturers have increasingly been adopting some variant of team-based work organization for shop-floor employees. Also, the demographic context of the workplace is becoming more diverse. There has been considerable debate concerning the ramifications of these contextual changes on work-related attitudes and performance. It has been suggested by numerous authors that a high performance workplace requires a highly committed workforce. Therefore, the purpose of this study is to increase understanding of the influence that contextual changes are having on workers and the groups to which they belong. The outcomes of interest include organizational commitment, job satisfaction, and group-level extra-role behavior and performance.

To accomplish this objective, three related, but unique, models are offered as a means of moving toward a contextual understanding of work groups. The first model considers the role of industrial relations variables and work organization as predictors of work-related attitudes. The second model appraises the importance of group demography and work organization as predictors of work-related attitudes. The third model utilizes work group climate as a potential link between context and both individual and group-level outcomes. These models were tested empirically using archival data,

structured interviews, and a survey of over 800 employees of a facility that is a North American benchmark for team-based operations. Interestingly, approximately half of the workforce operates under a team system, while the balance work under a traditional system.

The results indicate that work organization is a pivotal contextual factor. Seniority is associated with more positive work-related attitudes for employees operating in a traditional versus a team-based work system. Past participation in employee involvement and greater union participation are associated with more positive work-related attitudes for workers in teams compared to those in traditional work areas. Increasing demographic diversity within work groups tends to be associated with more positive work-related attitudes for those working in teams. The results also suggest that work group climate is a more potent mediator of the relationship between context and work-related attitudes rather than group-level outcomes.

In addition, other context relevant findings are reported. Limitations of this study and implications for research and theory, as well as for practice, are drawn.

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CHAPTER ONE

INTRODUCTION AND OVERVIEW

This chapter provides an introduction and overview of the entire dissertation. The introduction and overview include: a) why it is important to investigate the relationship between work group context and both work-related attitudes and group effectiveness, b) key assumptions, d) the contributions of this research, and e) an outline of the subsequent chapters in the dissertation.

Importance of the Topic

It appears that some researchers and practitioners have recently rediscovered work groups (Sundstrom, DeMeuse, & Futrell, 1990), while others imply that work groups are a phenomenon which is just recently gaining popularity (Campion, Medsker, & Higgs, 1993). In reality, the importance of groups to organizations has been acknowledged for a long time (Cannon-Bowers, Oser & Flanagan, 1992; Guzzo & Shea, 1992; Homans, 1950; Roethlisberger & Dickson, 1939; Sayles, 1958; Trist & Bamforth, 1951). For example, Cummings (1981) describes work groups as the "basic components comprising organizations and the contexts within which workers work" (p. 250). In the manufacturing sector, it is not so much that organizations have rediscovered work groups, but rather that contextual features surrounding work groups in manufacturing settings have been undergoing dramatic changes.

Two areas in which work group context is dramatically changing include: 1) the adoption of innovative work organization practices, such as team-based work systems; and 2) the demographic transformation of the workplace. First, discussion will focus on understanding the role of team-based work systems as a context for worker commitment

and satisfaction. Next, the significance of work group demography as a contextual factor related to work group member attitudes, as well as examining the interface of diversity and work organization, will be highlighted. Finally, the utilization of the climate paradigm as a way of linking various aspects of context to multi-level outcomes will be introduced.

Work Organization as Context

The manufacturing sector in the U.S. has responded to intensified international competition by focusing on innovative practices associated with employment relations and work organization (Kochan, Cutcher-Gershenfeld, & MacDuffie, 1992; Kochan, Katz, & McKersie, 1986). The first generation of these innovative practices is best typified by quality circles and employee involvement initiatives. These first generation innovations have the following characteristics: parallel existence to the production process, are voluntary, and involve limited training (Appelbaum & Batt, 1994).

The second generation of innovative practices is referred to as "work restructuring" (Katz, 1988). Key elements of work restructuring include changes in work rules, reduced job classifications, and decentralization of decision-making and authority (Kochan et al., 1992). In contrast to first generation initiatives, second generation innovations are integral to the production process, are mandatory, and involve a relatively sizable investment in training. Work groups which are formally granted greater authority and autonomy under work restructuring innovations are typically labeled "autonomous work groups" (Wall, Kemp, Jackson & Clegg, 1986) or "teams" (Sundstrom et al., 1990), while the work restructuring associated with this practice is frequently called "team concept" (Adler, 1993; Babson, 1993).

Interrelated with the movement toward team-based work organization, the role of supervision is being dramatically altered (Klein, 1988; Lowe, 1993). Under the rubric of teams, supervisors are being called upon to engage in more collaborative and facilitative interactions with work groups, at the same time their span of control is increasing (Lowe, 1993; Manz & Sims, 1987). How supervisors react to changes in their roles, as well as the support they receive from management, may impact the effectiveness of restructuring initiatives.

Likewise, industrial relations activity may be a critical factor influencing the effectiveness of innovations among organizational subunits (Cutcher-Gershenfeld, 1991). The U.S. unionized sector has been traditionally characterized by an adversarial and contentious relationship between labor and management with a distributive orientation (Walton & McKersie, 1965). It is believed that a highly adversarial context may not afford the effective implementation and utilization of innovative human resource practices (Kochan et al., 1992). More recently, many unionized workers are increasingly presented with a labor relations context characterized by greater labor-management involvement, cooperation and having an integrative orientation (Cooke, 1990; Kochan et al., 1992; Kochan et al., 1986; Walton, Cutcher-Gershenfeld, & McKersie, 1994; Walton & McKersie, 1965).

Finally, with the increased emphasis on team-based work, the criticality of interdependencies within and among work groups is becoming more recognized (Klein, 1991). Interdependence is conceptualized as the extent of dependence and coordination within a group or between groups (David, Pearce, & Randolph, 1989; Hrebiniak, 1974; Kiggundu, 1981; Klein, 1991). A work restructuring effort which emphasizes decentralization and encourages work group autonomy is likely to elevate

intragroup interdependence (Saavedra, et al., 1993). Further, lean manufacturing strategies, which call for the elimination of buffers between work groups, magnify intergroup interdependence (Cutcher-Gershenfeld et al., 1994; Klein, 1991).

In summary, several research questions arise regarding the transition to team-based work organization. First, what are the implications for employees that experience the transition from first to second generation employment relations initiatives (e.g., employees that have participated in employee involvement programs and subsequently work in teams)? Second, in what ways do the changes in work rules associated with team-based work organization impact the relationship between seniority and worker attitudes? Third, does the relationship between union participation and worker attitudes take on new meaning if traditional labor relations practices are incompatible with a high performance work system?

Demography as a Context

The increasing demographic diversity of the U.S. labor force has been called one of the most dramatic changes facing organizations today (Jackson, 1992a; Konrad, Winter & Gutek, 1992). One implication of increasing workforce heterogeneity is that an escalating number of individuals are likely to work with people who are demographically different from themselves (Tsui, Egan & O'Reilly, 1992). Moreover, workforce diversity is viewed as a strategic imperative given both future demographic projections and the proliferation of group or team-based work structures (Jackson & Alvarez, 1992). In other words, since groups or teams are being viewed as the core of work organization and a leverage point for competitive advantage (Schuler & Jackson, 1987), it is imperative that organizations better understand the implications of diversity for groups and teams.

Historically, researchers have utilized simple demographic variables as the core factors in a study or, more typically, as control variables. However, more recent interest in work groups and teams implies that relational and compositional demography may provide more important information about diversity (Tsui, et al., 1992). Relational demography looks at individual-level demographic differences, whereas compositional demography is a group-level measure of demographic differences. In short, demography provides a context for individual and group outcomes. Indeed, recent studies have successfully used relational and compositional demography to predict individual and group outcomes (Cox & Blake, 1991; Jackson, Brett, Sessa, Cooper, Julin & Peyronnin, 1991; Kossek & Zonia, 1993; O'Reilly, Caldwell & Barnett, 1989).

Given both the movement toward team-based work organization and the increasing demographic diversity of the workforce, several interesting research questions are posed: 1) Does relational and compositional demography arising from work group membership provide additional insight, beyond simple demographic variables, for understanding the attitudes of blue collar workers on the shop floor? 2) If a team system requires greater worker interaction, then does demography become a more critical factor in explaining worker attitudes? and 3) What is the relationship between demography and work group performance?

Context and Climate: A Mixed-Level View

While contextual influences on group effectiveness have been (Cummings, 1981; Gladstein, 1984; Hackman, 1987; Homans, 1950) and continue to be viewed as critical (Bettenhausen, 1991; Sundstrom et al., 1990), there is a need for further research looking at the influence of work group context on individual and group outcomes. First of all, as indicated by this brief introduction and overview, work groups in manufacturing

are facing a transformation in the immediate context in which they work, and there is a need to better understand the ramifications of these contextual changes. Second, while there are complexities associated with studying work groups in industrial settings (Cannon-Bowers et al., 1992), a need exists to attempt a more holistic rather than piecemeal approach to understanding relations among contextual factors and multi-level outcomes. Third, while context is considered a key factor impacting work group outcomes, there has been a lack of clarity in explaining how context is linked to multi-level outcomes.

Indeed, it has been recognized that one of the shortcomings in research involving work groups, and other organizational phenomena in general, has been the lack of mixed-level research (Bettenhausen, 1991; Klein, Dansereau, & Hall, 1994; Rousseau, 1985). Many models of work group effectiveness promote mixed-level antecedents and mixed-level outcomes (e.g., Cummings, 1981; Gladstein, 1984; Hackman & Morris, 1975; McGrath, 1964; Salas, Dickinson, Converse, & Tannenbaum, 1992), yet they lack a clear means of connecting proposed mixed-level antecedents to organizational, group, and individual level outcomes. In order to better understand work groups as part of organizational phenomena, it is imperative to integrate various levels of analysis (Astley & Van DeVen, 1983; Moran & Volkwein, 1992). As noted by Rousseau (1985), researchers must be cautious when studying mixed-level organizational processes because of potential biases of misspecification and aggregation. However, the climate paradigm provides a useful means of conducting mixed-level analysis (Schneider & Reichers, 1983; Rousseau, 1985).

Climate is conceptualized as perceptually-based descriptions of organizational or subunit features, events and processes (Kozlowski & Doherty, 1989; Rousseau,

1988). These climate perceptions form the basis for behavioral and attitudinal responses (Joyce & Slocum, 1990; Kozlowski & Doherty, 1989; Kozlowski & Hults, 1987; Pritchard & Karasick, 1973; Schneider, 1983a). When individuals within a work group share or have consensus regarding contextual features, these perceptions can be aggregated to the group level and the mean can be regarded as representing this shared interpretation (James, 1982; Kozlowski & Hattrup, 1992). Consensual perceptions of climate constitute a basis for collective response tendencies (Kozlowski & Hults, 1987), and serve as a frame of reference guiding behaviors (Zohar, 1980). Thus, work group climate is viewed as a linkage between context and mixed-level outcomes (James & Jones, 1974; Kopelman, Brief, & Guzzo, 1990; Kozlowski & Hults, 1987; Litwin & Stringer, 1968; Schneider, 1983b). After all, it is through "social interaction that people learn the labels with which they see and interpret their world and it is in small social groups that ambiguous events are made real" (Bettenhausen, 1991; p. 350).

There are several research questions arising from this discussion of the climate paradigm: 1) Do work group members on the shop floor share climate perceptions? 2) Does work group climate help explain individual and group-level outcomes? 3) Does work group climate provide a linkage between context and both individual and group-level outcomes?

Key Assumptions

There are several important assumptions which need to be discussed before proceeding. First of all, this dissertation focuses on the formal aspects of organizations. There is an explicit assumption that a work group is the set of individuals that share the same department, shift, and supervision. Therefore, the work groups which are the focus of this study are organizationally imposed. While it is certain that other criteria for identifying work group membership could be utilized (e.g., such as network analysis), the organizationally imposed criteria is consistent with the emphasis in this study on the more formal aspects of context.

Second, the outcomes of interest for this study include, at the individual-level, paper-and-pencil measures of organizational commitment and job satisfaction, while at the group-level, subjective assessments of extra-role behavior and performance. These outcomes are assumed to be critical for both workers and organizations. This does not suggest, however, that more objective measures of either individual behavior (e.g., absenteeism) or group-level outcomes (e.g., objective group performance measures of safety, quality, cost and delivery) would not provide more compelling evidence of the importance of the hypotheses in this study. However, given the nature of field research, constraints on data availability are inevitable. Moreover, prior research indicates that the dependent variables in this study have proven to be linked to many of the objective measures listed above.

Third, the study was conducted in one manufacturing organization. The decision to conduct the study at this one location was based on four factors. First, the research strategy for this study did not require an examination involving multiple organizations. It was believed that sufficient variance could be found within one organization. Second,

there were several critical research criteria which were satisfied by this location including having: a large number of shop-floor employees, a large number of hourly work groups, union representation, an employee participation program, employees in both team-based and traditional work systems, and a relatively diverse workforce. Third, as stated earlier, since the location is a North American benchmark for team-based work systems, this was an opportunity to study a leading edge organization. Fourth, union and management leadership, at both the local and national levels, were willing to participate in the research project.

Nonetheless, the collection of data in a single organization results in limitations in the ability to generalize the findings contained in this study. Certain structural or other unmeasured contextual characteristics of the organization may engender certain biases in results. For example, the fact that this organization volunteered to participate in this research study, while other locations may not have been willing to participate, inhibits the external validity of these findings. Since the research site is commonly viewed as a leading edge team-based manufacturer, then the generalizability of these findings may not be applicable to manufacturers who are marginal. Alternatively, the geographic setting of the research site may be a factor in explaining the results associated with individual attitudes and behaviors regarding unions, diversity, and commitment. While generalizability concerns are typically minimized by gathering comparable data across representative organizations, unfortunately a multi-setting research sample was not employed in this study.

Contributions

Keeping in mind the assumptions inherent to this study, the dissertation does provide contributions to both research and practice. In terms of research, the study improves understanding and stimulates the need for additional research regarding several prominent industrial relations variables, in particular, seniority, union participation, and employee involvement. In brief, context is found to be an important factor which improves understanding of the relationship between these industrial relations variables and work-related attitudes. The study also provides practitioners with insights regarding the implementation and development of employee participation programs, the importance of constructive labor-management relations, as well as a better understanding of seniority in the midst of transformation in work organization.

Furthermore, contributions to the diversity literature, as well as recommendations for practitioners concerned with diversity are derived from the results. First, work group demography was shown to be an effective line of analysis for understanding shop-floor work groups in manufacturing. Second, diversity needs to be viewed as more than just the effects associated with differences in race, ethnicity and gender. In the analysis, consideration of seniority as an aspect of diversity was illuminating. Finally, the study explored the interface of diversity and team-based work organization.

Finally, this dissertation examined the linkages between context and work group climate, as well as the role of climate as a possible mediator of the relationship between context and both individual and group-level outcomes. The results, though not robust, did stimulate additional methodological and theoretical discussion. Given the exploratory nature of this research, the results are viewed more as a foundation and guide for the further development of this research domain.

Description of Chapters in the Dissertation

Presented below is a brief description of the material contained in the next seven chapters of this dissertation.

Chapter 2: Literature Review

This chapter reviews the relevant literature regarding work groups, the role of context in organizational research, as well as work group effectiveness (viewed from both individual and group levels). This review serves as the stimulus to the models and hypotheses developed in Chapters Three, Four and Five.

Chapter 3: Work Organization as a Context for Organizational Commitment and Job Satisfaction

The purpose of this chapter is to provide a model and hypotheses relevant to understanding the relationship of industrial relations variables (i.e., seniority, union participation, and employee involvement) and work organization with work-related attitudes. This chapter suggests that the direct relationships between industrial relations variables and work-related attitudes are best understood after accounting for both context and the proximal/distal nature of work-related attitudes. In addition, the role of work organization as a moderator variable is proposed.

Chapter 4: Context within Context: Work Group Diversity and Work Organization Effects on Work-Related Attitudes

Chapter Four provides a model and hypotheses relevant to understanding work group diversity and work organization as a context for work-related attitudes. Work group demography is proposed as a relevant contextual variable. Moreover, this chapter advances the idea that work group demography is best understood in context. Thus, work organization is advanced as a moderator variable.

Chapter 5: Context and Climate: A Mixed-Level View

The purpose of this chapter is to provide a model and hypotheses which speak to the role of work group climate as a link between context and both individual and group-level outcomes. This chapter outlines the examination of various relationships between variables in support of a mediation model. Specifically, these relationships include: 1) context and outcomes; 2) climate and outcomes; 3) context and climate; and 4) context and outcomes, controlling for climate.

Chapter 6: Research Methodology

Chapter Six discusses the method of investigation. This includes the location for data collection and the subjects for the study. In addition, the operationalization of variables and methods of data analysis are outlined.

Chapter 7: Results

This chapter shows the results of the data analysis. The analysis is divided into three sections based on the hypotheses proposed in Chapters Three, Four, and Five. Within each section, the results associated with each hypothesis are presented.

Chapter 8: Discussion

Chapter Eight presents a discussion of the results of this dissertation research. The discussion contains an overall summary of the findings presented in Chapter Seven. In addition, limitations of this study are discussed. Finally, implications for research and theory, as well as for practice are drawn.

CHAPTER TWO

LITERATURE REVIEW

Chapter One highlighted some of the contextual changes surrounding work groups in manufacturing settings, as well as considered the influence of context on work group effectiveness. The purpose of this chapter is to review the relevant literature for the major topics under analysis. Specifically, this chapter will review relevant literature regarding work groups, the role of context in organizational research, and the assessment of work group effectiveness. This review serves as the stimulus to the models and hypotheses developed in the next three chapters.

Work Groups, Context, and Work Group Effectiveness

Work Groups

Work groups are characterized by properties that distinguishes them from basic groups. For example, McGrath (1984) defines groups as social aggregates that have mutual awareness and potential for mutual interaction, whereas work groups have tasks to perform and exist within an organization (Guzzo & Shea, 1992). Fry & Slocum (1984) defined work groups as the smallest formal grouping of personnel within an organization, where the grouping represents a relatively permanent arrangement of people and equipment. According to Jablin & Sussman, "an organizational group is a collection of three or more organizational members who interact over time, are psychologically cognizant of one another, perceive themselves as a group, and are embedded within a network of interlocking tasks, roles and expectations" (Jablin & Sussman, 1983, p. 12).

For the purposes of this research project, work groups are defined as the set of individuals that share the same department, shift, and supervision. Because of this, they are likely to have at least some minimal amount of interaction with each other, have higher probabilities of engaging in interlocking tasks, share equipment and supplies, and are more likely to work in relatively close proximity to each other. Therefore, the work groups which are the focus of this study are organizationally imposed in the sense that they are defined by the organization. The work groups are not based on the identification of communication patterns or network analysis (Mitchell, 1972; Monge & Eisenberg, 1987; Whitten & Wolfe, 1973). It is possible that a network analysis would identify "groups" as consisting of members from different departments and/or shifts within the organization.

As noted in the first chapter, work groups have been of interest to researchers and practitioners for a long period of time. Early research and interest in work groups focused on the more negative consequences of groups. For example, Ringlemann (1913) found that the actual productivity of groups fell short of their potential productivity because of coordination losses and social loafing (Forsyth, 1990; Latane, Williams, & Harkins, 1979). Whyte (1955) acknowledged that groups can enforce norms of low rather than high productivity. Janis (1972) highlighted the poor decisions arising from groups.

Early industrial relations scholars were also interested in examining work groups because of the central role of the work group in registering discontent (Ronan, 1963; Sayles, 1958). Sayles (1958) asserted that work groups were more than passive entities merely reacting to management demands, but rather, have proactive tendencies which may lead to conflict and instability within organizations (Silverman, 1970). On the

whole, these early analyses seemed to confirm concerns, raised by the proponents of scientific management, regarding the restriction of output or "soldiering" done by workers acting collectively (Landy, 1989, p. 444).

The Hawthorne studies (Mayo, 1945; Roethlisberger & Dickson, 1939) called attention to the role of informal work groups in organizations and their potential impact on the behavior and attitudes of individual workers. Similarly, Lewin (1951) suggested that the behavior of individuals could be understood in terms of the nature of the groups to which they belonged. The call for greater theoretical development and research on groups in organizations was articulated by Homans (1950) who was heavily influenced by the Hawthorne research:

> When as grownups, we get jobs, we still find ourselves working with a few persons and not with the whole firm, association, or government department. We are members of these larger social organizations, but the people we deal with regularly are always few. They mediate between us and the leviathans. The group is the commonest, as it is the most familiar, of social units, and on both counts it is at least as well worth study as any of the others (Homans, 1950, pp. 1-2).

Beginning in the late 1950s, the socio-technical systems approach to work design emerged, which was heavily influenced by the work of Bion (1961) and Lewin (1951) concerning leaderless groups and group decision-making (Trist, 1981). Unlike those researchers adhering to the scientific management approach, which required that individuals and social units conform to technical requirements, or to the human relations movement, which to an extent ignored technology, socio-technical researchers looked for joint optimization of both technical and social components (Emery & Trist, 1969).

Trist (1981) referred to this as a "new paradigm" of work, in which the work group rather than the individual job became the central building block of work design (Cummings, 1978). Beyond the focus on group structure, some of the other key

components of this new paradigm included: 1) viewing man as a resource to be developed, 2) utilization of multiple broad skills, 3) encouraging internal controls and a participative style, and 4) development of commitment and support for innovation (Trist, 1981). Thus, proponents of socio-technical systems thinking advocated the utilization of self-regulating or autonomous work groups because these groups facilitate the integration of social and technical systems (Pearce & Ravlin, 1987).

It has been suggested that the properties described for autonomous work groups parallel the job characteristics approach to job design (Cummings, 1978; Wall et al., 1986). Research which has been primarily anecdotal or based on case studies has found support for the implementation of autonomous work groups (Pasmore, Francis, Haldeman, & Shani, 1982). However, more rigorous empirical research has found the utility of autonomous work groups somewhat mixed (Cordery et al., 1991; Pearson, 1992; Wall et al., 1986).

In contrast to autonomous work groups, quality circles are a group-based innovation that traces its historical roots to human relationist thinking (Keys & Miller, 1984). Quality circles are characterized by small groups of employees (typically 5 - 12 members) who meet voluntarily together to identify, analyze, and develop solutions for work problems relating to quality, productivity, and cost (Bruning & Liverpool, 1993; Ledford, Lawler, & Mohrman, 1988; Marks, Mirvis, Hackett, & Grady, 1986). This participatory innovation is viewed as instrumental to management, as well as having potential for greater employee growth and development (Leana & Florkowski, 1992). Quality circles have been considered a critical component of work systems in Japan, while their success in the U.S. has been somewhat limited (Cutcher-Gershenfeld, Kochan, & Verma, 1987; Kochan et al., 1992).

Current thinking about quality circles suggests that: 1) they are only one component of a larger organizational system and are most effective when they complement the system with respect to organizational structure, production practices, and business strategies (Kochan et al., 1992); and 2) they are viewed as a starting point or a transitional technique for introducing greater employee participation in traditional hierarchical organizations (Cutcher-Gershenfeld et al., 1987; Griffin, 1988). Thus, quality circles are consistent with our earlier description of first generation innovations.

The concept of "teams" has supplanted socio-technical systems theory and quality circles in the last 10 years in terms of research and practitioner interest, although, teams are grounded in both socio-technical system and quality circle rationales (Ilgen, Major, Hollenbeck, & Sego, 1993; Manz, 1992; Sundstrom et al., 1990). Teams have been broadly defined as "interdependent collections of individuals who share responsibility for specific outcomes" (Sundstrom et al., 1990, p. 120).

Consistent with the socio-technical influence on the diffusion of work teams, there has been considerable interest in factors which facilitate greater team autonomy (Manz & Sims, 1987; Manz, 1992). On the one hand, it has been suggested that autonomy is linked to improved group performance through increased motivation, greater job satisfaction, and enhanced team-member exchange (Cummings, 1978; Goodman, Devadas, & Hughson, 1988; Hackman & Oldman, 1975; Pearson, 1992; Seers, 1989). On the other hand, it has been suggested that organizations may benefit from work teams mostly because of associated reductions in personnel requirements (Kelly, 1982; Wall et al., 1986) and the intensification of labor (Kelly, 1978). In addition, the magnitude and characteristics of team autonomy are constrained by technological factors (Klein, 1988). Beyond considerations of the benefits due to autonomy, work

teams are also viewed as an important component of work design because work teams provide a natural structure for job rotation, training, problem-solving and communication (Kochan et al., 1992). Thus, work restructuring emphasizing teams is consistent with the earlier description of second generation innovations.

Recent studies concerned with team or work group effectiveness typically turn to one or more of the several keystone models of work group effectiveness as a point of departure (Cummings, 1981; Gladstein, 1984; Hackman, 1987; Hackman & Morris, 1975; McGrath, 1964; Nieva, Fleishman, & Reick, 1978; Sundstrom et al., 1990). These seminal models diverge on several points (Guzzo & Shea, 1992). However, while there are points of divergence, these models do share similarities. For example, these models, for the most part, appraise work group effectiveness from both group and individual level outcomes. In addition, there is a trend toward greater appreciation of contextual influences on work group effectiveness (Guzzo & Shea, 1992).

Context

As noted above, there has generally been an increasing recognition of the role that context plays in work group effectiveness (Mowday & Sutton, 1993). The trend toward greater emphasis on context in models of work group effectiveness is consistent with recent calls for organizational researchers to consider contextual influences in their studies (Levine & Moreland, 1990; Mowday & Sutton, 1993). Moreover, this trend is consistent with a systems view and the notion that work groups and individuals within a work group are embedded in an organizational system which contains many subsystems (Bertalanffy, 1972; Dobbins, Cardy, & Carson, 1991; Guzzo & Shea, 1992; Homans, 1950; Lorsch & Sheldon, 1972).

Several definitions of "context" have been offered. For example, Rousseau (1978) defined context as:

> ...the set of circumstances or facts surrounding an event...., context can refer to characteristics of the organizational setting, of the individual, of his or her role in the organization, and of any environmental factor that may shape responses (p. 522).

Cappelli & Sherer (1991) define context as "the surroundings associated with phenomena which help to illuminate the phenomena... with units of analysis above those expressly under investigation" (p. 56). Mowday & Sutton (1993) concur, suggesting that context "encompasses stimuli and phenomena that surround and thus exist in the environment external to the individual, most often at a different level of analysis" (p. 198). In essence, the consideration of context in organizational research has two implications: 1) it promotes a multi-level view of phenomena; and 2) it fosters examination of the moderating and/or mediating influence of multi-level factors. Indeed, Cappelli & Sherer (1991) assert that:

> What is unique about behavior in organizations is presumably that being in the organization... the context of the organization somehow shapes behavior, and it is impossible to explore that uniqueness without an explicit consideration of the context (p. 97).

Recently, human resource management has clearly been challenged by a more explicit consideration of the importance of context. Researchers and practitioners have been reassessing the "person approach" assumptions guiding human resource management practices in light of questions arising from the "systems orientation" (Dobbins, et al., 1991). The clearest challenge has come in the area of performance appraisal. The person approach supports performance appraisal practices that assume that the major source of variation in work performance is the worker. The systems view (or a more contextual view) suggests that variation in performance is due predominantly

to factors outside of an individual's control and that performance raters have difficulty in distinguishing between person-caused as opposed to system-caused variation in performance (Deming, 1986). While the relative importance of person versus system explanations is still unclear, it does raise greater appreciation of context as an important explanatory factor.

Work groups, as well as the individuals who are members of work groups, are entities which are surrounded by various contextual stimuli. Technology, task characteristics, structural characteristics, organization policies and practices, union-management relations, supervision and leadership, group and organizational demography, and various factors external to the organization itself, are a sample of some of the dimensions of the context or a set of stimuli from multiple levels that surround individuals and work groups.

Recent attempts have been made to investigate the impact of multi-dimensions of context on work group effectiveness for female clerical workers (Campion et al., 1993). These authors describe contextual factors as "group characteristics." The Campion et al. (1993) research suffers from problems that have already been highlighted by Rousseau (1978) regarding the influence of context, "... we continue to amass data which shows that context predicts attitudes and behavior, but the reason for the relationship is unclear" (p. 534). Thus, there is a need for a two-pronged approach when attempting to understand contextual influences on work group effectiveness: 1) consistent with the approach by Campion et al. (1993), uncovering which contextual features are most important in terms of group effectiveness; and 2) providing a rationale for the relationship between context and the outcomes of interest.

At the individual level, Rousseau (1978) suggests that the key link between context and individual response may lie in perceptions of context. She suggests that context should be measured both perceptually and objectively in order to know what the context consists of and how individuals perceive that context. Likewise, shared perceptions of context among work group members may be a key link between contexts and group responses. In turn, context should be measured both perceptually and objectively for group level analysis. The climate paradigm may provide the means to link objective context to work group effectiveness measures.

Work Group Effectiveness

Effectiveness has been recognized as an illusive and difficult construct (Steers, 1977a). For example, there is a lack of consensus in the literature regarding the appropriate yardstick with which to assess work group effectiveness (Goodman, Ravlin & Argote, 1986; Holahan, 1993). Most models of work group effectiveness recognize that there are relevant outcomes or indicators of effectiveness not only at the group level, but also above (department, unit, and organization) and below (individual) the group level (Campion et al., 1993; Cummings, 1981; Gladstein, 1984; Hackman & Morris, 1975; McGrath, 1984). A multitude of indices have been offered to assess work group effectiveness (Cannon-Bowers et al., 1992). Different work group effectiveness measures are likely to be related to different sets of predictors, thus more refined models may improve understanding and testing of relationships (Cohen & Ledford, 1994; Holahan, 1993). At the individual level, the focus is on organizational commitment and job satisfaction. At the group level, the focus is on group extra-role behavior and group performance ratings.

The individual level. At the individual level, effectiveness is measured by the level of organizational commitment and job satisfaction. Organizational commitment is defined as the strength of an individual's identification with and involvement in an organization and has been characterized by 1) a strong belief in and acceptance of the organization's goals and values; 2) a willingness to exert considerable effort on behalf of the organization; and 3) a strong desire to maintain membership in the organization (Mowday, Steers, & Porter, 1979). Job satisfaction is defined as a "pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (Locke, 1976, p. 1300).

Organizational commitment represents something beyond passive loyalty. It is an affective response to beliefs about the organization (Hackett, Bycio, & Hausdorf, 1994). It is thought to involve an active relationship with the organization such that individuals are willing to give something of themselves in order to contribute to the organization's well-being (Mowday et al., 1979). Scholars have attempted to disentangle the components or dimensions of organizational commitment beyond the notion of affective attachment (Allen & Meyer, 1990; Meyer & Allen, 1991; Reichers, 1985). However, it is yet unclear how useful the dimensional distinctions are in terms of predicting relevant outcomes (Hackett et al., 1994). Meanwhile, job satisfaction emphasizes the specific task environment where an employee performs his or her duties (Mowday et al., 1979). It is an affective response to perceptions of current job experiences.

An enduring question in the literature surrounds the distinction between organizational commitment and job satisfaction. Typically, empirical studies find that the two constructs are highly correlated. Although they are highly correlated, job

satisfaction and organizational commitment have been found to be distinct constructs (Brooke, Russell, & Price, 1988; Glisson & Durick, 1988). In addition, several researchers have explored the causal relationship between the two constructs with mixed results (Bateman & Strasser, 1984; Curry, Wakefield, Price & Mueller, 1986; Farkas & Tetrick, 1989; Williams & Hazer, 1986). Other researchers have been interested in utilizing job satisfaction and organizational commitment to predict distinct work-related outcomes. For example, Shore & Martin (1989) found that job satisfaction was more closely associated with task-related outcomes, whereas organizational commitment was more closely connected with organization-related outcomes, such as turnover intentions.

While researchers have focused attention on various ways of differentiating job satisfaction and organizational commitment, there has been a limited amount of research concentrating on differences between the predictors of these work-related attitudes within the same research study (Glisson & Durick, 1988). Researchers have proposed a variety of antecedent variables, including various organizational, task, and worker characteristics, which would be related to job satisfaction and organizational commitment (Capelli & Sherer, 1991; Mowday, Porter & Steers, 1982; Rousseau, 1978). However, they have not emphasized the differential importance of respective antecedent or contextual variables.

In order to better understand the relationship between various contextual variables and job satisfaction and organizational commitment, there is a need to consider the notion of proximity which underlies each of these work-related attitudes. Organizational commitment is a more distal-based construct (i.e., it is best predicted by factors which are more distant from day-to-day work activities) and job satisfaction is

more proximal (i.e., it is best predicted by factors associated with day-to-day work activities). This proximity view is supported in several ways. First, conceptually each construct focuses on different aspects of the employment relationship. Organizational commitment centers on the relationship between the individual employee and the organization, whereas, job satisfaction focuses on the relationship between the individual employee and the day-to-day work activities of the employee. In essence, organizational commitment is a more abstract construct relative to job satisfaction. Second, each construct is operationalized differently. The operationalization of the constructs is consistent with the previously stated conceptual distinctions. Third, extant empirical research supports the proximity distinction. For example, research indicates that job satisfaction is less stable than organizational commitment (Mowday et al., 1979). Mowday et al. (1979) suggest that job satisfaction is less enduring than organizational commitment because job satisfaction reflects more immediate reactions to aspects of the work environment.

Other studies provide additional support to the proximity notion. Glisson & Durick (1988) found that job characteristics (e.g., skill variety and role ambiguity) were the best predictors of job satisfaction, whereas organizational characteristics (e.g., leadership and organization age) were the best predictors of organizational commitment in a sample of workers from human service organizations. Similarly, Naumann (1993), in a survey of expatriate managers, found that job or task characteristics (e.g., role conflict, skill variety, autonomy) were the best predictors of job satisfaction, whereas organizational characteristics (e.g., participation, training, organization age) were the best predictors of organizational commitment.

In summary, one would expect that job satisfaction and organizational commitment would be driven, to some degree, by different antecedent variables. Moreover, while various antecedent variables may share similar relationships with job satisfaction and organizational commitment (e.g., an antecedent variable may be related to both constructs), the nature or strength of the relationship may be significantly different. Finally, the linkages between various antecedent variables and work-related attitudes is likely to be contextually bound.

The group level. At the group level, effectiveness includes both extra-role behavior and performance. Extra-role behavior represents contributions that do not inhere in formal role obligations (Organ & Konovsky, 1989). These extra-role work behaviors are discretionary, are not an enforceable requirement of the job description, are not related to the formal reward system, and, in the aggregate, promote the effective functioning of the organization (Moorman, 1991; Organ, 1988). Some examples of extra-role behavior include: volunteering for activities that are not required; suggesting improvements in procedures; cooperating with coworkers; talking favorably about the organization to outsiders; orienting new people although it is not required; or attending functions that are not required but that help the company's image (Brief & Motowidlo, 1986; Smith, Organ, & Near, 1983; George & Bettenhausen, 1990). In other words, these behaviors comprise aspects of what is called being a good organizational citizen (Bateman & Organ, 1983). Katz & Kahn (1966) highlighted the importance of extra-role behavior:

> Within every work group in a factory, within any division in a government bureau, or within any department of a university are countless acts of cooperation without which the system would break down. We take these everyday acts for granted, and few of them are included in the formal role prescriptions for any job (Katz & Kahn, 1966, p. 339).

For the most part, researchers have examined extra-role behavior at the individual level of analysis (George & Bettenhausen, 1990). Recently, researchers have begun to look at extra-role behavior at the group level (George & Bettenhausen, 1990; George, 1990). George & Bettenhausen (1990) assert that:

> Work groups may vary in terms of the extent to which prosocial behaviors are displayed by group members, and the incidence of these behaviors in groups may be meaningfully associated with group characteristics. In other words, it may ultimately be possible to characterize work groups in terms of prosocial orientation (George & Bettenhausen, 1990, p. 699).

George & Bettenhausen (1990) utilize three theoretical perspectives which together support conceptualizing extra-role behavior at the group level. The social exchange perspective suggests that standards of reciprocity and exchange form within groups (Blau, 1964; Blau, 1968; Gouldner, 1960; Organ, 1988), therefore, these exchange relations within groups may, in part, drive extra-role behavior (George & Bettenhausen, 1990). The social influence literature suggests that groups can have a powerful influence on member attitudes and behaviors resulting in uniformity in group behaviors and attitudes (Salancik & Pfeffer, 1978). Thus, some degree of uniformity in extra-role behavior within groups may be expected (George & Bettenhausen, 1990). Finally, Schneider's (1987) ASA framework suggests that there will be similarity in group behavior and attitudes over time, including extra-role behavior (George & Bettenhausen, 1990).

Group performance is another critical component of work group effectiveness. Sundstrom et al. (1990) define group performance as "acceptability of output to customers within or outside the organization who receive team [work group] products, services, information, decisions, or performance events" (Sundstrom et al., 1990, p. 122). Performance can be evaluated using objective and/or subjective measures

(Cascio, 1987). Objective measures refer to gauges of performance, such as sales, customer complaints, scrap rates, safety, labor costs per unit produced, output per employee, number of suggestions, and actual verse planned output. Subjective measures of performance include various types of performance rating in which the rater has to make a personal judgement along performance dimensions deemed appropriate for the particular organization, such as quality, cost, schedule, and safety criteria. Both methods suffer from limitations.

Objective measures of group performance are intuitively attractive since they typically involve measures relevant not only to the focal organization itself, but also to other organizations. In other words, an objective measure of scrap rates will more likely have "meaning" across organizations, whereas quality ratings by a manager may have less transferability. In addition, objective measures are thought be to devoid of human judgement and error. However, there is "some degree of error in measuring actual performance" (Carroll & Schneier, 1982, p. 157), since human decisions are involved in the generation of "objective" performance measures.

Moreover, it is difficult to control for all the factors which may contribute to the objective measures (Cascio, 1987; Wall et al., 1986). For example, objective work group performance can be influenced by capital expenditures, performance by support services, performance by other groups, modifications in product or service mix, vendor and supplier activities, equipment failures, and so forth. Furthermore, if the work groups are diverse, the groups may not share meaningful performance indices; "productivity and quality mean different things in different groups" (Cohen & Ledford, 1994).

Finally, objective indices of performance are not always available at the level of interest (Cascio, 1987). For example, in many organizations information and feedback

systems (which contain indices of performance) are closely tied to accounting, manufacturing, and/or marketing systems which rely on aggregated data. In other words, performance data meaningful at the individual or group level may not be accessible within the organizational system. For example, at the location for this study, performance data is generated at the department level (the department could consist of one, two or three work groups). The utilization of department level performance indices is consistent with the level of data collected and distributed by both the accounting and manufacturing systems within the focal organization. Therefore, objective work group level performance data is not accessible in any meaningful or practical way.

The disadvantages of objective measures of performance have led researchers and managers to place greater emphasis on subjective measures (Cascio, 1987). However, subjective measures have been associated with various human rater errors, such as leniency, severity, central tendency and halo (Cascio, 1987). Nonetheless, the efficacy of using subjective ratings of performance has been shown in recent group effectiveness research (Campion et al., 1993; Cohen & Ledford, 1994; Guzzo, Yost, Campbell, & Shea, 1993; Tziner & Vardi, 1982). Campion et al. (1993) found a strong positive correlation between subjective and objective group performance measures. The utility of subjective measures is driven, in part, by their content validity. In other words, when subjective measures of work group effectiveness are valid in the sense that they correspond to the organization's definition of effectiveness, then they have greater correspondence to objective conceptualization of performance (Campion et al., 1993). For example, if an organization emphasizes safety, quality, schedule and cost objectives, then the subjective performance measures should identify these factors.

Summary

This chapter has reviewed the relevant literature regarding work groups, context, and work group effectiveness. Work groups have historically been a central aspect of work organization, as well as the focus for a number of research activities. However, with the more recent adoption of quality circles and the spread of work teams, practitioner and research interest in work groups has intensified. Meanwhile, these innovations, have the potential to alter many aspects of work. Thus, the context within which individuals and work groups function is potentially being transformed. Practitioners and researchers are interested in how this transformation can impact individual work-related attitudes, as well as work group performance. The following three chapters explore some of the possible ramifications and implications of contextual change.

CHAPTER THREE

WORK ORGANIZATION AS A CONTEXT FOR ORGANIZATIONAL COMMITMENT AND JOB SATISFACTION

Introduction

The purpose of this chapter is to provide a model and hypotheses relevant to understanding the relationship between several important industrial relations variables (including seniority, union participation, and employee involvement) and work organization with work-related attitudes. Specifically, the outcomes of interest include job satisfaction and organizational commitment. This model suggests a direct relationship between various industrial relations variables and work-related attitudes. These direct relationships are best understood after accounting for both context and the proximal and distal nature of work-related attitudes. Moreover, the model provides a role for work organization as a moderator variable.

Research Model and Hypotheses

There has been considerable speculation and attention focused on the impact of workplace restructuring initiatives, such as teams, on various outcomes including organizational performance, group effectiveness and individual worker attitudes and behaviors (Babson, 1993; Kochan et al., 1992; Katz, 1988; MacDuffie, 1995; Parker & Slaughter, 1988; Sundstrom et al., 1990). The outcomes associated with group-oriented work systems are of particular interest to organizations as they explore work restructuring under the auspices of "total quality management" (Deming, 1986; Dobbins, Cardy, & Carson, 1993), "lean manufacturing" (Womack, Roos, & Jones, 1990), and "high performance" work systems (Kelley, 1995; MacDuffie, 1995). Indeed, the effective utilization of human resources is viewed as a key source of competitive leverage in a

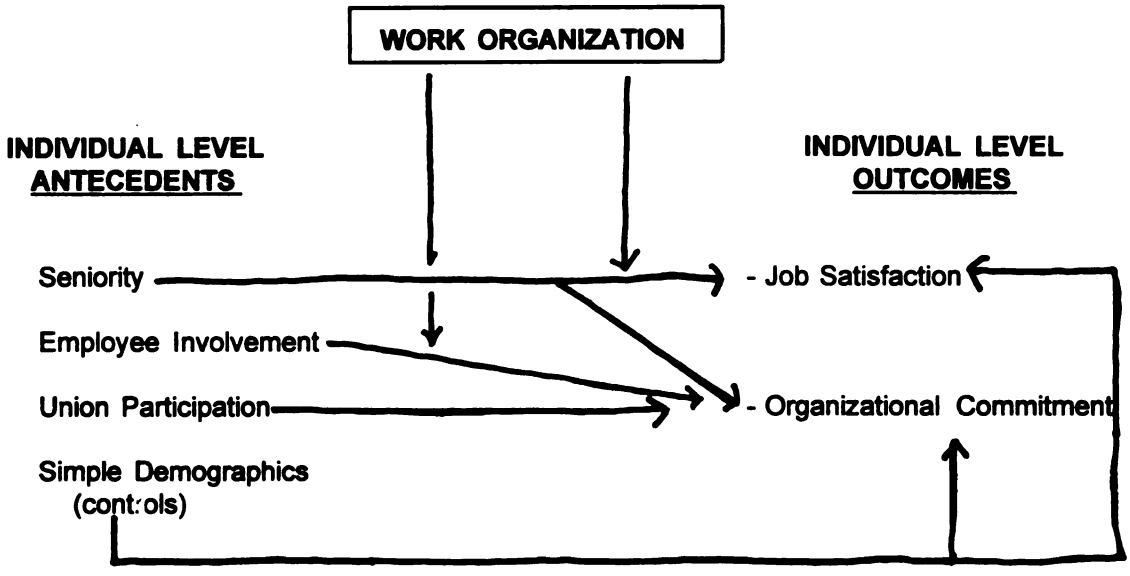
period that has been described as the "industrial competitiveness era" (Walton, Cutcher-Gershenfeld & McKersie, 1994).

One of the necessary conditions required for the success of innovative work restructuring practices is having employees that are motivated to apply skills and knowledge "through discretionary effort" (MacDuffie, 1995, p. 199). This has been referred to as a "commitment strategy" (Walton, 1985). In his seminal article, Walton (1985) recognized the need for organizations to move from a "control" or compliance orientation to a "commitment" orientation if they want to become a high performance organization. In a commitment, or "mutual commitment", paradigm, employees "become more broadly committed to the enterprise and management becomes more broadly committed to the well-being of employees" (Walton et al., 1994, p. 11). Thus, employee work-attitudes, such as commitment and job satisfaction, are viewed as an integral part of long-term organizational success.

Given the importance of work-related attitudes, a formal model is proposed which identifies important relationships among industrial relations variables and worker attitudes. Figure 3.1 identifies key elements of the model. This model suggests that there are direct linkages between individual level antecedents, such as seniority, employee involvement, and union participation, and work-related attitudes. The simple demographic variables are used as control variables. It is proposed that these direct linkages may be moderated by work organization, where work organization refers to working in a traditional or team-based system. Thus, the model proposes that work organization provides a context for work-related attitudes.

What follows are hypotheses regarding the predictors of work-related attitudes. First, hypotheses involving individual level predictors of work-related attitudes are provided. As will be shown, the hypotheses associated with these predictors are context driven. Moreover, the proximity concept will be used to predict the differential impact of the antecedent variables on job satisfaction and organizational commitment. In addition, hypotheses focusing on the influence of work organization, as a contextual factor, on work-related attitudes are rendered.

Figure 3.1. Industrial Relations Model



Individual Level Antecedents

Simple Demographic Variables. There has been a tremendous amount of research on various simple demographic characteristics, such as age, race, sex and education, as predictors of job satisfaction and organizational commitment. With respect to race and sex, individual studies have found mixed results. Meta-analytic reviews suggest that there is no clear relationship between sex and organizational commitment (Aven, Parker & McEvoy, 1993; Mathieu & Zajac, 1990), as well as no

relationship between race and job satisfaction (Brush, Moch & Pooyan, 1987). Brush et al (1987) found no apparent relationship between sex and job satisfaction, however, they conducted a moderator analysis of the sex-job satisfaction relationship and found that males were more satisfied than females in private sector organizations.

With respect to age, a meta-analysis by Mathieu & Zajac (1990) found a positive correlation between age and organizational commitment. It has been suggested that older workers may have more limited alternative employment opportunities and this increases the attractiveness of the present employer (Meyer & Allen, 1984; Mowday et al., 1982). Other meta-analytic reviews have shown a positive relationship between employee age and job satisfaction (Brush et al., 1987; Kacmar & Ferris, 1989). Wright & Hamilton (1978) assert that as one gets older prestige and confidence increase which contribute to greater job satisfaction. However, recent research challenges the stability of the relationship between job satisfaction and employee age asserting that the effects of age on job satisfaction may be more indirect occurring through seniority (Bedeian, Ferris, & Kacmar, 1992; White & Spector, 1987). Similar arguments concerning the role of seniority might be applicable in terms of the age-organizational commitment relationship.

Empirical evidence supports a negative relationship between level of education and organizational commitment (Mathieu & Zajac, 1990). One potential explanation for this relationship suggests that individuals with more education have higher expectations that an organization may not be able to meet (Mowday et al., 1982; Steers, 1977b). Furthermore, employees with more education may have a greater number of job options which lessens their attachment to a particular organization (Mathieu & Zajac, 1990). In terms of job satisfaction, similar rationales are provided. For example, it has been

proposed that more highly educated individuals will have higher expectations thus leading to greater dissatisfaction (Brush et al., 1987; Jurik, Halemba, Musheno, & Boyle, 1987; Vechio, 1981).

In summary, the simple demographic characteristics of age, race, sex, and education have been thought to be associated with work-related attitudes. While the relationship between these demographic attributes and work-related attitudes is somewhat muddled, there does appear to be a need to consider these factors as possible predictors. Therefore, in this dissertation, the simple demographic characteristics of age, race, sex, and education are utilized as control variables. In addition, they may provide additional validity for some of the measures used in this study.

Seniority. Meta-analytic reviews provide a mixed understanding of the relationship between seniority and organizational commitment. For example, Cohen & Lowenberg (1990) found no clear relationship, whereas in their review, Mathieu & Zajac (1990) found a positive (yet modest) relationship. Mathieu & Zajac (1990) suggested that the relationship between organizational commitment and seniority may be positive because workers who have been employed for a long period of time with the same employer may have to cognitively justify why they have been a member of the organization for such a long period of time (Mathieu & Zajac 1990).

With respect to job satisfaction, Bedeian et al. (1992) found that seniority was a more stable predictor of job satisfaction than age. In a qualitative review by Gordon & Johnson (1982), they concluded that there was no clear relationship between seniority and job satisfaction. Meanwhile, meta-analytic work by Brush et al. (1987) found a positive (yet modest) relationship between seniority and job satisfaction.

Thus, the relationship between seniority and work-related attitudes is somewhat confusing. Two points may shed additional light on understanding the relationship: 1) focusing on the context from which the data is collected; and 2) recognizing the proximal or distal nature of work-related attitudes.

Part of the confusion surrounding the relationship between seniority and worker attitudes concerns the context from which the data has been collected. Meta-analytic studies have not distinguished between union and nonunion settings, or, in other words, have not used union status as a moderator variable. Indeed, researchers have focused on the relationship between "tenure" and work-related attitudes, rather than seniority.

In contrast to the concept of tenure, seniority is an enduring principle in union-management relations, where seniority allots to employees preferential treatment (Gordon & Johnson, 1982). On the other hand, tenure may or may not carry with it codified differential benefits. The seniority-organizational commitment relationship is likely to be clearer in a union context which has relatively attractive wage, benefit, and retirement packages which become more salient over time. Reichers (1986) suggests that commitment to an organization develops over a long period of time from early employment (more psychological attachments), to mid-career (both psychological and behavioral attachments), to later employment (more structural and investment-based attachments). Indeed, Fukami & Larson (1984) found a strong relationship between seniority and organizational commitment in a sample of unionized newspaper workers. Similarly, union status may be an important moderator of the seniority-job satisfaction relationship. In a union context, employees with greater seniority may find themselves in more attractive jobs, have shift preferences, are allotted more vacation time, have greater job security, and receive other seniority-based rewards.

Second, as discussed earlier, job satisfaction is more proximal-based, whereas organizational commitment is more distal-based. How does seniority differentially impact the proximal and distal aspects of the employment relationship? Gordon & Johnson (1982) distinguish between noncompetitive and competitive seniority status. Noncompetitive seniority status includes benefits that accrue with seniority without depriving fellow workers of similar benefits. This would include more distal-based benefits, such as amount of insurance coverage, severance pay, sick days, and pension vesting. Competitive seniority status includes benefits that accrue with seniority that may deny fellow workers benefits. This would include more proximal-based benefits, such as job assignment, shift preferences, overtime assignments, transfers, and vacation scheduling. While seniority does provide both noncompetitive (distal-based) and competitive (proximal-based) benefits, workers are likely to be more salient of the day-to-day benefits associated with seniority (e.g., working the preferred shift or working on a preferred job assignment). Given this discussion, the following hypotheses are proposed:

HYPOTHESIS 1A: Seniority will be positively related to organizational commitment and job satisfaction.

HYPOTHESIS 2A: Seniority will have a stronger relationship with job satisfaction than with organizational commitment.

Finally, the relationship between seniority and work-related attitudes may be altered depending on work organization, such as whether or not the work is structured around a team concept or more traditional practices. For example, work restructuring around teams involves job rotation based on skills rather than seniority-based job assignment. In teams, work and vacation scheduling are negotiated by team members,

rather than decided on seniority-based preferences. In essence, work organization that is team-based reduces the salience of competitive seniority benefits which are tied to more proximal aspects of the employment relationship, thus diminishing the connection between seniority and job satisfaction. Based on this discussion, the following hypothesis is suggested:

HYPOTHESIS 3A: Seniority will have a stronger relationship with job satisfaction in a traditional versus a team-based work system.

Union Participation and Employee Involvement (EI). The exit-voice-loyalty paradigm outlined by Hirschman (1970) suggests that individuals can react to undesirable situations by leaving the situation (exit), by expressing their discontent (voice), or by sustaining activity and waiting until the situation improves (loyalty). A critical factor that produces "voice" behavior is having the opportunity or avenue for expressing discontent or concerns (Leicht, 1989). Two possible channels for workers to voice concerns regarding aspects of the employment relationship include: 1) participation in union activities; and 2) participation in employee involvement activities. First, the relationship between union participation and work-related attitudes will be reviewed. Next, the relationship between employee involvement and work-related attitudes will be examined.

In a nonunion setting worker dissatisfaction with the employment relationship results in workers turning to ways to remedy the feelings of dissatisfaction, such as seeking a different job, withdrawing from the situation in various ways, or possibly seeking union representation (Hamner & Smith, 1978; Premack & Hunter, 1988). In a unionized setting, however, employees have an option of exercising their voice through an already existing union apparatus.

Employees that have some "ties" or interest in the company will be more likely to take advantage of the opportunity to express concerns (Leicht, 1989) and utilize the union as a voice mechanism. This suggests that individuals that participate in union activities may have higher commitment because they are aware and concerned about the long-term nature of their relationship with the employer and may utilize union activity as a vehicle for participation. Moreover, the research on union commitment and company commitment suggests that commitment to the union does not preclude commitment to the company (Reed, Young & McHugh, 1994).

There has been little direct research on union participation and organizational commitment (Angle & Perry, 1986; Fullager & Barling, 1991, Leicht, 1989; Martin, Magenau & Peterson, 1986). Based on zero-order correlations, most of the studies have not uncovered a significant relationship between union participation and organizational commitment. In a study attempting to distinguish the key predictors of dual allegiance (i.e., commitment to company and union), Fullager & Barling (1991) found a positive relationship between union participation and company commitment using discriminant analysis. Leicht (1989) found no significant relationship between union participation and organizational commitment using multiple regression analysis. However, Leicht (1989) relied on a single item self-report indicator of union participation assessing, "How often do you take part in union activities?" (Leicht, 1989, p. 338). This measure of union participation not only lacked reliability, it did not account for the cumulative and nonindependent aspects of union participation (Kelloway & Barling, 1993; McShane, 1986). Meanwhile, Martin et al. (1986) found a nearly ($p < .06$) significant negative relationship between union participation and employer commitment for a sample of union stewards. They attribute their results to focusing the

measurement of union participation on adversarial aspects of participation (e.g., grievance activity), rather than on less volatile aspects of union participation.

The relationship between union participation and job satisfaction has been more clearly identified theoretically, while the empirical results are mixed. In terms of theory, Kryl (1990) suggests that conflict is inherent in the practice of industrial relations. Therefore, those individuals that are more active in union activities will experience greater job dissatisfaction due to their union involvement (i.e., individuals with greater union participation will be exposed to more conflict). Freeman & Medoff (1984) propose that unions encourage union members to express their work dissatisfactions which are politicized and galvanized in order to increase bargaining strength. In short, as union members participate more in union activities (e.g., attend union meetings, read union literature, and take part in union administration), they become more aware of the dissatisfying aspects of their jobs (Berger, Olson & Boudreau, 1983; Kelloway & Barling, 1993). Fullager & Barling (1989) assert that job dissatisfaction leads to intensified union loyalty which leads to greater union participation.

Nonetheless, the empirical research that has investigated the relationship of union participation and job satisfaction in extant unionized contexts has found mixed results. Several researchers have found a significant negative relationship between union participation and job satisfaction based on correlational analysis (Fullager & Barling, 1991; 1989; Kelloway & Barling, 1993) and based on structural equation modeling (Kelloway & Barling, 1993). However, Huszco (1983) found no significant relationship between union participation and job satisfaction in a convenience sample of union members from different U.A.W. locals.

It is instructive to consider both the measurement of union participation and the proximity of union participation to an individual's job when assessing the relationship between union participation and work-related attitudes. For example, if the measurement of an individual's union participation is the number of grievances filed (at the research site for this study, the typical grievance involved overtime disputes or some other conflict with an immediate supervisor), then the relationship between an individual's job and union participation is more immediate or direct. Therefore, the relationship between union participation and job satisfaction would be fairly strong. On the other hand, if union participation encompasses broad aspects of participatory behavior (e.g., in this dissertation the measure of union participation includes activities ranging from reading union material to attending union meetings to holding union office) which are not directly linked to an individual's job, then the linkage between union participation and job satisfaction will not be as strong.

Meanwhile, a broader conceptualization of union participation includes activities which serve to interpret the relationship between the union and company. In other words, union participation provides a channel from which employees come to understand the social or psychological contract. The adoption of a broad commitment or compliance orientation brings with it a particular social contract (psychological contract or framework) which guides understanding of the employment relationship (Cutcher-Gershenfeld, 1991; Walton et al., 1994). In other words, the relationship between variables can be expected to differ depending on the particular employment relations orientation. For example, one might expect a different relationship between union participation and organizational commitment given that an organization adopts a compliance rather than a commitment orientation. Thus, the relationship between union

participation and organizational commitment may partly be attributed to the interpretive framework arising from the various avenues for union participation. It then becomes critical to inquire, Is the framework more adversarial or is it more cooperative?

A more adversarial frame would be associated with an inverse relationship between union participation and organizational commitment, while the opposite relationship would be expected with a more cooperative frame. While any employment relationship can be characterized as containing elements of both common and competing interests (Kochan & Katz, 1988), a purview of local union newsletters, as well as discussions with several union officials (some holding union office and others serving on committees) suggest that the tone of union activity at the research site is more constructive and less confrontational. For example, in one issue of the local union newsletter the Plant Chairman was reporting on an upcoming plant expansion:

> The bargaining committee and I are pleased to announce that the Sharonville Unit has been awarded an expansion program for the E4OD transmission... The plant has committed to an effective and efficient launch while continuing improvements in safety, quality, cost and productivity on current operations... The Company's decision to invest in the E4OD expansion, and the plant's future, is a major achievement. The Sharonville membership has the reputation of working together and doing the things necessary to be competitive. The expansion also recognizes the membership's dedication in meeting the needs of the customers who buy our products.... (Miller, 1994, p. 2).

In another union newsletter, the Plant Chairman discusses the importance of performance in the interest of job security:

> ...I have emphasized the importance of us meeting production schedules and making quality products if we expect to get work in our plant. When the bargaining committee and I are discussing with top Company Management the possibility of getting new work, it is very helpful when we can reflect on all the good things the UAW workers in the Sharonville plant are doing to make our products the best in the world... Although we do not have a high absenteeism rate at the Sharonville unit, we do have room for improvement is some areas of the plant. I commend those UAW members who have maintained a good attendance record and done their part to reduce the unnecessary costs caused by absenteeism... Accordingly, continuing improvement in attendance is an important element for future job security as well (Miller, 1993, p. 2).

Additional support for the contention that the tone of union-management relations is less adversarial, several retiring active union employees commented in the union newsletter that both the company and union were important in their mind (Turner, 1994, pp. 8-10):

> "It (Ford) was a good place to work the last 13 years. I thank the UAW for all of the benefits won through the years...."
>
> "My years at Ford have been wonderful, thanks to Ford Motor Company and the UAW...."
>
> "I'll miss all my fellow workers. Ford and the Union made it a good life."
>
> "I feel fortunate to have worked at Ford and belonged to the UAW...."

Interviews with several union officials at Sharonville (some holding elected union office and others serving on union committees) offered further support that union-management relations are not confrontational. They provided insights into the perspective of the local union as it relates to changes, such as employee involvement and teams (McHugh, 1994). As one elected local union official stated:

> EI (employee involvement) and teams gave us an opportunity we (the workers) never had before. We get to know the whole operation. Workers are better informed and they know the business of the plant. That's good for the guy or gal on the line, the union, and the company.

A long-time union official recalled that:

> We (the union) had to back EI. It was the future. It got the lines of communication open. It took time, but the bargaining committee got on board and stayed on board.

Another elected union official stated:

> There was lots of resistance to teams from the floor and the union. It was political as heck. But people started to realize that it ain't so bad. But we (the union) have to keep our eyes on some managers that don't let the teams run their business. We can't run the railroad the way we used to.

Finally, additional support for the contention that the tone of union-management activity is less adversarial at the Sharonville plant comes from two areas. First, the Sharonville UAW-Ford ESSP (Employee Support Services Program) representatives recently received the national RISE (Recognition of Innovation, Support and Excellence) award. The RISE award recognizes the achievements of individuals at the local plant level who have worked hard to make UAW-Ford joint programs a symbol of a productive relationship between labor and management (Walker, 1994). Examples of these joint programs include: a) health and safety; b) quality; c) mutual growth; d) employee involvement/teams; e) joint steering committee; f) ergonomics; and g) attendance. Second, the plant has hosted the Work in America Institute several times which provides a forum for both the local union and management to publicly recommit to the value of cooperative practices, as well as the constructive resolution of conflict. Based on this discussion and evidence, the following hypotheses are suggested:

HYPOTHESIS 4A: The relationship between union participation and organizational commitment will be positive.

HYPOTHESIS 5A: The relationship between union participation and organizational commitment will be stronger than the relationship between union participation and job satisfaction.

Turning to employee involvement (EI), researchers have tended to find positive relationships between employee participation and work-related attitudes (Locke & Schwieger, 1979; Miller & Monge, 1986). EI programs in unionized contexts have typically been voluntary programs (Miller & Prichard, 1992), creating workplaces with participants and nonparticipants. Leana, Ahlbrandt & Murrell (1992) asserted that either a "program effect" or "selection effect" could explain differences in the work-related attitudes of participants versus nonparticipants.

A "program effect" perspective suggests that the EI process itself will impact employee attitudes because participation promotes feelings of independence and influence among employees and reduces alienation, which in turn enhances morale and commitment (Leana & Florkowski, 1992; Locke & Schweiger, 1979). From a "selection effect" perspective, employees that voluntarily participate in an EI program already have more positive work-related attitudes and are therefore more motivated to take on additional responsibilities. Both the program effect and the selection effect perspectives suggest that EI program participants will have more positive work-related attitudes than nonparticipants.

There have been several research efforts examining differences in the work-related attitudes of participants and nonparticipants. Griffin (1988) found no significant difference in the work-related attitudes of volunteers and nonvolunteers before the implementation of a quality circle program, and then found more positive attitudes for participants for a short period of time after program adoption. Eventually, participant attitudes returned to original levels. Bruning & Liverpool (1993) found that quality circle participants had significantly higher job satisfaction than nonparticipants, but no significant difference in organizational commitment in a sample based on three union

locations. Miller & Prichard (1992) found that individuals who reported interest in participating in an upcoming EI program not only reported higher job satisfaction, they also had higher expectations for the EI program.

Leana et al. (1992) compared the work-related attitudes of EI participants ("participants") with individuals reporting that they would like to participate in the program ("volunteers"), as well as individuals reporting that they did not want to participate in the program ("nonparticipants"). They found that there was no significant difference among the three groups in terms of job satisfaction, although, volunteers reported the highest mean level of job satisfaction. Moreover, volunteers, not participants, reported higher levels of organizational commitment than nonparticipants.

Leana et al. (1992) concluded that program efficacy likely contributed to these results. They asserted that since the program was voluntary, it was plausible that current participants had similar work-related attitudes prior to taking part in the program to those who currently wanted to volunteer for the program. Thus, a participation program that does not meet expectations may actually diminish work-related attitudes. In support of this view, recent research suggests that those who participate in EI will have more positive work-related attitudes if they perceive the EI process as successful (Fields & Thacker, 1992). Those who participate but do not feel EI is effective may experience frustration which negatively impacts their work-related attitudes (Leana et al., 1992). This view is also consistent with research that has looked at the staying power of participation programs which indicates that the participation process must be perceived as valuable from the employees', employers' and unions' perspective (Kochan et al., 1992).

Researchers have not explicitly attempted to differentiate the impact of EI on job satisfaction versus organizational commitment. One possible approach to understanding the differential impact on work-related attitudes is considering the proximal or distal nature of EI programs. In other words, to what extent does the EI program directly impact the worker's day-to-day job and therefore more directly impact job satisfaction (i.e., Is the program more proximal?), and to what extent does the EI program impact the worker's understanding of the organization and therefore more directly impact organizational commitment (i.e., Is the program more distal?)?

As noted in Chapter One, EI programs (and various quality circle initiatives) are viewed as first generation work organization innovations. Recall, that these first generation innovations have the following characteristics: they exist parallel to the production process, are voluntary, and involve limited training. In addition, they are also characterized by: 1) infrequent meetings (weekly to monthly); 2) activities primarily focused on problem-solving beyond the individual and work group (e.g., addressing problems with work flows across departments, across work areas, as well as vendor and customer relations); 3) interactions involving widely dispersed organizational stakeholders (e.g., stakeholders from other shifts, departments, functions and levels); and 4) an emphasis on more macro or organization-based work information (e.g., addressing information relevant to department, work areas or plant-wide issues regarding suppliers, customers, materials, equipment, tools, and scrap). In essence, EI programs tend to be more distal-based. Therefore, EI participation should have more of a relationship with organizational commitment than with job satisfaction. Thus, the following hypotheses are posed:

HYPOTHESIS 6A: Participation in the EI program (i.e., current participation and whether or not an individual has ever participated in EI) will be more strongly related to organizational commitment than to job satisfaction.

HYPOTHESIS 7A: Perceptions of the effectiveness of employee involvement (EI) will moderate the relationship between EI participation (i.e., current participation and whether or not an individual has ever participated in EI) and organizational commitment.

Human resource innovations, such as EI and teams, provided an opportunity for individuals to engage in voluntary formal leadership roles (i.e., being an EI group leader or a team coordinator). Due to a selection effect, individuals that partake in these leadership roles may differ in their work-related attitudes. In terms of a program effect, leaders in these types of participatory programs are more likely to experience influence and a reduced sense of alienation than those who are not in leadership positions because these leadership roles typically include more training, communication, and understanding of work and organizational processes. Furthermore, these leadership positions may entail an improvement in work attributes parallel with the concept of job enrichment which is linked to job satisfaction (Locke, 1976). Yet, there has been little research regarding the work-related attitudes of workers who voluntarily engage in leadership roles associated with participation programs. This leads to the following hypothesis:

HYPOTHESIS 8A: Individuals in leadership positions (within either employee involvement or teams) will report more positive work-related attitudes.

Finally, there has been little research which has looked at workers who have been exposed to (and progressed through) first generation and then second generation work organization innovations. The fundamental question is, What are the implications for work-related attitudes for employees that initially have participated in an EI program, and then at some later point in a team-based work system? Walton et al. (1994) describe EI activities as a "first step along a path toward a combination of employee commitment and institutional cooperation" (p. 14). Likewise, Cutcher-Gershenfeld, Kochan & Verma (1987) argue that "self-contained" participative structures, such as first generation quality circles and EI initiatives, may serve as "useful starting points" for introducing greater participation in a traditional hierarchical organization (p. 5).

In other words, narrowly focused EI efforts may open dialogue, build trust, and establish a foundation for group problem solving. However, they may fail to address a number of employee concerns. For example, first generation initiatives, such as EI, typically raise expectations of a more consultative workplace (Cutcher-Gershenfeld et al., 1987). Indeed, several studies indicate that workers that participate in EI type programs report both higher needs and expectations regarding influence in decision-making (Miller & Prichard, 1992; Rafaeli, 1985). Thus, employees who have participated in EI may find that some of their expectations and needs surrounding influence in decision-making are met when they are involved in a team-based work organization, particularly when the team-based system alters the traditional hierarchical authority structure and allows for greater influence in workplace decisions. Thus, the following hypothesis is suggested:

HYPOTHESIS 9A: Work organization (teams) will moderate the relationship between EI participation (whether or not an individual has ever participated in EI) and both organizational commitment and job satisfaction.

CHAPTER FOUR

CONTEXT WITHIN CONTEXT: WORK GROUP DIVERSITY AND WORK ORGANIZATION EFFECTS ON WORK-RELATED ATTITUDES

Introduction

The purpose of this chapter is to provide a model and hypotheses relevant to understanding work group demography and work organization as a context for work-related attitudes. The model proposes that relational and compositional demography have a direct relationship with work-related attitudes controlling for simple demography. In addition, the model advances a role for work organization as a moderator variable, controlling for intragroup workflow.

Research Model and Hypotheses

As noted at the outset of this dissertation, the manufacturing workplace is changing in ways that alter the very context in which individuals and groups work. On the one hand, competitive strategies are calling for the utilization of manufacturing technologies and job designs which take advantage of the benefits of work group member interaction (Banas, 1988; Kanter, 1988; Kochan et al., 1992; Piore & Sabel, 1984; Schuler & Jackson, 1987). As a result of these changes in work organization, work group members face greater demands for "teamwork" (Sundstrom et al., 1990), as well as performing tasks which require greater "interdependence" (Jackson, 1992b). Meanwhile, the demographic composition of the workforce continues to become more diverse (Johnston & Packer, 1987). Thus, workers will be more likely to encounter a demographically heterogeneous, rather than homogeneous, set of co-workers. This is important because demographic differences are associated with differences in values,

attitudes, styles of interaction, physical and cognitive abilities, and nonwork commitments (Jackson, 1992b). Moreover, recent evidence suggests that a substantial number of workers in the U.S. would prefer to work with people of the same race, sex, and education (Shellenbarger, 1993).

In essence, within organizations there is a simultaneous trend toward greater worker-to-worker interaction via changes in work organization and greater workplace diversity. The demographic context of the workplace is changing, as well as the work organization context. Thus, there is a need to understand the effects of context (demography) within context (work organization).

Since the publication of the seminal article by Pfeffer (1983), a number of organization scholars have conducted research attempting to better understand the role of workplace demography beyond simple demographic effects (Jackson et al., 1991; Konrad et al., 1992; Kossek & Zonia, 1993; McCain, O'Reilly & Pfeffer, 1983; North & Hunter, 1992; O'Reilly et al., 1989; Sessa, 1993; Zenger & Lawrence, 1989). This research has increased understanding regarding workplace demography. However, there are several shortcomings to the extant demography research which are addressed in this dissertation.

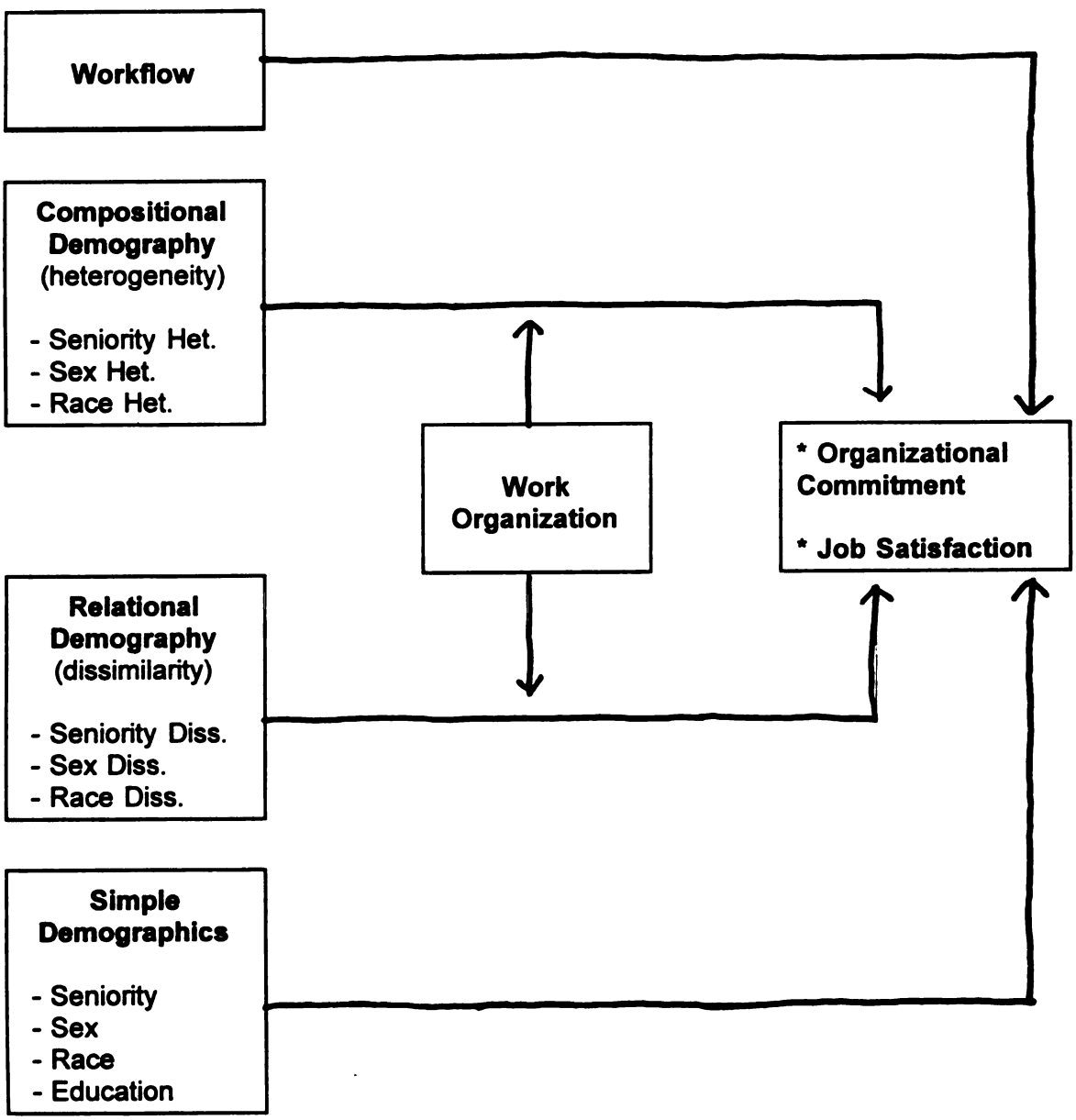
First, many of the social psychology studies looking at demography effects have been conducted in the laboratory where the groups have been artificially composed (Jackson, 1992b). Second, in terms of the field research, the subjects have come predominantly from white collar occupations. The importance of demography has not been thoroughly investigated for blue-collar shop floor work groups. Third, none of the research has looked simultaneously at the impact of demography effects on proximal (job satisfaction) and distal (organizational commitment) work-related attitudes. On the

one hand, demography effects may be closely linked to job satisfaction because individuals are confronted with demographic diversity within their work group on a day-to-day basis, while on the other hand, diversity within the group may lead someone to detach from not only the group but also from the organization. Fourth, frequently the studies lack complete demographic data so that precise demography calculations are not possible (e.g., the data is based solely on self-reports). Finally, there has been a paucity of research which has investigated the role of work organization as a factor for understanding demography effects.

Given the importance of understanding both the effect of demography and work organization on worker attitudes, a formal model is proposed. Figure 4.1 identifies the pertinent elements of the model. This model suggests that there are direct linkages between both workflow and simple demographic variables, which are used as controls, and work-related attitudes. The relationship of relational demography (which focuses on individual-level "dissimilarity" with regard to seniority, sex and race) and compositional demography (which centers on group-level "heterogeneity" with regard to seniority, sex and race) to work-related attitudes is thought to be moderated by work organization (i.e., team or traditional work system). Note that relational demography is interested in the degree to which an individual is dissimilar (differs) from the other members of their work group, whereas compositional demography assesses the degree to which the work group itself is demographically heterogeneous (Tsui et al., 1992).

What follows are hypotheses regarding the predictors of work-related attitudes. First, hypotheses relevant to the role of relational and compositional demography as predictors of work-related attitudes are provided. Next, hypotheses focusing on the influence of work organization as a context for work group demography are presented.

Figure 4.1.
Demography Model



Antecedents to Work-related Attitudes

Simple Demographics. Simple demographic characteristics are being used as control variables. These controls are necessary to ensure that a relational and/or compositional demography effect is obtained after the effect of simple demographics is considered. See Chapter 3 for a further discussion of the relationship between these variables and work-related attitudes.

Intragroup Workflow. Intragroup workflow refers to intragroup interdependence. This interdependence is viewed as arising from the characteristics of the task relationships among work group members as work moves through the group (Thompson, 1967). Intragroup workflow is utilized as a control variable to ensure that a work group demography and/or work organization-group demography interaction effect is obtained after the effect of intragroup interdependence is considered.

Dissimilarity (relational demography). Demographic dissimilarity focuses on how different an individual is from other members of their work group with respect to demographic characteristics. Several theoretical perspectives offer insight into why examining an individual's similarity to other members of their social context would be an important factor explaining individual behavior and attitudes.

The similarity-attraction paradigm (Byrne, 1971) suggests that similarity in attitudes is a source of attraction between individuals. A variety of physical, social and status traits can be used to infer similarities in attitudes and beliefs (Berscheid, 1985; Levine & Moreland, 1990). Similarity of attitudes and values facilitates communication and stimulates interpersonal attraction (Jackson, 1992a). High attraction may lead to more frequent communication, high social integration, and a desire to maintain group affiliation (Tsui et al., 1992). Pfeffer (1983) argued that an organization composed of

dissimilar people will experience high levels of conflict and turnover, and that individuals in such organizations will have less positive attitudes, whereas demographic similarity facilitates trust and communication

These perspectives are consistent with Schneider's (1983a; 1987) attraction-selection-attrition (ASA) model. The ASA model proposes that the processes of attraction, selection, and attrition increase homogeneity in organizations because those inside the organization attract and select others like themselves, while those who differ from the "norm" tend to leave. Similarly, it would be thought that work group membership becomes more homogeneous over time due to similarity and attraction, while dissimilar members would become detached from the work group.

The self-categorization theory (Turner, 1987) and the social identity theory (Ashforth & Mael, 1989) propose that individuals define themselves by classifying themselves and others into social categories based on age, sex, race, status, religion, or organizational membership. As a result of this categorization process, groups that contain the "self" are likely to be regarded as special and regarded positively, while groups that do not contain the "self" are looked upon less favorably (Tsui et al., 1992).

These perspectives suggest that individuals who are dissimilar to other members of their work group may report less positive work-related attitudes. Dissimilar group members may have difficulty integrating with the group, especially where polarization that arises from dissimilarities intensifies social boundaries which results in less satisfaction with co-workers (Moreland & Levine, 1992; O'Reilly et al., 1989). Tsui et al. (1992) proposed that psychological commitment is influenced by demographic similarity because dissimilar group members find the group less attractive and will detach themselves psychologically from the group. Since, work group events and

features are the most salient aspects of the organization that a worker experiences, then this detachment may arise in the form of less organizational commitment.

It has also been suggested that dissimilar individuals may feel uncomfortable in their work group because of increased scrutiny and pressure (Jackson et al., 1991; Moreland & Levine, 1992). For example, Kanter (1977) argued that the presence of token women within a work group creates three perceptual phenomenon: 1) token women are highly visible group members attracting a great deal of attention (e.g., there is pressure to match or exceed male co-worker performance); 2) group members focus on differences rather than similarities making it harder for females to interact and develop interpersonal relationships with group members; and 3) token women are viewed in a distorted way (e.g., the feminine qualities may be emphasized while other qualities are overlooked or ignored which traps women into playing stereotypical roles, such as mother). On the other hand, being in a male-dominated occupation or work group may be associated with increased occupational and social status for women and result in positive reactions by women in male-dominated settings (Wharton & Baron, 1989).

Empirical studies have found support for the importance of demographic similarity for behaviors and attitudes. Zenger & Lawrence (1989) reported that engineers who were different from others on a project team in terms of age and tenure engaged in less communication with other team members. O'Reilly et al. (1989) concluded that field representatives that were most distant from other members of a field office in terms of age and tenure were the least socially integrated into the group. Jackson et al. (1991) reported that executive team members whose personal attributes, such as age, education, college curriculum, and external industry experiences, were

dissimilar to other team members would be more likely to leave the team. Tsui et al. (1992) found, from a sample of supervisory and non-supervisory personnel, that those organizational members that differed from other organizational members in terms of race or sex reported lower levels of organizational commitment. In sum, both theory and empirical analysis suggest that demographic dissimilarity will be related to work-related attitudes. For the most part, dissimilarity has been shown to lead to less positive work-related outcomes. Therefore, the following hypothesis is suggested:

HYPOTHESIS 1B: Work group members who are more dissimilar to the other members of their work group, with respect to sex, race, and seniority, will report lower job satisfaction and lower organizational commitment.

Heterogeneity (compositional demography). For individuals, work group composition may be a key contextual factor which impacts work-related attitudes (Moreland & Levine, 1992). In contrast to demographic dissimilarity, which focuses on how different the individual is in terms of a characteristic, work group heterogeneity is thought to have an impact on all group members regardless of individual dissimilarity. In other words, demographic heterogeneity is thought of as a group effect. As noted earlier, it is believed that personal attributes are associated with differences in attitudes, values, and beliefs, and that these differences have the potential to create conflict and inhibit communication among group members and in turn influencing behaviors and attitudes (Jackson, 1992b; Jackson et al., 1991).

Several researchers have reviewed the bothersome consequences associated with group heterogeneity (Jackson, 1992b; Pfeffer, 1983). Overall, social psychological research suggests that group heterogeneity discourages group cohesiveness because heterogeneous groups encounter strained communication and low interpersonal

attraction (Jackson, 1992b). Indeed, several studies have found that group heterogeneity is associated with increased turnover (Jackson et al., 1991; O'Reilly et al., 1989; Sessa, 1993). Most of the research to date has assumed that it is "conflict" that is generated by heterogeneity which drives outcomes such as turnover (Jackson et al., 1991). If heterogeneity tends to generate conflict among group members and inhibit cohesiveness, then higher levels of conflict within heterogeneous groups may cause similar and dissimilar members to have more negative work-related attitudes.

Blalock (1957) offers a "institutional" perspective which proposes that attitudes toward the minority (e.g., women and nonwhites) are more negative in work groups composed of a high proportion of the minority than in work groups composed of a low proportion of the minority. In brief, as the minority proportion of the work group becomes larger, then the majority will feel threatened in terms of resources and power (Konrad et al., 1992). In response, intragroup conflict may increase, while communications and cohesiveness may decrease.

An alternative view, the "contact" perspective, proposes that the greater the level of contact and familiarity with members of different social-identity groups, the greater the attraction and the lower tendency to engage in negative stereotyping of members of different social-identity groups (Allport, 1954; Kanter, 1977). For example, Blau (1977) asserts that increasing group heterogeneity increases the probability of majority-minority interaction leading to improved inter-group relations (e.g., improved inter-racial relations). Kossek & Zonia (1993) found that when sex heterogeneity increased within academic units, in their sample of university faculty, the more favorable the diversity climate within the academic unit (e.g., the higher the regard for the qualifications of women). In short, this view suggests that heterogeneity may actually lead to improved

work-related attitudes because the more heterogeneous the group the better communication and interpersonal relations within the group.

There is also an emerging view in the literature referred to as the "value-in-diversity hypothesis" which proposes that diversity is a source of competitive advantage (Cox & Blake, 1991). For example, it has been suggested that increasing diversity is associated with greater creativity and improved problem-solving (Cox & Blake, 1991). In addition, diversity may have implications for group process. Cox, Lobel & McLeod (1991) investigated diversity from a cultural individualism-collectivism perspective. They concluded that groups comprised of diverse members from collectivist cultures displayed more cooperative behaviors than groups comprised of homogeneous members from an individualistic cultural tradition. The implication is that diversity in groups may be an important ingredient in effective group process which would subsequently impact individual group member attitudes.

In summary, there is a traditional view which emphasizes race and gender conflict in the workplace, as well an emerging view which stresses the potential benefits of increasing workplace diversity. While various theories offer alternative views of the relationship between heterogeneity and work-related attitudes, they all suggest that heterogeneity will have an impact on work-related attitudes. Hence, the following hypothesis is proposed:

HYPOTHESIS 2B: Demographic heterogeneity will explain a significant amount of additional variance in work-related attitudes, controlling for simple demographics and demographic dissimilarity.

Work Organization and Work Group Demography. While there has been significant concern and speculation expressed regarding the interface between increasing diversity in the workplace and the adoption of team-based work systems (Jackson, 1992a), there has not been a reciprocal amount of research addressing this phenomenon. Also, there has not been a clear delineation of what the outcomes might be with regards to dissimilarity versus heterogeneity. In other words, there is a need to conduct research which looks at the demographic context for work groups within the context of work organization.

As stated earlier in Chapters 1 and 2, team-based work systems typically are characterized by: more flexible work rules that encourage job rotation, formalized collective autonomy and decision-making, emphasis on group-level goal-setting, performance, feedback and communication, increased group responsibility for intragroup coordination, scheduling and administration, and off-line meetings. Given these work organization characteristics, then what are the implications for individuals that differ from the other members of their work group in terms of demographic characteristics? As discussed earlier, Jackson (1992a) posited that individuals with different demographic characteristics would likely have differing values, attitudes, styles of interaction, physical and cognitive abilities, and nonwork commitments. In a team-based work system, demographic differences will be more salient because team-based work organization requires greater intragroup interaction. In this context, demographic dissimilarities become more magnified making the individual and the work group more aware of differences. Thus, the relationship between demographic dissimilarity and work-related attitudes will be more robust in team-based work organization.

While it is proposed that the negative consequences associated with dissimilarity are intensified under a team-based work system, the relationship between heterogeneity and work-related attitudes is posited to be more positive in the team context. The "contact" perspective is helpful here. Recall that the contact perspective suggests that the greater the level of contact between demographically different individuals, the less negative attitudes will be towards members of different social-identity groups (Blau, 1977; Kanter, 1977). Subsequently, this supposedly will improve interpersonal communication and lessen conflict within work groups leading to improved work-related attitudes.

However, Tsui et al. (1992) assert that in order for the contact perspective to operate to "reduce group tension, certain facilitating conditions are essential" (p. 572). These facilitating conditions are similar to what Kramer (1991) proposed as a means of reducing self-categorization effects which, in turn, reduce intergroup competition and conflict. These conditions or "interventions" include: creating a structure where cooperation is necessary for success, avoiding stressing individual goals and performance while emphasizing group goals and performance, job rotation, and symbolic management (e.g., calling work groups "teams"). In many ways, a team-based work system embraces several of these "facilitating conditions."

Recent research supports this notion. For example, Cox, Lobel & McLeod (1991) compared the performance of ethnically diverse groups (i.e., composed of Asians, Blacks, Hispanics, and Anglos) to homogeneous Anglo groups in a Prisoner's Dilemma task. They found greater cooperation in ethnically diverse groups, which was particularly true when a norm of cooperation was introduced. In a study looking at diversity at a large university, Kossek, Zonia & Young (1994) concluded that diversity

enlargement strategies are more likely to succeed if they include group-based change approaches that are devised to alter the design of jobs, the structure of the workplace, and the supporting reward systems in a manner that fosters collaboration and teamwork. In other words, mere social contact is insufficient for enhancing diversity climate. The contact must be structured toward the collaborative achievement of work-related tasks.

Hence, a team-based work system provides a context in which heterogeneity may lead to less group conflict, and improved interpersonal communication and intragroup relations. Consequently, this should lead to more positive work-related attitudes. In summary, it is proposed, in the following hypotheses, that work organization has a differential impact on dissimilarity versus heterogeneity.

HYPOTHESIS 3B: Work organization will moderate the relationship between work group demography (both dissimilarity and heterogeneity) and work-related attitudes.

HYPOTHESIS 4B: Work organization will moderate the relationship between dissimilarity and work-related attitudes so that dissimilarity in a team context will lead to more negative work-related attitudes than dissimilarity in a traditional work context.

HYPOTHESIS 5B: Work organization will moderate the relationship between heterogeneity and work-related attitudes so that heterogeneity in a team context will lead to more positive work-related attitudes than heterogeneity in a traditional work context.

CHAPTER FIVE

CONTEXT AND CLIMATE: A MIXED-LEVEL VIEW

Introduction

The purpose of this chapter is to offer a model and hypotheses relevant to understanding the role of work group climate as a linkage between context and both individual-level and group-level outcomes. The model proposes that work group climate will have direct relationships with both individual and group outcomes. Moreover, work group climate is posited as a mediating linkage between context and outcomes.

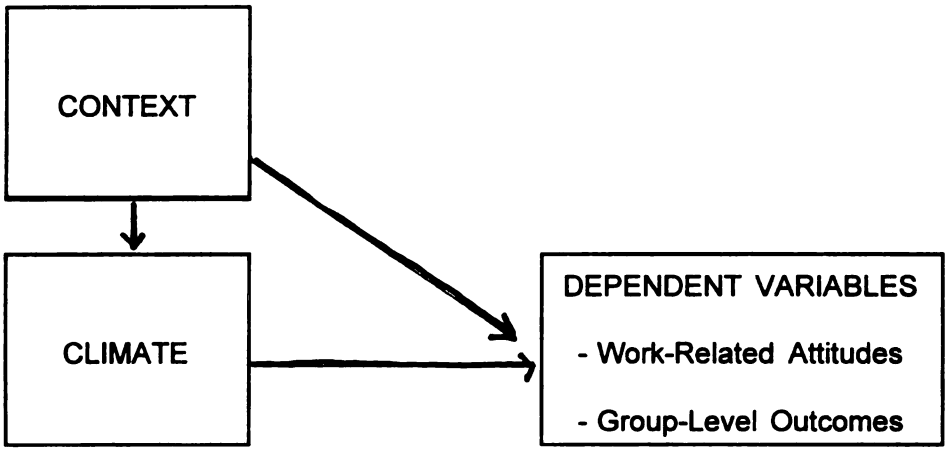
Research Model and Hypotheses

As noted elsewhere in this dissertation, work groups and their members are encountering a transformation in the context in which they work. There is a need to better understand the implications of these contextual changes on worker attitudes and behaviors. However, as Rousseau (1978) points out, there is not only a need to uncover which aspects of context influence the outcomes of interest, but also understanding how context effects outcomes. Climate has been offered as a mediating linkage between context and various outcomes (James & Jones, 1974; Kopelman, Brief, & Guzzo, 1990; Kozlowski & Hults, 1987; Litwin & Stringer, 1968; Schneider, 1983b).

Figure 5.1 illustrates the framework used in this chapter. This model suggests that there are direct linkages between climate and both individual and group-level dependent variables, as well as direct linkages between context and the dependent variables. However, the model proposes that the linkage between context and the outcomes of interest is mediated by work group climate. Several conditions must exist in order for the mediation model to hold: 1) climate must be related to the dependent

variables; 2) context must be related to the dependent variables; 3) context and climate must be linked; and 4) after controlling for climate, context should not show a significant independent relationship with the dependent variables. What follows are hypotheses relevant to testing this mediation model.

Figure 5.1. A Model of Context, Climate and Both Individual and Group-Level Outcomes



Climate

Climate is conceptualized as perceptually-based descriptions of organizational or subunit features, events and processes (Kozlowski & Doherty, 1989; Rousseau, 1988). Litwin & Stringer (1968) view climate as a "filter through which objective phenomena must pass" (p. 43). The measurement of climate is at the individual level since perception and meaning are psychological processes (Kozlowski & Hattrup, 1992) and has been referred to as psychological climate (James & Jones, 1974). At the individual level, psychological climate (James & Jones, 1974) is a perceptually based set of descriptions of the workplace context that arise from individuals' interactions with the workplace context, as well as interactions with other salient organizational members

(Kozlowski & Doherty, 1989). These climate perceptions form the basis for behavioral and attitudinal responses (Joyce & Slocum, 1990; Kozlowski & Doherty, 1989; Kozlowski & Hults, 1987; Pritchard & Karasick, 1973; Schneider, 1983a).

When individuals within an organizational boundary (e.g, work group, department, plant, or organization) share perceptions regarding contextual features, these perceptions can be aggregated to a higher level and the mean can be regarded as representing this shared interpretation at a higher level (James, 1982; Kozlowski & Hattrup, 1992). Consensual perceptions of climate constitute a basis for collective response tendencies (Kozlowski & Hults, 1987), and serve as a frame of reference guiding behaviors (Zohar, 1980). In essence, the climate paradigm provides a framework for conceptualizing collective motivation, rather than just the typical individual level motivational models in psychology (Schneider & Reichers, 1983).

Work Group Climate

As noted earlier, while climate is measured at the individual level, evidence of shared perceptions among individuals within an organizational boundary, such as a work group, would be indicative of work group climate. Work group members that share climate perceptions share a common interpretive frame of reference (Peiro, Roma-Gonzalez, & Ramos, 1992) that guides behavior (Kozlowski & Hults, 1987; Schneider & Reichers, 1983; Zohar, 1980).

Several researchers have found work group or subunit level climate as a useful and meaningful construct (Drexler, 1977; Howe, 1977; Joyce & Slocum, 1984; Kozlowski & Doherty, 1989; Newman & Nolan, 1993; Peiro et al., 1992; Powell & Butterfield, 1978; Waldron, 1987). The salience of work group level climate arises from the perspective that perceptions are most influenced by the experiences an individual

has with the immediate environment, such as at the work group level (Falcione, Sussman, & Herden, 1987; Howe, 1977; Kozlowski & Doherty, 1989; Powell & Butterfield, 1978). Indeed, Newman (1975) states that "employees in different locations in organizational space tend to have different work environment experiences and this leads to differences in the frames of reference they use to evaluate the work situation" (p. 374). However, three critical issues must be addressed concerning the conceptualization and operationalization of work group climate: 1) the aggregation of individual responses; 2) the descriptive level or target of climate; and 3) the dimensionality of work group climate.

Aggregation Issues. Since climate is based on individual perceptions, there needs to be evidence of agreement or a sharing of perceptions at the group level in order for it to be a meaningful construct at the group level (James, 1982). There has been some controversy surrounding the methodology used to aggregate individual responses indicative of agreement or consensus (Florin, Giamartino, Kenny & Wandersman, 1990; George & James, 1993; James, Demaree, & Wolf, 1993; James, Demaree, & Wolf, 1984; Kozlowski & Hattrup, 1992; Schmidt & Hunter, 1989; Yammarino & Markham, 1992). The utilization of r_{wg} (a derivation of intraclass correlation; Ostroff, 1993, pg. 63) as an index of agreement or consensus has been successfully used by climate researchers (Kozlowski & Hults, 1987; Ostroff, 1993; Schneider & Bowen, 1985) and is advocated by James et al. (1993; 1984). However, as discussed in Chapter Six of this study, there are unresolved issues surrounding what is an acceptable level of r_{wg} for aggregation purposes.

Nonetheless, the use of r_{wg} is appropriate for multiple items that are parallel indicators of a construct when raters (members of a work group) are judging the same

target (work group climate) (James et al., 1984; Kozlowski & Hults, 1987). Further, this technique does not require that within group agreement or consensus be conditional on between group differences (George & James, 1993). Finally, this procedure allows researchers to take into account possible response bias in that some of the variance in responses may be due to factors such as social desirability or central tendency (James et al., 1993; 1984; Kozlowski & Hattrup, 1992; Kozlowski & Hults, 1987).

Descriptive Level of Work Group Climate. The second issue concerns the descriptive level or target of climate. A major hindrance to climate research has been the inconsistency between the scale content of climate items and the desired level of climate used for analysis (Rousseau, 1988; Waldron, 1987). Howe (1977) acknowledged this problem in reviewing climate research:

> ...some climate instruments never specifically delineated the boundary of the stimulus segment of the organization for the respondents. For example, the items may ask for responses to an ambiguous "work environment." ...the questions may ask about something like "this department" and then compare divisions. It would seem that if one is interested in department climate, the climate questions should specifically ask about one's department and the statistical analysis should be conducted combining persons from the same department (p. 109).

This suggests that while broad organizational level climate measures have proven to be a useful concept for research at the organizational level, it is not adequate for understanding work group level phenomena. For example, variance in work group level outcomes are not likely to be captured by measures of climate which are descriptive of an entire plant or organization (Howe, 1977; Rousseau, 1988). Since the focal level of interest in this project is the work group, the climate items utilized will ask respondents to describe attributes of their work group.

Dimensionality of Work Group Climate. There is a strong consensus in the literature that climate is a multidimensional construct (Kopelman et al., 1990; Rousseau, 1988). However, there is a lack of consensus in the literature surrounding the precise dimensions or facets of climate (Falcione et al., 1987; Koys & Decotis, 1991). Schneider & Reichers (1983) note that climate measures need to be relevant to the criterion of interest.

Several researchers have successfully used somewhat narrow climate facets to explain fairly narrow criteria, such as safety (Zohar, 1980), service (Schneider, Parkington, & Buxton, 1980), and technical updating (Kozlowski & Hults, 1987). Recently, Kossek & Zonia (1993) effectively used diversity climate as a dependent variable. Therefore, the key may not be the emphasis on the narrowness of the climate facet, but rather the linkages between climate dimensions and the research questions or outcomes of interest.

Following methods recommended by Schneider & Reichers (1983), and adopted by Kozlowski & Hults (1987) and Zohar (1980), several dimensions of work group climate were determined from a review of the literature looking at various models of work group and work team effectiveness, as well as reviewing literature addressing the transformations taking place in work group context. The purpose was to highlight proposed features that differentiate effective versus ineffective work groups on individual and group-level outcomes. It is assumed that such features characterize work groups and that the perception of these by workers form work group climate. Several of the dimensions noted below overlap with prior conceptualizations of climate used in earlier studies (Hellriegal & Slocum, 1974; Jones & James, 1979; Koys & Decotiis, 1991; Kozlowski & Doherty, 1989).

It must be acknowledged that there has been an overwhelming number of factors offered in the literature as contributing to work group effectiveness. Given the pragmatic needs of field research and the desire to focus on factors related to recent contextual transformation, this review attempts to narrow the lens to dimensions deemed most salient for work groups in a manufacturing context. Choosing this subset of possible dimensions does not deny the existence of a larger universe of possible dimensions. Based on the reviewed literature, it was decided that work group climate would include the following dimensions: a) supportive supervision; b) autonomy/participation; c) intragroup coordination; d) intergroup cooperation; and e) group conflict.

Work Group Climate Dimensions

Supportive Supervision Climate. Beginning with the seminal work of Lewin, Lippit & White (1939) until the present, researchers have been intrigued with the effect of leadership and supervision on group processes and outcomes (Falcione et al., 1987; Goodman, Ravlin, & Argote, 1986). Leadership and supervision have been fundamental components in most models of work groups and teams (Cummings, 1981; Gladstein, 1984; Kolodny & Kiggundu, 1980; Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, forthcoming). Indeed, the supervisor is thought to be a worker's "most salient, tangible representative of management actions, policies, and procedures" (Kozlowski & Doherty, 1989; p. 547).

In manufacturing settings, the supervisor role is particularly critical where the supervisor has been referred to as "...the voice of the front office that is heard on the shop floor" (Fletcher, 1969; p. 341). The traditional supervisor in a mass production oriented manufacturing system has been a critical linking pin implementing procedures and specifications mandated by specialist departments (e.g., industrial engineers,

maintenance, quality control, manufacturing planners, labor relations, etc...) and buffering specialist departments from shop floor discontent (Lowe, 1993). Currently, the adoption of work restructuring initiatives (e.g., teams) has placed the shop floor supervisory role in a state of flux (Kelly, 1982; Klein, 1988; Lowe, 1993). For example, the supervisory role is changing so dramatically that many organizations no longer refer to front-line managers as supervisors. Still, at some point, supervision (or management) interfaces with work groups, and these groups look to front-line managers or supervisors for support. While it is unclear what implications the changing supervisory role has for work group member attitudes and group effectiveness, it is generally accepted that supervision will still be an important determinant of work group outcomes (Rosen, 1989). Brief & Motowidlo (1986) suggest that leadership style may effect extra-role behavior through role modeling.

Autonomy/Participation Climate. Work group autonomy has become a critical factor in discussions regarding work group effectiveness (Ilgen et al., 1993; Klein, 1991; Manz, 1992). The importance of work group autonomy is tied to the evolution of the socio-technical systems movement (Davis & Trist, 1979; Pearce & Ravlin, 1987; Trist & Bamforth, 1951) and the utilization of autonomous work groups or self-managing teams. A key feature of autonomous

work groups is the high degree of control by work group members over their day-to-day work, such as the pace of work, work practices, allocation of jobs among group members, determination of rest breaks, training of members, and occasionally the recruitment and selection of group members (Pearson, 1992; Wall et al., 1986). However, in practice, the degree of autonomy exhibited by work groups typically falls along a continuum (Manz, 1992).

Employee participation and problem-solving is most closely aligned with the human relations movement (Roethlisberger, 1941), and has been more recently seen as critical for the viability of firms in a rapidly changing global market (Kochan, et al., 1992; Levine & Tyson, 1990; Piore & Sabel, 1984; Walton, 1987). It has been manifest most clearly in quality circle (Griffin, 1988; Marks et al., 1986; Munchus, 1983), employee involvement (Verma & McKersie, 1987) and quality of work life (Cummings & Malloy, 1982; Mohrman, et al., 1986) initiatives. These initiatives enable employees to identify and address problems related to performance and provide employees with opportunities to enhance work place effectiveness (Pearson, 1992).

In theory, both autonomy and participation have been linked to attitudinal and performance outcomes. Work group autonomy can be intrinsically motivating and can enhance job satisfaction which will result in improved performance and reduced exiting behaviors (Wall et al., 1986). However, empirical research indicates stronger support for a positive relation between group autonomy and job attitudes and less support for a relation between autonomy and performance or exiting behaviors (Cordery et al., 1991; Wall et al., 1986). Meanwhile, several theoretical linkages from participation to attitudinal and performance outcomes have been summarized (Miller & Monge, 1986). However, there has been a long debate on the efficacy of employee participation with most evidence supporting a stronger relationship between participation and attitudes and a weaker relationship between participation and performance (Levine & Tyson, 1990; Locke & Schweiger, 1979; Miller & Monge, 1986). Spector (1986) found support for linking the constructs of autonomy and participation through the underlying concept of "perceived control." He found similar relationships between a variety of correlates and the constructs of autonomy, participation and perceived control.

Intragroup Coordination Climate. One of the most consistent findings in the reviewed literature was that coordination among group members is a critical factor contributing to group and team effectiveness (Bettenhausen, 1991; Cummings, 1981; Morgan, Glickman, Woodard, Blaiwes, & Salas, 1986; Nieva et al., 1978; Pearce & Ravlin, 1987; Salas, Dickinson, Converse, & Tannenbaum, 1992; Seers, 1989). Hackman & Morris (1975) assert that "the key to understanding the group effectiveness problem is to be found in the ongoing interaction process which takes place among group members..." (p. 46).

Seers (1989) used the construct of team-member exchange quality (TMX), conceptualized as reciprocity among group members, to measure perceptions of group interaction. Seers found individual level TMX was related to individual job satisfaction and performance. However, it is the group level impact of TMX that may be more important. As Seers (1989) noted, a successful team will likely be one in which the members have perceptual convergence surrounding a high level of TMX. In other words, effective work groups will have members that share similar high perceptions of coordination. Intragroup coordination climate may be particularly important in terms of extra-role behavior. Brief & Motowildo (1986) suggest that a climate that is "a prosocial climate" probably induces individuals to behave more prosocially (i.e., engage in more extra-role behaviors).

Intergroup Cooperation Climate. Aldefer (1977) emphasized the importance of understanding the work group as embedded in a social system consisting of other groups. Gladstein (1984) suggests that the way work groups manage interactions across their boundary is informative. The concept of boundary management supports the belief that interactions across work groups may have important ramifications for

group and organizational effectiveness (Ancona & Caldwell, 1988; Katz & Kahn, 1978; Tushman, 1977). Intergroup cooperation may be particularly critical for work groups which share customer/supplier relationships and where resources and equipment are utilized and shared among work groups. In the manufacturing sector, intergroup cooperation is a timely topic. The movement toward lean manufacturing practices which advocates a reduction in buffers between work groups intensifies the salience of intergroup cooperation (MacDuffie & Krafcik, 1992). Furthermore, intergroup cooperation is more critical as manufacturers expand production capacity by utilizing multi-shift operations.

Group Conflict Climate. High levels of conflict within a group suggest that the group may have difficulty coordinating its activities (Hackman & Morris, 1975). However, recent reviews of conflict assert that it is not only an inevitable occurrence in groups, but may also have positive effects (Bettenhausen, 1991; Cosier & Dalton, 1990; Tjosvold, 1991). For example, Jehn (1993) found conflict to be beneficial for groups depending on the type of conflict (interpersonal vs. task-focused) and the characteristics of the group's task. However, suppressed and mishandled conflicts can escalate frustrations, reduce communications, inhibit problem-solving activity, and be costly to organizations (Tjosvold, 1991). Perceptions regarding the manner in which conflict is resolved has been found to be important to work group effectiveness (Holahan, 1993). Moreover, Saavedra et al. (1993) found that group conflict mediated the relationship between interdependence and group performance.

Given the discussion regarding climate dimensions and their possible relationship with attitudes and behaviors, the following hypotheses are posed:

HYPOTHESIS 1C: Work group climate (supportive supervision, autonomy/participation, intragroup coordination, intergroup cooperation, and group conflict) will explain a significant amount of the variance in organizational commitment and job satisfaction.

HYPOTHESIS 2C: Work group climate will explain a significant amount of variance in group-level extra-role behavior and performance.

Context, Climate and Mixed-Level Outcomes

Demographic Heterogeneity. Chapter Four summarized the major views regarding the potential impact of heterogeneity on work-related attitudes. While the exact nature of the relationship remained unclear, there was considerable support for a heterogeneity effect. Meanwhile, in terms of performance, studies have shown both advantages and disadvantages to heterogeneous groups. On the one hand, research indicates that heterogeneous groups tend to produce high quality solutions in creative or problem-solving tasks (Cox & Blake, 1991; Jackson, 1992b). However, evidence suggests that homogeneous groups do somewhat better on performance tasks where the outcome of interest involves proficiency or productivity (Jackson, 1992b). Finally, there has been a paucity of research addressing the relationship between extra-role behavior and heterogeneity.

The relationship between heterogeneity and climate has not been explored. However, if greater heterogeneity increases the tendency for strained communication, low attraction, and increased group conflict, then greater heterogeneity may lead to more negative perceptions of conflict, intragroup coordination, and participation climate. Likewise, if greater heterogeneity leads to improved communications and interpersonal relations, then this may encourage more positive perceptions of work group climate.

Group Size. Researchers have found, for the most part, that as group size increases, there are corresponding increases in group communication and coordination problems, as well as lower member satisfaction and group cohesiveness (Markham et al., 1982; Moreland & Levine, 1992). Several explanations have been provided to account for these results. As groups become larger: 1) there is a higher probability of diversity in attitudes, backgrounds, and opinions which may lead to greater conflict (Moreland & Levine, 1992); 2) it is more difficult for groups members to interact and communicate (Jewell & Reitz, 1981); 3) there is a greater potential for within group cliques to develop which obstructs cohesiveness (Thomas & Fink, 1963); 4) opportunities for participation decrease while chances become greater that a few members will dominate group communication (Moreland & Levine, 1992); and 5) they become more formally structured, with those in leadership positions taking on greater decision-making authority (Hare, 1976; Hemphill, 1950).

Thomas & Fink (1963) noted that most studies exploring the impact of group size on individual and group-level outcomes neglected to investigate the role of intervening variables. Work group climate is proposed as a potential mediating link between work group size and work group outcomes. For example, larger work groups may have a group climate typified by greater conflict, less autonomy and participation, less intragroup coordination and less supervisor support.

Supervision - Role Conflict. The foreman or supervisor has long been regarded as the person "caught in the middle" between conflicting demands from superiors and subordinates (Roethlisberger, 1941). Thus, it is believed that supervisors are prime targets for role strain (Rizzo et al., 1970). A role is conceptualized as a set of behaviors expected of the occupant in an organization position (i.e., the supervisor), where those

expectations are created by a set of role senders (Kahn et al., 1964; Katz & Kahn, 1978). Role conflict is defined as incongruity or incompatibility of the expectations associated with a role (House & Rizzo, 1972), which may include: 1) disparity among the role demands of different role senders; 2) disparity between role demands and personal values; and 3) disparity between role demands and personal ability (McGrath, 1984).

Changes in industrial relations, the introduction of new technologies, and the adoption of new manufacturing practices have added to the potential role strain of shop-floor supervisors (Klein, 1988; Kochan et al., 1992; Lowe, 1993). Changes in industrial relations have altered the expectations and number of role senders. This is particularly true where efforts are made to stimulate greater worker participation and encourage union-management cooperation which blurs and alters traditional roles associated with managers, union representatives and employees (Kochan et al., 1992). The introduction of new technologies, such as statistical process controls, computer integrated-manufacturing, robotics, and computer-based communication and information flows, places new burdens on supervisors in terms of broadening their boundary spanning activities and the need to upgrade their skills, in addition to the threat of new technology eliminating their job (Klein, 1988).

Changes in manufacturing philosophies, such as the adoption of just-in-time or lean manufacturing and team-based work systems, typically change the number and expectations of role senders. For example, these changes generally require an expansion of the supervisor's span of control, an increase in supervisor involvement and responsibility for specialist department activities (e.g., quality control, maintenance, and training), while simultaneously functioning as a team "member" on some issues and

maintaining an authority status regarding other issues (Klein, 1988; Lowe, 1993). Moreover, there is debate regarding the appropriate role for a supervisor when a work group is intended to be autonomous or "running its own business" (Manz & Sims, 1987).

As work organization becomes more team-based, not only the role of traditional supervisors change, but also their title (Manz & Sims, 1987). In the research setting for this study, departments in the plant that are organized into teams now refer to the supervisor as the "advisor." Along with the change in title, the advisor is called upon to function as "another team member", without the conventional authority to override work group action plans created to accomplish work group objectives. Formally, advisor responsibilities include insuring that work groups have the "necessary tools, materials, information, and access to the organization to accomplish their task and evaluate their progress", as well as having disciplinary authority. Still, the advisor is granted discretion since the plant acknowledges that not all work groups are sufficiently "mature" to develop a "reasonable" action plan. This leads to variance in advisor roles across work groups.

Meanwhile, in traditional departments the supervisor's title has not changed. However, even those supervisors that find themselves in work areas that maintain traditional supervisory titles may be called upon to adjust their role due to changes in plant-wide employee participation and union-management cooperation efforts. Interestingly, some advisors are also responsible for some work groups in traditional areas of the plant which may lead to additional role strain.

This raises questions concerning what impact supervisor role conflict has on individual group member attitudes and on work group performance. There has been a considerable amount of research on role conflict, however, most of the research has

focused on delineating the antecedents to individual role conflict or the outcomes for the individual experiencing role strain. There has been a lack of research investigating the influence of supervisor role conflict as a contextual factor impacting group member attitudes and group performance. It is believed that leaders (i.e., supervisors) can influence the development and shape of shared perceptions of the work environment (Graen & Schiemann, 1978). Kozlowski & Doherty (1989) reasoned that leaders had the potential to exert a strong influence on the development of shared perceptions, such as various dimensions of work group climate, because of their ability to filter and interpret information.

From a social exchange theory perspective (Hollander, 1979; Homans, 1958), if a supervisor experiences role conflict, then they may be unable to meet the expectations of work group members (Yukl, 1981). Unmet expectations may lead to more negative work-related attitudes for work group members. Moreover, supervisors are more likely to be responsive to the expectations of superiors than to the expectations of subordinates because of power relations (Kahn et al., 1964). Mandell (1956) found that supervisors who were rated low in performance by their subordinates tended to be the supervisors that did not give clear direction or information to subordinates. Perhaps, supervisors that report high levels of role conflict will be unable to give clear direction or information to others because of their own role equivocality.

The evolving literature regarding extra-role behavior suggests that leadership is a key antecedent variable. Smith et al. (1983) found that supportive leadership was related to subordinate extra-role behaviors and suggested that leaders may be either serving as role models for subordinates, or that subordinates are reciprocating in a social exchange relationship (Brief & Motowidlo, 1986). Finally, as a supervisor

experiences the stress associated with role conflict, they may become insensitive to interpersonal activities associated with leadership, such as helping and recognition (Brief & Motowidlo, 1986).

In sum, work groups with supervision that reports a high level of role conflict may be more likely to report increased negative work-related attitudes. Likewise, work group performance and extra-role behavior may be negatively impacted by supervisor role conflict. However, it is proposed that these linkages are going to be mediated by the various dimensions of work group climate.

Work Organization. As discussed in earlier sections of this dissertation, one of the prominent contextual changes occurring in the manufacturing sector involves the transformation in work organization. Specifically, organizations have moved from reliance on traditional work systems to team-based work systems. Do team-based work systems result in improved work-related attitudes and/or group extra-role behavior and performance?

Several theoretical perspectives, such as participative management (Likert, 1967), job design (Cummings, 1981; Hackman & Oldham, 1975), and socio-technical systems (Davis & Trist, 1979) share the view that if workers are meaningfully involved in and share responsibility for work performance, then both attitudes and behaviors will be more positive. A team-based work system is thought to embrace many of the critical job enriching factors because it offers workers more meaningful work, greater autonomy, increased decision-making authority and scope, as well as a structure for shared responsibility (Manz, 1992).

Two widely recognized aspects of team-based work systems include job rotation and work group meetings (Kochan et al., 1992). Job rotation involves the periodic

shifting of a worker from one task to another within the work group (Robbins, 1991) and is thought to have several advantages. First, it may reduce boredom through diversifying a worker's activities (Robbins, 1991). Second, it may have ergonomic benefits, particularly when each job within the group entails unique repetitive motions. Third, it increases flexibility in the deployment of workers (Robbins, 1991). Fourth, workers may gain insights into potential interdependencies between jobs in the group which would facilitate coordination. The work group meeting is conceptualized as an opportunity for information sharing and problem solving (Kochan et al., 1992) and may have similar benefits as job rotation. For example, work group meetings may reduce boredom, increase opportunities for participation, increase awareness of interdependencies, and provide a channel for problem-solving and feedback. Interestingly, job rotation and group meetings emulate several of the core job dimensions highlighted in the job characteristics model (Hackman & Oldham, 1975). For example, job rotation may enhance job dimensions such as skill variety and task identity. Work group meetings may not only increase skill variety and task identity, but also impact autonomy and feedback.

In essence, it is thought that workers embedded in a team context should report more positive work-related attitudes and be associated with more preferable group outcomes than workers in a traditional context (Cohen & Ledford, 1994). However, work group climate is offered as a mediator between work organization and individual and group-level outcomes. In particular, the climate in groups associated with teams is thought to be more participative, as well as having greater intragroup coordination and intergroup cooperation.

Technology. Technology, defined as the actions used to transform inputs into outputs (Perrow, 1967), has been utilized in several studies of work group effectiveness (David et al., 1989; Fry & Slocum, 1984). However, there has been some confusion regarding the conceptualization and measurement of technology which has limited technology research in general (Withey et al., 1983). At the group or subunit level, there is growing consensus (David et al., 1989; Fry & Slocum, 1984) concerning the efficacy of utilizing the following three dimensions of technology based on the typologies offered by Perrow (1967) and Thompson (1967):

> 1) Task Complexity (task predictability and problem analyzability): work groups facing few exceptions experience considerable certainty about the occurrence of task related activities; meanwhile, objective procedures usually are followed to generate, evaluate, or resolve analyzable exceptions, while few objective procedures are available for unanalyzable exceptions.
>
> 2) Intragroup Interdependence (workflow): the degree to which group members are dependent on each other for task accomplishment.
>
> 3) Intergroup Interdependence: the degree to which work groups are dependent on each other for task accomplishment.

The greater the task complexity (low task predictability and analyzability), the greater the task variety, challenge and autonomy, while the lower the task complexity (high task predictability and analyzability), the lower the task variety, challenge and autonomy (Jones & James, 1979). Low complexity tasks can be accomplished by following standard procedures and typically involve centralized decision-making, whereas high complexity tasks are difficult to preplan and require more decentralized decision-making and greater communication (Tushman, 1979). Thus, work groups confronted with low complexity tasks are likely to report less favorable work-related attitudes, as well as consider the tasks less intrinsically motivating, given the routine or repetitive nature of the work.

The greater the interdependence within a group (i.e., the higher the workflow), the greater the need for intragroup coordination, consensus decision-making, problem solving, and conflict resolution in order for the group to be effective (Slocum & Sims, 1980). Meanwhile, the greater the interdependence among work groups, the less autonomy an individual group member may experience (Klein, 1991). However, both intragroup interdependence and intergroup interdependence may heighten an individual's awareness of his/her contribution to the organization and his/her immediate work group (i.e., increases task significance) which may effect work-related attitudes, such as organizational commitment (Mathieu & Zajac, 1990; Morris & Steers, 1980). In essence, interdependencies help integrate the individual to a larger organizational unit, for example, expanding beyond the individual and work group to the department, plant or possibly the organization. If organizational commitment increases due to technological interdependencies, then it may also be possible that extra-role behaviors may increase because the individual that is more committed to the organization may be more willing to engage in prosocial acts directed toward the organization.

The relationship between technology and both work-related attitudes and group outcomes is likely to be mediated by work group climate. For example, using a technology that has high interdependencies will likely impact a work group's conflict, intragroup coordination and intergroup cooperation climate. Meanwhile, task complexity is likely to effect autonomy and participation, and intragroup coordination climate.

Based on this discussion of context, work group climate, and mixed-level outcomes, the following hypotheses are proposed:

HYPOTHESIS 4C: Context will explain a significant amount of the variance in work group climate.

HYPOTHESIS 5C: Context will explain a significant amount of the variance in organizational commitment and job satisfaction.

HYPOTHESIS 6C: Context will explain a significant amount of variance in group-level extra-role behavior and performance.

Work Group Climate as a Mediator

As stated earlier, work group members that share climate perceptions are thought to have a common interpretive frame of reference that guides behavior (Schneider & Reichers, 1983). It is proposed that this common frame may provide a critical linkage between contextual features and both individual and group-level outcomes. Indeed, worker reactions are partly shaped by their social context (Ostroff, 1993; Salancik & Pfeffer, 1978). For example, if a work group is characterized by its members as having a cooperative climate, then individual group members' work-related attitudes may be positively influenced by this attribute, beyond the individual workers' own view of the extent of cooperation. Hackman (1976) acknowledges the importance of the work group in shaping beliefs:

> Relying only upon their own senses and experiences, individuals in organizations can obtain neither a very complete nor, in many cases, a very accurate view of their environment. Individuals are, therefore, substantially dependent upon their work groups for information about that environment (p. 1478).

The utilization of work group climate as an intervening variable is consistent with models of organizational analysis provided by Indik (1968) and elaborated upon by James & Jones (1976). Indik (1968) provided a linkage model suggesting that the

relationship between variables at the same or adjacent level of analysis would be more likely to be related to each other, and that the relationship between variables in nonadjacent levels would be mediated by variables at intervening levels. James & Jones (1976) concur, suggesting that, for example, a finding which indicates that organizational size is related to work-related attitudes does not provide sufficient information regarding understanding how and why this relationship occurs (i.e., What is the intervening process?). James & Jones (1976) offer an integrative model which explicitly recognizes the intervening potential of group level variables on individual level variables, as well as the importance of same level factors on each other. Consistent with this integrative framework, work group climate is viewed as a potentially powerful intervening variable between context and outcomes at mixed-levels. This leads to the following hypotheses:

HYPOTHESIS 7C: Work group climate mediates the relationship between context and work-related attitudes.

HYPOTHESIS 8C: Work group climate mediates the relationship between context and group-level outcomes.

CHAPTER SIX

RESEARCH METHODOLOGY

This chapter discusses the location for data collection, the data collection procedure, the sample of subjects, the operationalization of variables, and the methods of data analysis for this dissertation.

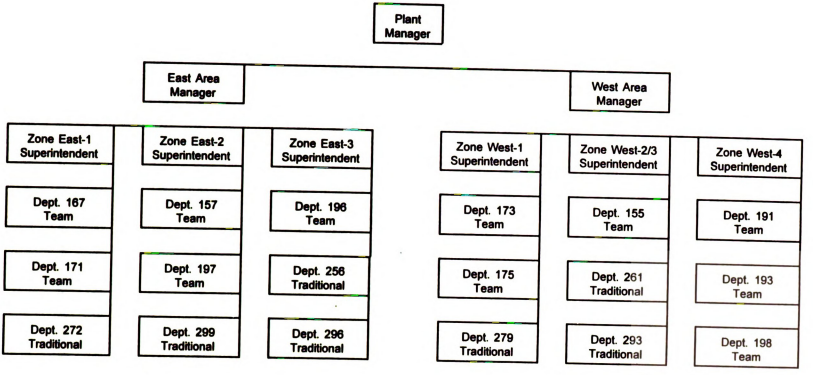
The Location for Data Collection

Overview

The research site was the Ford Sharonville Transmission Plant, located near Cincinnati, Ohio. The plant opened in 1958 on a 182 acre site. It is a member of Ford Powertrain Operations (consisting of 22 plants). The hourly workforce is represented by UAW Local 863, an amalgamated local consisting of members from two Ford facilities. The plant manufactures truck transmissions and transmission components that are installed at various assembly locations. Specifically, the plant produces over 2,000 E4OD automatic transmissions per day to be installed in light trucks and over 200 C6 transmissions per day which are installed in commercial short-haul vehicles, such as airport shuttle vans. In addition, the plant produces and supplies converters and converter components used by other Ford transmission plants. At the time of data collection, the plant had 1,676 hourly employees and 268 salaried employees.

The management structure for the production or direct labor component of the plant is shown in Figure 6.1. This figure indicates that the plant is divided into east and west manufacturing areas with each being directed by an area manager that reports directly to the plant manager. There are several zones, each managed by a superintendent, within both areas. Within each zone are several departments. A similar hierarchical structure exists for the non-production or indirect labor component.

Figure 6.1. Management Structure



The number of departments contained within a zone varies from three to sixteen (e.g., three in Zone East-3 and sixteen in Zone East-2). Note that only a small sample of the departments are shown in Figure 6.1 for illustrative purposes. The direct labor departments are organized around a specific operation and/or transmission component. The non-production or indirect labor departments are organized around a support function. The following are examples of departments and their respective operations:

* Department 167 - E4OD Center Support
* Department 171 - E4OD Output Shaft
* Department 116 - Quality Control
* Department 222 - Material Handling
* Department 272 - E4OD/C6 Clutch Cylinder
* Department 296 - C6 Transmission Case
* Department 241 - Tool Room
* Department 197 - Converter Cover Assembly

While Figure 6.1 recognizes various departments, it does not identify work groups since work groups are embedded within departments. Recall that the "work group" was identified at the outset of this dissertation as "the set of individuals that share the same department, shift and supervision." In order to better understand the operationalization of "work groups" for this dissertation, there is need to look in greater detail at the structure within departments.

Figure 6.2 shows a magnified view of several departments. There are various points worth highlighting in Figure 6.2. First, note that the number of group members varies among work groups. Second, in this example, there are sixteen work groups contained within the five departments.

Figure 6.2.
A Sample of Work Groups Within Departments

Work Group	Department Number	Shift	Team or Traditional	Number of Group Members
1	167	2nd	Team	4
2	167	3rd	Team	4
3	272	2nd	Traditional	9
4	272	3rd	Traditional	5
5	197	1st	Team	6
6	197	2nd	Team	7
7	197	3rd	Team	6
8	299	2nd	Traditional	3
	193	2nd		
9		*cluster 1	Team	14
10		*cluster 2	Team	17
11		*cluster 3	Team	12
12		*cluster 4	Team	10
	193	3rd		
13		*cluster 1	Team	14
14		*cluster 2	Team	14
15		*cluster 3	Team	12
16		*cluster 4	Team	14

There are two reasons why the number of work groups exceeds the number of departments: 1) some departments have multiple shifts which creates more than one work group within a department; and 2) some of the assembly departments contain such an abundant number of workers that some departments and shifts are divided into clusters. For example, in Department 193 both the second and third shifts are divided into four clusters each. In essence, Department 193 contains eight work groups. Finally, Figure 6.2 illustrates that the work organization for some departments is team-based, while other departments work under a traditional system. The reason for the distinction in work organization within the plant will be discussed shortly.

A Brief History of Employee Involvement at the Research Site

Although the Sharonville Plant began operations in 1958, the chronology of events discussed for the purposes of this project begins in 1979. A pivotal point in the plant's history occurred after the 1979 negotiations between the UAW and the Ford Motor Company. The UAW and Ford founded the National Joint Committee on Employee Involvement (NJCEI). The NJCEI recommended the establishment of local joint steering committees followed by the selection of pilot employee involvement groups on a small scale (Guest, 1982). The Sharonville Plant initiated a voluntary Employee Involvement (EI) process in 1980 with the formation of a joint steering committee.

While the EI process at Sharonville started on a modest scale, by May 1982, 65 percent of the production departments participated in EI via 43 problem-solving groups (Guest, 1982). Typically, the EI groups consisted of between 8-15 members, met for one hour each week during work periods, elected their own group leader, and decided on the problems that the group worked on. The groups were limited by the requirement to avoid contract-related matters. However, the groups addressed issues concerning

quality improvements, new product introductions, automation, health & safety, and vendor and customer relations. By 1985, the EI program continued to grow with 55 hourly and 16 salary EI groups in the plant.

From 1986 until 1994, the number of EI groups and participants declined. For example, there were approximately 39 EI groups in 1987 and only 18 EI groups in 1994. There are two major factors which explain this ebb at Sharonville. First, product phase-outs resulted in overall employment declines leading to a reduction in the number of EI participants. Second, as will be discussed shortly, the Plant was awarded a new product line which was launched in 1988 and operates under a team-based work system. The team-based work organization supplanted the EI program for the effected workers. However, EI continues to operate among indirect labor and employees not assigned to the new product line.

The EI program has become part of the organizational stories and culture of the Sharonville Plant (Pettigrew, 1979). For example, on a micro-level, many organizational members share stories of critical work system improvements arising from the EI process. At a more macro-level, EI is generally credited with improving the plant's quality and cost ratings from the lowest to the highest among the plants in its division. Furthermore, EI is credited with setting the essential groundwork for a work restructuring initiative (i.e., teams) because EI laid a foundation for trust between labor and management. This culture has been reinforced by the positive coverage the Plant has received from the Work-in-America Institute, as well as the dozens of union and management representatives from a large variety of organizations who have visited the Plant (Guest, 1986).

Thus, there are several interesting characteristics of EI at this location that distinguish it from other locations where the EI has been studied (Bruning & Liverpool, 1993; Fields & Thacker, 1992; Leanna et al., 1992). First of all, at this location, EI has been and continues to be a voluntary process, thus there is a distinction between participants and non-participants. Second, EI has been operational at this location for more than 13 years, which is much longer than most other EI programs that have been studied. Third, for many employees EI has been supplanted by a mandatory departmental team-based work system which provides opportunities for more intense participation and empowerment than was formally condoned under EI.

Co-Existence of Team and Traditional Work Organization

As stated earlier, in 1987 the Plant was awarded a new product line which was launched in 1988 and operates under a team-based work organization. Union and management agreed to restructure work using team-based principles as part of a strategy to secure the new product. However, the agreement only covered direct labor associated with the new product. Thus, indirect labor was not covered by the agreement and continue to work under a traditional work organization. Both the union and management anticipated that the older product line would be completely phased out within a year or two. Unexpectedly, demand for the old product has persisted to a sufficient degree to continue production. The result is that direct labor associated with the old product still operates under a traditional work organization, unless the workers in a traditional department exercise a consensus choice to adopt team-based practices.

Within this location some workers operate under a team-based system, while others function in a traditional system. This phenomenon is not unusual. Frequently, organizations slowly diffuse the introduction of work restructuring innovations, such as

team-concept or autonomous work groups, rather than transform an entire organization instantaneously (Barker, 1993; Cordery, Mueller & Smith, 1991; Pearson, 1992; Wall et al., 1986). However, what is somewhat unique is that the team and traditional systems have been co-existing for more than seven years. One of the results of this diffusion is that some work groups in a location formally operate under a team-based psychological contract whereas other work groups or units in the same location operate under a more traditional psychological contract.

Formally, the team-based work organization is characterized by: 1) a reduction in the number of job classifications; 2) a pay-for-skill progression system; 3) job rotation; 4) weekly off-line meetings focusing on problem-solving and performance feedback; 5) the hourly employee election of team coordinators who are responsible for running work group meetings and carrying out some of the administrative duties of traditional supervisors; 6) referring to the supervisor as an "advisor," where the advisor's role is to be more like a coach and facilitator; 7) having authority to make decisions regarding plans to accomplish business objectives as long as the plans meet superintendent approval (no individual "team" member, including an advisor, can override a "team" decision); and 8) having greater responsibility for meeting safety, quality, cost and schedule goals, as well as determining day-to-day work practices. Informally, it is acknowledged that not all work groups falling under the team rubric can be characterized by all of the listed attributes of a team-based work organization. For example, in some work groups the advisor has difficulty converting from the traditional supervisory role. Meanwhile, other work groups are unwilling or unable to take on certain responsibilities. At the same time, there are some work groups under the traditional system which engage in many of the activities which are found in team-based

systems. For example, some traditional work groups utilize more job rotation than some team-based work groups. In essence, there is variance in the practices among work groups in both team and traditional work organizations.

Data Collection Procedures

Initial contact with the Sharonville Plant occurred in the fall of 1993. The UAW/Ford National Education, Development and Training Center (NEDTC) and the UAW/Ford Sharonville Plant leadership agreed to support research which focused on joint initiatives in the areas of employee involvement and teams. It was determined that the data required to conduct this dissertation, as well as provide useful feedback to the NEDTC and the Sharonville Plant, required several different sources of information. These sources included archival records, company and union literature and reports, structured interviews with advisors, supervisors and superintendents, as well as a plant-wide paper and pencil survey.

The first draft of both the structured interviews and the survey were reviewed with the plant leadership on January 25, 1994, as part of the plant's Joint Steering Committee agenda. The steering committee consisted of both the management operating team and the union's bargaining committee. Many helpful suggestions for additions, deletions, simplifications and clarifications to the survey and structured interviews were provided by both the union and management leadership. In addition, the survey was pilot tested at another manufacturing facility with several work groups that were comparable to the work groups at Sharonville. After the results from the pilot test were examined, minor changes were made in the instrument.

The survey was administered by representatives of Michigan State University at the Plant during a one-week period in June of 1994. It took employees between 10-20 minutes to complete the survey. Surveys were distributed from the various break areas in the plant. Each day during survey administration, different break areas were utilized in order for the entire plant population to have an opportunity to participate. Participation in the survey was voluntary. Union and management representatives assisted during the administration of the survey by checking off the identification number of participants as they completed the questionnaire. Their involvement not only added legitimacy to the survey process, but also controlled for multiple responses from individuals.

It is worth noting that the survey was administered at a time when the outside day-time temperature exceeded 90 degrees. As part of the local agreement, whenever the outside temperature exceeds 90 degrees, the Plant provides lemonade to the workers in the air-conditioned break areas. On the one hand, as a researcher spending a week of 12-14 hour days in the plant during this excessive heat was very arduous. On the other hand, the extreme heat was fortuitous in the sense that workers frequented the break areas to retrieve lemonade and gain access to the air-conditioning while completing a survey (as an aside, I have not had lemonade since the administration of the survey).

In the weeks following the administration of the survey, structured interviews were conducted with advisors, supervisors and superintendents. The interviews with superintendents were conducted one-on-one while the interviews with advisors and supervisors were typically conducted in groups of four or five. All the individuals that were interviewed were given a paper-and-pencil questionnaire and were asked to

provide information regarding the various work groups that fell under their responsibility. During each of the interview sessions, individuals were told of the purpose of the interview, as well as given the opportunity to seek clarifications regarding the questions on the interview instrument.

The Sample of Subjects

The Sharonville Plant employed 1,676 hourly workers at the time of survey administration. Among these, 883 individuals provided usable survey responses. This represents a response rate of 53 percent. Archival data regarding the demographic composition of the hourly workforce allowed a comparison between survey respondents and the hourly plant population.

Table 6.1 provides a comparison of the survey respondents and the entire hourly workforce. Analysis indicates that the two groups are dissimilar based on sex composition (X^2 (1, N=861) = 4.97, $p<.05$) and race (X^2 (1, N=845) = 8.05, $p<.01$). In addition, there are significant differences based on age (t (840) = 2.88, $p<.05$) and seniority (t (843) = 5.33, $p<.01$). In sum, the respondents were more female, more representative of racial minorities, younger, and with less seniority than the entire hourly workforce.

Table 6.1.
Demographic Profile of Respondents* & the Plant Population

Variable	Survey Respondents	Hourly Workforce
Sex:		
Male	727 (84%)	1,465 (87%)
Female	134 (16%)	211 (13%)
Race:		
Non-white	202 (24%)	343 (20%)
White	643 (76%)	1,333 (80%)
Age:		
Average years	47.28	48.29
s.d.	(9.82)	(10.05)
Seniority:		
Average years	19.36	21.44
s.d.	(11.43)	(11.25)

* While the total number of returned surveys was 883, some of the surveys were missing responses to particular demographic items.

While these results indicate that the sample of respondents is statistically significantly different in terms of demographics from the entire plant population, the practical significance of the differences is trivial (Cooper, 1981). More importantly, however, these results do provide strong evidence that the respondents provided fairly accurate and consistent responses to the demographic items. Greater concern would be raised if the respondents as a whole tended to offer inconsistent results. For example, if the results from the total responses indicated that both a higher proportion

of females responded to the survey and the seniority levels were higher than the plant-wide average, then this would indicate inaccurate responses.

Table 6.2 categorizes respondents by the type (team, traditional direct labor, traditional indirect labor) of department they work in. In addition, Table 6.2 provides comparisons of respondents and the total number of workers within each category. The demographic breakdown of respondents working in team departments is fairly close to the demographic composition of the entire cohort of team department employees. Similarly, those respondents working in traditional indirect labor departments are fairly representative of the traditional indirect labor total. The largest demographic discrepancy appears to occur in the traditional direct labor departments. These differences seem to be the main reason for the overall disparity between all respondents and the total hourly employee population.

Archival records indicated that there were 156 work groups in the Plant at the time of the survey. In this project, a work group is defined as more than two individuals that share the same department, shift, and supervision. At least one individual from 146 of the potential 156 work groups completed a survey. Having groups where a minority of members respond to a survey does not pose as much of a concern when the study remains at the individual-level. However, when an analysis involves a group-level index, such as work group climate, it "is most accurate when it is based on information about all group members" (Jackson et al. 1991, p. 680). Rather than discard data because information is not available from all group members, researchers have tried to find a reasonable method of including and excluding groups. Jackson et al. (1991) utilized a 75 percent within group response rate in order to consider the individual data suitable for aggregation at the group level. However, they acknowledge that no standard

Table 6.2.
Comparison of Survey Respondents and Total Employees in Team, Traditional Direct Labor, and Traditional Indirect Labor *

Variables	Team Department Total Employees	Team Department Survey Respondents	Traditional Direct Labor Total Employees	Traditional Direct Labor Survey Respondents	Traditional Indirect Lab Total Employees	Traditional Indirect Lab Survey Respondents
SEX:						
Male	612 (81%)	360 (82%)	225 (85%)	83 (76%)	615 (96%)	258 (93%)
Female	141 (19%)	81 (18%)	41 (15%)	26 (24%)	27 (4%)	18 (7%)
RACE:						
Non-white	211 (28%)	120 (28%)	52 (19%)	32 (30%)	76 (12%)	43 (16%)
White	542 (72%)	313 (72%)	214 (81%)	75 (70%)	566 (88%)	228 (84%)
AGE:						
Avg. Yrs.	46.15	46.27	47.72	44.75	51.55	50.05
s.d.	(10.61)	(9.96)	(9.94)	(10.32)	(8.39)	(8.71)
SENIORITY						
Avg. Yrs.	19.00	17.83	22.40	16.92	24.42	22.78
s.d.	(11.44)	(11.26)	(10.91)	(11.25)	(10.36)	(11.01)

* The total number of surveys was 883, some of the surveys were missing responses to particular demographic items.

rule is available regarding the decision to discard groups when only partial information is obtainable. The decision rule adopted in this dissertation was to include those work groups if needed information was available from 50 percent or more of the work group members. This achieves a reasonable sample for group-level analysis balanced against a reasonably high level of participation. 102 of the work groups (approximately 70 percent) met this criterion.

Finally, before proceeding to the operationalization of the variables used in this study, the exemplary nature, as well as unique aspects of the research site are briefly summarized. In many ways, the research location is typical of other large unionized automotive component manufacturing plants. First, the demographic composition of the workforce is fairly typical of unionized manufacturing locations. The plant is populated with a relatively high seniority workforce, as well as having more diversity among the younger and less senior employee cohort. Second, the plant, like other manufacturers in the automotive industry, has attempted to increase employee involvement through voluntary participation. In this case, through an EI program. Third, as a supplier facility to assembly operations, the plant (similar to other suppliers) is not shielded from the intense competitive pressures of the auto supply industry (Cutcher-Gershenfeld & McHugh, 1994).

One quasi-unique feature of this location is that the implementation of a team-based work system was part of a union-management strategic partnership focused on successfully acquiring new business and expanding production. In other words, job security was used as leverage for the acceptance of changes in work organization. However, this trend is consistent with the activities of other leading edge settings in the automotive sector. For example, leading plants within Ford (Romeo and Cleveland

Engine), GM (Lansing Assembly and Saturn), Chrysler (Neon and Jefferson Avenue), and several joint ventures (Nummi and Mazda-Flatrock), have adopted major innovative work organization arrangements as a quid-pro-quo for major capital investments and/or the acquisition of new products.

Nonetheless, the location is unique from most other manufacturing facilities in that the team and traditional systems have been co-existing within the same facility for an extended period of time (nearly eight years). Initially, there was a conscious decision to operate those areas of the plant associated with a new product within a team-based system, while maintaining a traditional work organization for those employees working on the old product, as well as support personnel. The plant leadership anticipated that the old product would be phased-out relatively quickly. Unexpectedly, after seven years, the old product is still in production. Thus, the plant continues to operate under dual work organization systems. This work organization dichotomy provides an opportunity to explore individuals and work groups within the same location in the midst of transformation.

Operationalization of Variables

Dependent Variables

Organizational Commitment. Organizational commitment is measured with a modified nine-item short form of the Mowday, Steers, & Porter (1979) Organizational Commitment Questionnaire (OCQ). All items are positively worded and each question has a seven-point Likert scale ranging from (1) strongly disagree to (7) strongly agree. This short form conforms with the 15-item full OCQ (Barling, Wade, & Fullager, 1990; Mowday et al., 1982). The short form has been shown to have average reliability of .85 across 9 samples (Mathieu & Zajac, 1990). Based on all completed surveys, principle

components factor analysis extracted one factor. Reliability analysis indicated a coefficient alpha of .92 (mean=6.18, s.d.=.918). See Figure 6.3 for a list of the items utilized to form the organizational commitment scale.

Figure 6.3: Organizational Commitment Items

I am willing to put in a great deal of effort....

I talk up Ford-Sharonville to my friends as a great company to work for.

I feel loyalty to this plant.

I find that my values and this plant's values are very similar.

I am proud to tell others that I am part of Ford-Sharonville.

Ford-Sharonville encourages the very best in me...

I really care about the future of Ford-Sharonville.

For me this is the best of all possible plants to work for.

I made a good decision by going to work at Ford-Sharonville.

Job Satisfaction. Job satisfaction was measured using a modified version of the short form of the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967). The Minnesota Satisfaction Questionnaire (MSQ) has been extensively used in research which indicates that it has a high reliability (Cook, Hepworth, Wall, & Warr, 1980). The MSQ contains items assessing both intrinsic and extrinsic satisfaction, however, the total score is typically used as a general satisfaction index (Cook et al., 1980). All the items in the MSQ are rated on a seven-point Likert scale ranging from (1) very dissatisfied to (7) very satisfied. The items were subjected to principle components factor analysis , and a two factor solution was obtained. The items and

their respective factor loadings are presented in Table 6.3. The job satisfaction scale consisted of nine-items (with three items excluded). Reliability analysis indicated an alpha of .91 for the nine-item job satisfaction scale (mean=5.23, s.d.=1.20).

Table 6.3: Job Satisfaction Items and Factor Analysis

	Factor Loadings	
1. The amount of support I get from my advisor.	**.91**	.14
2. The way my sup./advisor works with people in my department.	**.88**	.11
3. The fair treatment I receive from my supervisor/advisor.	**.83**	.22
4. The chance to do things that makes use of my skills.	**.73**	.27
5. The feeling of success I get from the job.	**.66**	.44
6. The praise I get for doing a good job.	**.61**	.46
7. The chance to do different things from time to time.	**.60**	.34
8. The freedom to use my judgement.	**.60**	.45
9. The way my co-workers get along with each other.	**.55**	.22
10. My pay for the work I do.	.12	**.78**
11. The way my job provides for steady employment.	.18	**.75**
12. The working conditions.	.42	**.53**

Work Group Extra-Role Behavior. Supervisors and advisors were asked, during a structured interview, to assess the extra-role behavior of the work groups that were under their responsibility. Extra-role behavior was measured using eight items adapted from the citizenship behavior items created by Smith et al. (1983). One of the key ways in which the items were modified from their original form was by referencing the work

group rather than the individual. Prior research has asked supervisors to rate individuals on their extra-role behavior or have aggregated individual scores to form group-level scores (George & Bettenhausen, 1990; Organ & Konovsky, 1989). All the items were rated on a seven-point Likert-type scale ranging from (7) strongly agree to (1) strongly disagree. Factor analysis extracted two factors with eigenvalues greater than 1.0. The factor with the highest eigenvalue was utilized here as the measure of extra-role behavior. It consisted of six items which are shown in Figure 6.4. The reliability analysis indicated a coefficient alpha of .89 (mean=5.13, s.d.=1.04).

Figure 6.4. Extra-Role Behavior Items

1. Most members of this work group make helpful suggestions.

2. This group has higher quality standards than the typical group in the plant.

3. Most members of this work group actively and constructively seek to get their ideas adopted by the plant.

4. Most members of the group help new people, even though it's not required.

5. Most members of this work group make special attempts to gain more knowledge about job-related techniques and skills.

6. Most members of this work group go out of their way to help others with job-related problems.

Work Group Performance. Superintendents were asked, during a structured interview, to assess the performance of the work groups that were under their responsibility. The measure consisted of six items. These items, which are illustrated in Figure 6.5, had strong face validity given that they focused on performance dimensions that were consistent with organizational objectives and permeated the organization in terms of communication and performance feedback. These dimensions of performance, in particular quality, safety, cost and quantity dimensions, were salient

to the superintendents because these measures were the cornerstone of the performance appraisal system. The six items were used to rate work group performance on a seven-point rating scale ranging from (7) far above average to (1) far below average. Factor analysis extracted one factor with a coefficient alpha of .89 (mean= 4.97, s.d.= .89).

Unfortunately, objective measures of performance were unavailable at the work group level. At this location, performance data is generated at the department level (recall a department can contain one, two or three work groups). The generation of performance data at the department level is consistent with the accounting and manufacturing information systems. Moreover, if performance data could be disagregated, the validity of comparisons among work groups would be questionable because the groups do not all share meaningful objective performance indicators. Objective measures of individual behavior were unavailable for this analysis. However, subsequent discussions with the research site may permit an investigation of aggregated group-level absence data. The reality is that field research is a negotiated process with multiple stakeholders.

Figure 6.5. Work Group Performance Items

1. The quantity or amount of work produced?
2. The quality of the work produced?
3. The use of safe practices?
4. Working efficiently and being cost effective?
5. The number of process improvements and new ideas?
6. Overall group effectiveness?

Independent Variables

Age, Sex, Race, Seniority. Age, sex, race and seniority are based on self-report. Throughout the analysis sex was coded (1) male and (0) female, while race was coded (1) white and (0) non-white. Age and seniority were reported in a ratio data format.

Education. Respondents were provided a list, which reflected different levels of education, and were asked to indicate their level of formal education. Throughout the analysis, education was dichotemized into (1) those with more than a high school education and (0) those with a high school education or less.

Union Participation. Gallagher & Strauss (1991) discuss three main types of union participation activities: 1) administrative (e.g., serving as a union officer); 2) intermittent (e.g., attending union meetings); and 3) supportive (e.g., reading union material). This is a hierarchical or escalating view of the intensity of union participation behavior. Kelloway & Barling (1993) propose measuring union participation by utilizing a single and cumulative measurement model consistent with the Guttman-scale (Anastasi, 1982; Babbie, 1979). While there is no well accepted way of measuring union participation, the types of activities outlined by Gallagher & Strauss (1991) and utilized by Kelloway & Barling (1993) have been used individually as well as part of a composite measure of union participation in numerous studies (Angle & Perry, 1986; Clark 1989; Gallagher & Clark, 1989; Kuruvilla et al., 1993; Magenau, et al., 1988).

In one sample, Kelloway & Barling (1993) took three items dichotomously scored (1=yes, 0=no) and three items using a five-point frequency response scale (1=never to 5=always) and combined them to form a Guttman scale with a seven-point range (0=no union participation to 6=holding union office). Kelloway (1994) stated that five-point items were assigned to individuals based on the median split.

The hourly worker survey contained three dichotomously scored items (1=yes, 0=no) and two items using a five-point frequency response scale (ranging from 1=never to 5=always) which were combined to form a Guttman scale with a six-point range varying from 0=no union participation to 5=holding union office (mean=2.55 and s.d.=.898). Figure 6.6 lists the questions comprising the union participation measure. The correlation of items that form a Guttman scale manifest simplex structure (Guttman, 1954), with the interitem correlations decreasing as they move away from the main diagonal (Kelloway & Barling, 1993). Table 6.4 shows the correlation matrix of the union participation items which indicates conformity to the simplex structure. Adopting methods reported by Green (1956), a coefficient of reproducability of .979 and scalability of .911 were found which are well within the .90 and .60 minimum acceptable standards for each coefficient, respectively (McIver & Carmines, 1981).

Figure 6.6. Items Measuring Union Participation

	Variable Name
- How often do you read the UAW Local 863 newsletter? Always Often Sometimes Seldom Never	Read Union News
- Do you usually vote in union elections?	Vote in Elections
- How often do you attend union meetings? Always Often Sometimes Seldom Never	Attend Meetings
- In the last 2 years, ... served on a union committee?	Serve On Committees
- In the last 2 years, have you held a union position?	Hold Union Office

Table 6.4. Union Participation Item Correlations (n=839)

VARIABLE	1	2	3	4	5
1. Hold Union Office	—				
2. Serve on Committees	.48	—			
3. Attend Meetings	.12	.18	—		
4. Vote in Elections	.06	.07	.18	—	
5. Read Union News	.05	.06	.16	.17	—

EI Participation. EI participation was based on self-report. The survey contained several dichotomous items addressing various aspects of EI participation (e.g., Have you ever been a member of an EI group?; Are you currently a member of an EI group?; Have you ever been a leader?). For each item (1) indicated participation and (0) indicated no participation.

EI Effectiveness. Fields & Thacker (1992) used a single-item measure to assess perceptions of the successfulness of a QWL intervention. Building on their work, the survey contained five items addressing perceptions regarding the effectiveness of the EI program. All the items were positively worded and each question had a seven-point Likert scale ranging from (1) strongly disagree to (7) strongly agree. Principle components factor analysis extracted one factor. Reliability analysis indicated a coefficient alpha of .94 (mean=5.52, s.d.=1.23). See Figure 6.7 for a list of the items utilized to form the EI Effectiveness scale.

Figure 6.7: EI Effectiveness Items

1. EI has been important to the success of Ford-Sharonville.
2. EI has made my job better.
3. Overall, EI has been a good program.
4. EI has improved things here.
5. EI has been an important factor in helping work teams be successful.

Relational Demography: Seniority, Sex and Race Dissimilarity. Each respondent received a dissimilarity score for seniority, sex and race using a work-group based relational demography calculation which has been utilized by various researchers (Jackson, et al., 1991; O'Reilly et al., 1989; Tsui et al., 1992). Figure 6.8 contains the formula utilized to measure dissimilarity. Each respondent was matched with archival data containing the seniority, sex and race characteristics of the respondent's cohort of work group members. These measures were scaled so that a large value denotes a large difference. In other words, an individual with a large score on a relational demography measure differs more, in terms of the specific demographic characteristic, from other individuals in the work group than another individual with a smaller score. Table 6.5 provides descriptive statistics for each dissimilarity index.

Figure 6.8.
Relational Demography Calculation

$$\frac{[\ \text{summation}\ (Si - Sj)^2\ ]^{1/2}}{n}$$

n = total number in work group
Si = value of an individual on a demographic variable
Sj = value on same variable for every other individual in the same work group

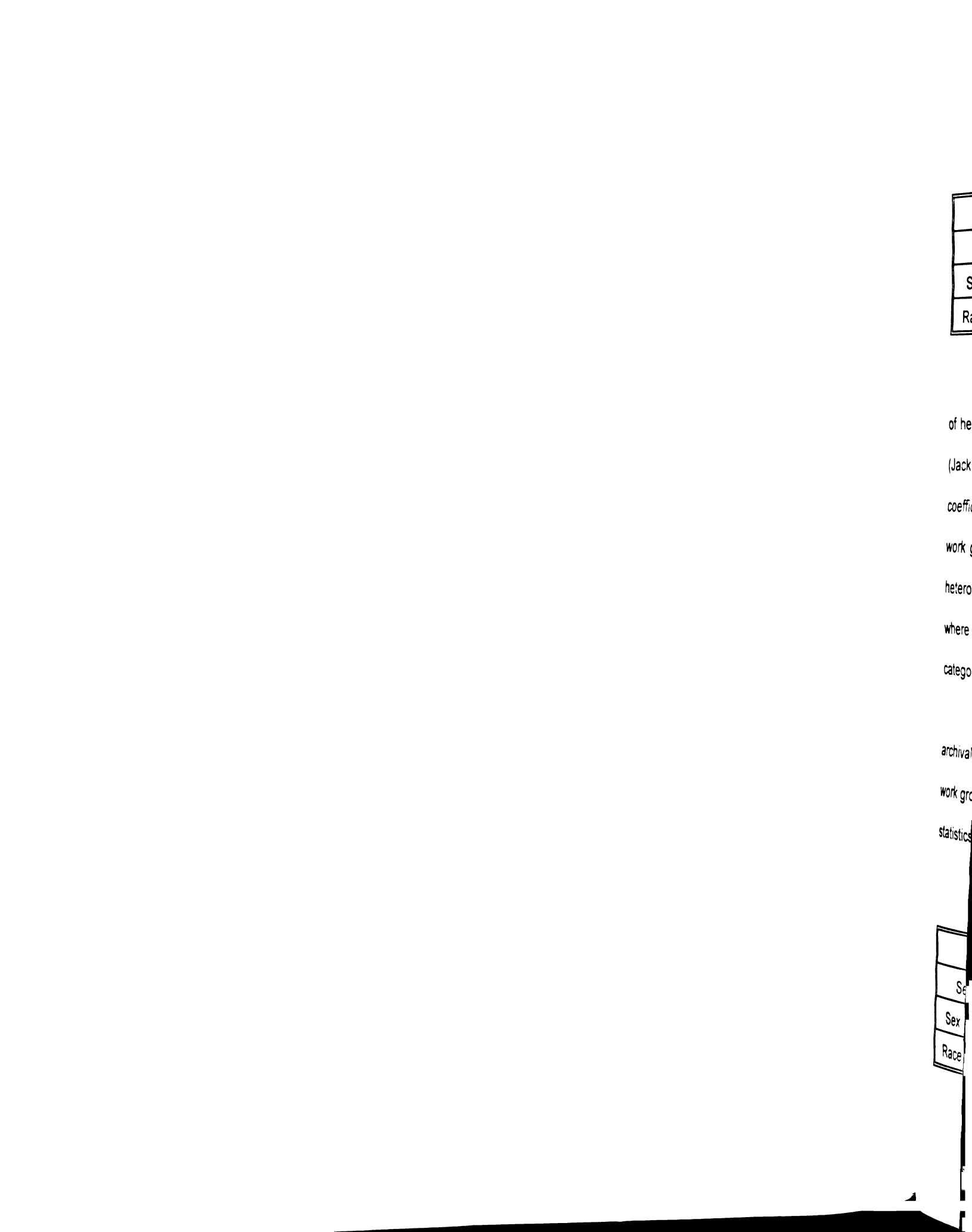


Table 6.5.
Relational Demography Descriptive Statistics

	Mean	S.D.	Range
Seniority Diss.	10.89	5.11	0 - 31.0
Sex Dissimilarity	.33	.29	.00 - .99
Race Dissimilarity	.47	.26	.00 - .97

Compositional Demography: Seniority, Sex and Race Heterogeneity. Two types of heterogeneity indices, which have been utilized in prior research, were computed (Jackson et al., 1991; O'Reilly et al., 1989). For seniority, an interval variable, the coefficient of variation (standard deviation divided by the mean) was computed for each work group. For categorical variables, such as sex and race, Blau's (1977) index of heterogeneity was computed for each work group: {Heterogeneity = (1 - summation p_i^2)} where p is the proportion of group members in a category and i is the number of categories represented in a group.

The data utilized to calculate the heterogeneity indices were gathered from archival records. These measures were scaled so that a large value denotes greater work group heterogeneity on the particular characteristic. Table 6.6 provides descriptive statistics for each heterogeneity index.

Table 6.6.
Compositional Demography Descriptive Statistics

	Mean	S.D.	Range
Seniority Het.	.41	.27	.00 - 1.5
Sex Heterogeneity	.18	.18	.00 - .50
Race Heterogeneity	.29	.17	.00 - .50

Work Organization (team/traditional). Work organization is a dichotomous variable indicating whether or not an individual works in a team department or a traditional department. The designation was based on each respondent's self-report of department (mean=.54, s.d.=.50).

Workflow (intragroup interdependence). Workflow is a dichotomous variable indicating whether or not there is a high or low level of intragroup interdependence. Throughout the analysis, workflow was dichotemized into (1) high intragroup interdependence and (0) low intragroup interdependence (mean=.69, s.d.=.46). Two informants (one management representative and one union representative) who were very familiar with departments throughout the plant were given diagrams illustrating three different types of workflow based on Thompson's (1967) typology of pooled, sequential, and reciprocal interdependence (Van De Ven & Ferry, 1980). These diagrams have been used by other researchers interested in assessing the interdependence of work flow (Smith et al. 1983, Van de Ven, Delbecq & Koenig, 1976). Together, the informants indicated what percentage of the intragroup workflow within a department fit with each type of interdependence. The informants then identified the department workflow as either having a low level of intragroup interdependence (i.e., primarily pooled interdependence) or a high level of intragroup interdependence (i.e., primarily sequential and/or reciprocal interdependence). Work groups within a department were assigned the same value for workflow.

Task Complexity. Task complexity was measured using 10 items adapted from the Withey et al. (1983) measure of task predictability and analyzability. The major alteration in the items involved changing the reference point from the individual to the work group. Supervisors and advisors were asked, during a structured interview, to

assess task complexity for the work groups that were under their responsibility. These items are illustrated in Figure 6.9. All the items were rated on a 5-point scale from (5) very great extent to (1) very little extent. The items were subjected to principle components factor analysis and a one factor solution was obtained. The reliability analysis indicated a coefficient alpha of .94 (mean=2.26, s.d.=.81).

Figure 6.9. Task Complexity Items

1.	To what extent are the tasks performed by this group the same from day to day?
2.	To what extent would you say the work in this group is routine?
3.	To what extent do people in this group do jobs the same way most of the time?
4.	To what extent do group members perform repetitive activities in doing their jobs.
5.	To what extent are the duties of this work group repetitive?
6.	To what extent is their a clearly known way to do the major types of work that this group encounters?
7.	When job-related problems arise, to what extent would the search for solutions to these problems be the same from day to day?
8.	To what extent is there an understandable sequence of steps that can be followed in doing this groups work?
9.	To what extent does this work group rely on established procedures and practices to do their work?
10.	To what extent is there an understandable sequence of steps that can be followed to carry out this group's work?

Intergroup Interdependence. Intergroup interdependence was assessed using five items adapted from Kiggundu's (1983) worker interdependence scale. The items were modified changing the reference point from the individual worker to the work group. During structured interviews, supervisors and advisors were asked to assess intergroup interdependence for the work groups under their responsibility. All the items, illustrated in Figure 6.10, were rated on a five point scale from (5) very great extent to (1) very little extent. The items were subjected to principle components factor analysis and a two factor solution was obtained. The factor with the largest eigenvalue contained the first three items in Figure 6.10. These three items were used to measure intergroup interdependence. The reliability analysis of the three items indicated a coefficient alpha of .80 (mean=3.89, s.d.=.57).

Figure 6.10. Intergroup Interdependence Items

1.	To what extent does the job of this work group impact on the job of other work groups? (included)
2.	To what extent does the job of this work group feed into the jobs of other work groups? (included)
3.	To what extent does poor performance by this group delay the performance of other work groups? (included)
4.	To what extent are the job activities of this group impacted by the job activities of other work groups? (excluded)
5.	To what extent does this group depend on other work groups to obtain tools, materials, or equipment? (excluded)

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Supervisor Role Conflict. Role conflict was assessed using a modified version of the Rizzo, House & Lirtzman (1970) measure. This measure contains items pertaining to both role conflict and role ambiguity. Although the distinction between these two constructs has been debated, Smith, Tisak & Schmieder (1993) provide support for the separation of these two constructs. The data comprising the measure were collected in the course of structured interviews with supervisors and advisors. Respondents utilized a seven point response format ranging from (7) very true to (1) very false (role ambiguity items were reverse coded). Principal components factor analysis extracted two factors and reliability analysis indicated a coefficient alpha of .85 for the five item measure of role ambiguity (mean=2.43; s.d.=.92) and .79 for the seven item measure of role conflict (mean=4.79; s.d.=1.05). The role conflict items, shown in Figure 6.11, were utilized in this study.

Figure 6.11. Role Conflict Items

1.	I have to do things that should be done differently.
2.	I get assignments without the manpower to complete them.
3.	I have to buck a rule or policy in order to carry out assignments.
4.	I work with two or more groups who operate quite differently.
5.	I receive incompatible requests from two or more people.
6.	I do things that are accepted by one person and not accepted by others.
7.	I receive an assignment without adequate resources or materials.

Work Group Size. Information concerning work group size was gathered from company records. The groups ranged in size from 3 to 42 members (mean = 11.5; median = 10).

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Work Group Climate. Work group climate was assessed in the survey of hourly employees. Specifically, the survey was designed to explore responses to several different dimensions of work group climate. A complete discussion of methods used to assess and generate work group climate dimensions is provided in a subsequent section of this chapter that outlines the "data analysis procedures."

Data Analysis Procedures

In this section, the method of data analysis is outlined for each of the themes in Chapters 3, 4, and 5.

Chapter 3: Work Organization as a Context for Organizational Commitment and Job Satisfaction.

Three principle methods of analysis were used to test the hypotheses in this chapter of the dissertation. The first method was a correlation analysis. Since the correlation coefficient is a measure of the strength of the ability to make linear predictions from one variable to another, scatterplots were assessed to check for potential nonlinear relationships (Schutte, 1977). The second method used involved testing for the difference between dependent correlations. Cohen & Cohen (1983) provide a specific t test which takes into account "the correlation over samples between the coefficients being tested due to the fact that they come from the same sample" (pp. 56-57). The third method utilized hierarchical regression analysis. In hierarchical regression analysis, the independent variables are entered cumulatively in a prespecified sequence and the R^2 and regression coefficients are determined as the independent variables join the other independent variables (Cohen & Cohen, 1983).

For the analysis in this chapter, the hierarchical regression analysis consisted of two sets of four models (one set for organizational commitment and the other for job

satisfaction). The independent variables for the first model consisted of simple demographic control variables. The second model added several industrial relations variables. The third model added a work organization control variable. The fourth model included two interaction terms. Beyond assessing the overall fit of each model, the significance of the additional variance accounted for by the addition of independent variables (incremental changes in R^2) was examined. Since interaction terms are often difficult to interpret, a subgroup analysis was performed contrasting team and traditional forms of work organization.

Chapter 4: Context Within Context: Work Group Diversity and Work Organization Effects on Work-Related Attitudes.

The primary method of analysis used to test the hypotheses in this chapter of the dissertation involved hierarchical regression analysis. In hierarchical regression analysis, the independent variables are entered cumulatively in a prespecified sequence and the R^2, change in R^2, and the regression coefficients are determined as the new independent variables join those independent variables already entered in the regression model in prior steps (Cohen & Cohen, 1983). For the analysis in this chapter, the hierarchical regression analysis consisted of two parallel sets of five models (one set for organizational commitment and the other for job satisfaction).

The independent variables for the first model consisted of simple demographic control variables which were entered in one block. The second model added the block of relational demography variables (dissimilarity). At this step, both the significance of the change in R^2 and the regression coefficients were assessed. The third model was augmented to include the block of compositional demography variables (heterogeneity). The significance in the change in R^2 and the regression coefficients were examined.

The reason for this order of entry (i.e., dissimilarity variables first, then heterogeneity variables) is that heterogeneous groups have higher levels of individual dissimilarity, so the association between group heterogeneity could reflect simply the aggregation of effects that are found at the individual level (Jackson, 1992b). In order to assess whether or not heterogeneity impacts all group members (not just the dissimilar members), relational demography variables are entered first, then the heterogeneity measures are entered.

The fourth model added work organization and intragroup workflow variables. Finally, in model five, eight interaction terms are added to the regression model. These interaction terms focus on the role of work organization (i.e., team vs. traditional) as a moderator variable. The assessment of whether work organization is a moderator variable is done by examining the significance of the change in R^2 after entering the interaction terms. Since interaction terms are often difficult to interpret, a subgroup analysis was performed contrasting team and traditional forms of work organization.

Chapter 5: Context and Climate: A Mixed-Level View

In order to test the hypotheses in this chapter, several analytical techniques were utilized. First of all, a series of procedures were incorporated to assess and generate work group climate variables. Second, an index was generated to focus on assessing agreement within work groups on various climate dimensions. Third, two alternative strategies, a weak versus a strong view of agreement, were employed when determining an acceptable level of agreement for the inclusion of groups for analysis involving work group climate measures. Fourth, hierarchical regression analysis was performed to evaluate the role of work group climate as a mediator of the relationship between context and both individual and group-level outcomes.

Work Group Climate Dimensions. The work group climate items were designed to measure individuals' perceptions of their work group. All of the items were derived and adapted from previously developed scales (Cammann, Fichman, Jenkins & Klesh, 1979; 1983; Cook et al., 1981; Cordery et al., 1991; Gulowsen, 1972; House & Rizzo, 1972; Jones & James, 1979; Koys & Decotis, 1991; Kozlowski & Doherty, 1989; Lee, Earley, Lituchy & Wagner, 1991; Saavedra et al., 1993; Seers, 1989; Stogdill, 1963; Wall et al., 1986). All the items used a seven-point Likert-type scale ranging from (7) strongly agree to (1) strongly disagree.

Although five work group climate dimensions were initially conceived, principle components factor analysis of all of the work group climate items identified six factors. The autonomy/participation dimension was divided into two distinct and separate dimensions. The items within each dimension and their respective factor loadings are illustrated in Table 6.7.

Table 6.7. Work Group Climate Items and Factor Loadings[a]

Table 6.7. Work Group Climate Items and Factor Loadings[a]

SUPERVISOR SUPPORT (factor 1)	1	2	3	4	5	6
My supervisor does things to make it nice to be a member of my work group.	**.88**	.18	.12	.17	.11	.12
My supervisor looks out for the good of group members.	**.87**	.18	.15	.15	.14	.12
My supervisor does things to help my group do its job.	**.86**	.15	.18	.15	.11	.10
My supervisor shows trust and respect for the members of my work group.	**.85**	.13	.18	.14	.12	.10
My supervisor keeps my group working together.	**.82**	.22	.15	.19	.17	.10
My supervisor helps members settle their conflicts.	**.81**	.20	.18	.14	.14	.07
My supervisor gets help for my group from resource people outside the group.	**.79**	.22	.16	.19	.07	.15
INTRAGROUP COORDINATION (factor 2)						
Members of my work group are flexible about switching jobs in order to help each other out.	.11	**.78**	.16	.12	.10	.20
The people in my work group work together to get things done.	.22	**.74**	.22	.22	.31	.06
My work group is united in trying to reach goals.	.24	**.74**	.21	.21	.28	.14
The work load is evenly shared among the members of my work group.	.22	**.70**	.18	.19	.23	.12
In a busy situation, group members will frequently ask each other for help.	.21	**.70**	.15	.13	.16	.12
If there is a bottleneck, group members work at other jobs within the work group to help out.	.15	**.68**	.19	.20	.16	.12
To try and help, members of my work group tell other members of the group about better work methods.	.24	**.67**	.30	.23	.21	.05
My work group runs smoothly because we understand each other's jobs.	.21	**.59**	.14	.28	.36	.06

[a] **Highest factor loadings are in bold.**

Table 6.7. Work Group Climate Items and Factor Loadings (cont.)

PARTICIPATION (factor 3)	1	2	3	4	5	6
In my work group, group member opinions gets listened to.	.22	.25	**.76**	.16	.17	.06
Most of the time, my work group has input into changes that impact the group.	.30	.17	**.74**	.21	.07	.25
In my work group, members participate in making decisions.	.16	.23	**.73**	.14	.21	.12
My work group is willing to try new ideas that are suggested by group members.	.11	.33	**.68**	.10	.17	.15
My supervisor often asks my work group how safety and quality could be improved.	.48	.20	**.54**	.19	.03	.20
My supervisor asks my group how our schedule and cost performance could be improved.	.45	.13	**.49**	.14	.01	.37
INTERGROUP COOPERATION (factor 4)						
There is little tension between my work group and other work groups.	.12	.18	.01	**.72**	.22	.05
There is good communication between shifts in my department.	.16	.13	.12	**.71**	.10	.03
Generally, things are friendly and cooperative among different work groups.	.14	.23	.17	**.67**	.19	.06
Other work groups cooperate with my work group to complete tasks.	.18	.18	.17	**.66**	.14	.16
There is good communication between my work group and work groups in other departments.	.23	.17	.14	**.65**	.15	.10
Other work groups keep my work group informed about things which affect our work.	.14	.15	.26	**.59**	.05	.22

Table 6.7. Work Group Climate Items and Factor Loadings (cont.)

GROUP CONFLICT (factor 5)	1	2	3	4	5	6
Most people in my group get along with one another.	.10	.30	.15	.20	**.77**	.01
There is little tension among members of my work group.	.11	.18	.08	.12	**.77**	.12
The people in my work group seldom let each other down.	.16	.33	.18	.26	**.69**	.11
In general, my work group is able to settle conflict effectively.	.16	.42	.23	.22	**.63**	.13
When there is a conflict in my work group, it is settled quickly.	.27	.30	.13	.25	**.55**	.19
AUTONOMY (factor 6)						
My work group schedules work breaks without asking supervision.	.16	.14	.15	.12	.09	**.77**
The work group develops vacation schedules for times other than vacation shutdowns.	.12	.08	.14	.14	.14	**.74**
My work group determines group member work assignments.	.17	.33	.37	.06	.02	**.67**
My work group takes charge of running the business.	.26	.14	.47	.24	.11	**.51**
My work group solves work-related problems on our own.	.15	.18	.35	.22	.18	**.50**

Internal consistency reliability for each work group climate scale was based on individuals' responses. Alpha coefficients ranged from .96 to .84. Intercorrelations among the work group climate scales, based on individual responses, ranged from .44 to .70, with a median of .53. Table 6.8 presents the intercorrelations, means, standard deviations (s.d.), and alpha coefficients (along the diagonal) for each of the work group climate dimensions.

Table 6.8. Characteristics of Work Group Climate Dimensions (n=757)

Group Climate Dimensions	Mean	s.d.	1	2	3	4	5	6
1. Supervisor Support	4.83	1.6	**.96**					
2. Intragroup Coordination	4.99	1.3	.52	**.92**				
3. Participation	4.78	1.4	.58	.61	**.90**			
4. Intergroup Cooperation	4.39	1.2	.47	.57	.53	**.84**		
5. Group Conflict	4.86	1.3	.44	.70	.50	.55	**.88**	
6. Autonomy	4.44	1.5	.47	.53	.69	.49	.45	**.84**

Establishing Agreement. The next step in the analysis involved establishing agreement. As outlined in Chapter 5, agreement or consensus among individuals within the same work group must be established before aggregating individual climate perceptions to represent work group climates (James, 1982). Following the procedures developed by James et al. (1984), a derivation of intraclass correlation was computed to assess agreement. This index was first computed assuming no systematic response bias (i.e., assuming a uniform distribution). Agreement indices were computed for each of the 102 work groups on six climate dimensions resulting in 612 indices. The indices ranged from 0 to 1, with an overall median of .84. The median estimate within each

climate dimension was as follows: supervisor support (.87), intragroup coordination (.89), participation (.82), intergroup cooperation (.84), group conflict (.86), and autonomy (.72). These results are comparable to other research involving the climate framework (Ostroff, 1993).

Next, it was assumed that a portion of the item variance was due to systematic response bias. In this case, social desirability may bias responses to climate questions inflating the estimates of consensus. Following the suggestions of James et al. (1984), the distributions of responses to a set of items from the same survey concerning work group commitment were examined. Based on this empirical data, it was determined that a moderately skewed distribution may be a possible source of variance. Agreement indices were recomputed based on a moderate skew for the six work group climate dimensions (the moderately skewed distribution was as follows: 1=.05, 2=.1, 3=.1, 4=.15, 5=.2, 6=.3, 7=.1). Again, the estimates ranged from 0 to 1, however, the overall median was .64. The median estimate within each climate dimension was as follows: supervisor support (.71), intragroup coordination (.71), participation (.61), intergroup cooperation (.65), group conflict (.78), and autonomy (.31). While the level of agreement declined for all of the work group climate dimensions after accounting for the moderate skew, the most dramatic drop involved autonomy. Therefore, the autonomy dimension was dropped from further consideration.

Subsequently, decisions regarding the inclusion and exclusion of work groups based on evidence of agreement needed to be conducted. George (1990) suggested that an agreement index above .70 is indicative of a "good" amount of agreement. However, she proceeded to include two estimates below .70 in her analysis. Kozlowski & Hattrup (1992), using hypothetical data sets with sample sizes ranging from 5 to 100,

have identified agreement indices ranging from .24 to .64 as outcomes associated with data constructed to indicate moderate agreement. The same authors also found indices ranging from 0 to .28 associated with data constructed to indicate low agreement. Kozlowski & Hattrup (1992) found that agreement indices are attenuated by small sample sizes, which helps explain the value of zero for the agreement index under the low agreement condition. In short, there is no consensus on an appropriate level at which the agreement index should fall in order to indicate "agreement."

Two Strategies for Analysis. While no standard level of agreement has been defined in the literature, two alternative strategies are utilized here. The first strategy will be referred to as a "weak view" of agreement. In the weak view, all work groups would be included in subsequent analysis even though some of the climate indices equalled zero. Ostroff (1993) utilized this approach in her study of 12 organizational climate dimensions across 29 schools. Using the James et al. (1984) procedure, she found agreement indices ranging from 0 to .99, with a median score of .86. Then, Ostroff (1993) calculated one-way ANOVAs for each climate dimension by school and found all F-ratios statistically significant. Next, she calculated the reliability of means. Together, this evidence indicated that the schools could be reliably differentiated from each other based on the means of individual perceptions of climate. Ostroff (1993) then proceeded to average across individuals within each school for each of the climate dimensions, where "individuals' climate scores were the mean climate of the school to which they belonged" (p. 64). In short, for at least one climate dimension in at least one school, she assigned mean climate scores to individuals where there was no empirical evidence supporting aggregation.

Why aggregate when consensus is not observable? One argument for aggregating when evidence of agreement is lacking is based on the desire to not discard data. Another, perhaps more substantive, rationale takes into consideration the entirety of the climate assessment process. For example, if the agreement indices are fairly high for a large majority of the sample, then this may indicate the usefulness of climate framework and subsequent aggregation of the entire sample is warranted. For example, in the Ostroff (1993) study, the median of the agreement indices was .86. Meanwhile, in this dissertation, the median of the agreement indices was .84 under a uniform distribution assumption and .64 under a moderately skewed distribution assumption. Moreover, lack of agreement, when the majority of groups in the sample show group consensus on climate perceptions, may be informative, particularly when social units can be reliably differentiated from each other based on the means of individuals' perceptions of climate (Jones & James, 1979). Nonetheless, the results associated with the weak view should be interpreted with caution.

Following Ostroff's (1993) procedure, one-way ANOVAs for each work group climate dimension were computed with the independent variable being the 102 work groups. All the F-ratios were statistically significant ($p<.001$). The median intraclass correlation coefficient for estimating the reliability of means (Bartko, 1976) was .63, indicating that fairly reliable differences in climates exist among work groups. Therefore, the climate scores were averaged across individuals within each work group for each of the climate dimensions. In short, individuals' climate scores on each dimension were the mean climate of the work group to which they belonged.

The second strategy, referred to as a "strong view" of agreement follows a stricter interpretation of agreement for aggregation. James (1982) asserts that "perceptual agreement must be demonstrated before climate scores are aggregated" (p. 220). As noted earlier, while it is unclear what level of agreement is necessary in order for aggregation to be defensible, at minimum an agreement index equal to zero would clearly be indicative of a lack of agreement. Therefore, any work group with an agreement index equal to zero on a particular dimension of work group climate was omitted from any analysis which included that particular dimension of climate. This decision rule resulted in 73 work groups available for analyses involving all five climate dimensions.

For comparison purposes, similar procedures used under the "weak view" were employed with the set of 73 work groups. Thus, one-way ANOVAs for each work group climate dimension were computed with the independent variable being the 73 work groups. As was the case under the "weak view", all the F-ratios were statistically significant ($p<.001$). The median intraclass correlation coefficient for estimating the reliability of means (Bartko, 1976) was .66, indicating slightly more reliability in concluding that differences in climates exist among work groups. As before, the climate scores were averaged across individuals within each work group for each of the climate dimensions.

Regression Analysis. Hierarchical regression analysis was utilized to test the mediating role of work group climate. First, contextual analysis was used to assess the cross-level effects of work group climate on work-related attitudes (Firebaugh, 1978; Mossholder & Bedeian, 1983; Iverson, 1991). In the first step of the contextual analysis the individual-level dependent variable was regressed on the individual-level climate

measures, then the group-level climate measures were entered. In essence, the contextual analysis allows for the assessment of whether there is a group-level climate effect after individual-level climate is controlled (Iverson, 1991).

Following procedures employed by Brass (1981), hierarchical regression analysis was used to test whether or not work group climate mediates between context and individual and group-level outcomes. A series of regression equations were utilized to assess relationships among antecedents, mediators, and consequents. For example, contextual variables were regressed on each of the work group climate variables. In addition, individual and group-level outcome variables were regressed on both contextual and climate variables in a hierarchical manner in order to determine whether context adds to the prediction of the dependent variables over that already furnished by climate (James & Brett, 1984).

CHAPTER SEVEN

RESULTS

This chapter discusses the results of the data analyses. The analysis is divided into three sections based on the hypotheses generated in Chapters Three, Four and Five. Within each section, the results of each hypothesis will be presented.

Results of Analyses by Hypothesis

Work Organization as a Context for Organizational Commitment and Job Satisfaction

Hypothesis 1A. Hypothesis 1A stated that seniority will be positively related to organizational commitment and job satisfaction. Table 7.1 shows the correlation results. Although the signs on the correlation coefficients were in the predicted direction, the correlation between seniority and organizational commitment was not statistically significant ($r=.07$, $p>.05$). Meanwhile, the correlation between seniority and job satisfaction was statistically significant ($r=.14$, $p<.05$).

OLS regression analysis added additional support for Hypothesis 1A. Table 7.6 shows the regression results for a set of three OLS regression models with job satisfaction as the dependent variable. In terms of this hypothesis, note that the seniority coefficient remains statistically significant and positive in models 2 and 3. Table 7.8 shows the regression results for a parallel set of three regression models with organizational commitment as the dependent variable. While the signs on the seniority regression coefficient in models 2 and 3 are positive, they are not statistically significant. In sum, Hypothesis 1A was partially supported.

Hypothesis 2A. Hypothesis 2A stated that seniority will have a stronger relationship with job satisfaction than with organizational commitment. This was tested looking at differences between dependent correlations. Table 7.2 provides support for Hypothesis 2A. The correlation coefficients and t statistic indicate that there is a statistically significant difference between the correlations. The regression results in both Tables 7.6 and 7.8 provide further support for Hypothesis 2A. Note that in Table 7.6, models 2 and 3 show that seniority is strongly related to job satisfaction, whereas models 2 and 3 in Table 7.8 show that seniority is not a good predictor of organizational commitment. Hence, Hypothesis 2A was supported.

Hypothesis 3A. Hypothesis 3A stated that seniority will have a stronger relationship with job satisfaction for employees in a traditional work system versus employees in a team-based work system. In other words, work organization will moderate the relationship between seniority and job satisfaction. Table 7.6 and 7.7 shows the regression models used to construct a test of Hypothesis 3A. Model 1 includes the simple demographic measures as control variables. This model indicates that the older, non-white, and lower educated employees report greater job satisfaction. Model 2 adds the block of industrial relations variables, which explain a significant additional amount of variance in job satisfaction (change in R^2=.022, $p<.01$). Also note that seniority is highly predictive of job satisfaction and that the coefficient for age is no longer significant.

In model 3, work organization is controlled and there is no significant changes in the coefficients. Thus, it appears that merely working in a team system is not predictive of job satisfaction. Next, work organization-seniority and work organization-past EI participation interaction terms are added to the equation to test for moderation.

The work organization-seniority and work organization-past EI interactions explain a significant additional amount of variance in job satisfaction (change in R^2=.012, p<.05). Subgroup regression analysis (shown in Table 7.7) clarifies the moderator effect. For those workers in a traditional work system, higher levels of seniority are associated with higher reported job satisfaction. Further, for workers in the team-based system there is no relationship between seniority and job satisfaction. Thus, Hypothesis 3A is supported.

Hypothesis 4A. Hypothesis 4A maintained that union participation will be positively related to organizational commitment. The correlation coefficients shown in Table 7.1 indicate that the correlation between union participation and organizational commitment is positive and statistically significant (r=.16, p<.05). In addition, the regression analysis in Table 7.8 shows that there is a strong positive relationship between union participation and organizational commitment, even after controlling for simple demographics and other industrial relations variables. Therefore, Hypothesis 4A is supported.

Hypothesis 5A. Hypothesis 5A contended that union participation will have a stronger relationship with organizational commitment than with job satisfaction. Table 7.3 indicates that the correlation of union participation-job satisfaction and union participation-organizational commitment are both positive and significant (r=.09, p<.05; r=.16, p<.05, respectively). However, t-tests indicate that there is a statistically significant difference between the correlations. In addition, the regression analysis in Table 7.8 indicates a strong positive relationship between union participation and organizational commitment, whereas Table 7.6 shows a modest positive relationship between union participation and job satisfaction. These results confirm Hypothesis 5A.

Interestingly, the subgroup regression analysis looking at the moderating effect of work organization (see Tables 7.7 and 7.9) indicates that union participation is associated with positive work-related attitudes for those working under teams, while there is no significant relationship for those working in a traditional system. One possible explanation for this finding may be associated with the "jointness" of the team system (i.e., teams are jointly facilitated by union and management resource coordinators) which provides workers with a clear cooperative frame from which to view the labor-management relationship. In essense, union participation provides information about the strategic partnership between labor and management (i.e., a more cooperative framework), however, those workers in the team system experience the strategic partnership.

Hypothesis 6A. Hypothesis 6A stated that participation in the EI program (i.e., current and past participation in EI) will be more strongly related to organizational commitment than to job satisfaction. Referring to Table 7.4, note that the correlation concerning past EI participation-job satisfaction ($r=.04$, $p>.05$) is less than the correlation pertaining to current EI participation-organizational commitment ($r=.06$, $p>05$). However, there is no statistically significant difference between the correlations. In addition, there is no difference in the correlations consisting of current EI participation-job satisfaction and current EI participation-organizational commitment ($r=-.01$, $p>.05$ for each). Regression analysis (see Tables 7.6 and 7.8) shows no significant direct relationship between EI participation and either organizational commitment or job satisfaction. Thus, Hypothesis 6A is not supported. However, as we shall see, the analysis testing Hypothesis 7A, as well as the analysis for Hypothesis 9A, provides limited support for Hypothesis 6A.

Hypothesis 7A. Hypothesis 7A maintained that perceptions of the effectiveness of EI will moderate the relationship between EI participation (i.e., current and past participation in EI) and organizational commitment. Table 7.5 shows the hierarchical regression results and interaction terms. The interaction of current EI participation and EI effectiveness (B*C) explained a significant additional amount of the variance in organizational commitment (R^2 change=.01, $p<.01$). In essence, if an employee is currently participating in EI and views EI as an ineffective program, then organization commitment will be less than someone who is not participating and views the EI program as ineffective. Likewise, if a worker is currently participating in EI and the EI program is viewed as effective, then organizational commitment will be higher than someone who is not participating in EI and views the program as effective. Although the pattern of relations was the same for the other interaction term relating to past EI participation, it was not statistically significant. Thus, Hypothesis 7A is partially supported.

Table 7.5 also shows the results when the dependent variable is job satisfaction. In this case, neither interaction term explained a statistically significant amount of additional variance in job satisfaction. This result provides limited support for the view expressed in Hypothesis 6A regarding EI participation and its stronger relationship with organizational commitment rather than with job satisfaction.

Hypothesis 8A. Hypothesis 8A stated that individuals in leadership positions (within either employee involvement or teams) will report more positive work-related attitudes. In Table 7.1, the zero-order correlations indicate that there is no statistically significant relationship between individuals in leadership positions and organizational commitment ($r=.05$, $p>.05$) or job satisfaction ($r=.06$, $p>.05$), although the signs of the

correlations are in the predicted direction. Likewise, the regression analysis, shown in Tables 7.6 and 7.8, indicates that the coefficient for EI or team leader variables is not statistically significant. Again, however, the sign on the coefficients is in the predicted direction. Thus, Hypothesis 8A was not supported by the analysis.

Hypothesis 9A. Hypothesis 9A stated that work organization (i.e., whether or not an individual is working in a team-based system) will moderate the relationship between EI participation and organizational commitment. The regression results in Table 7.8 and 7.9 provide support for this hypothesis. In model 2, the coefficient on the past EI participant variable is not statistically significant. This is also true in model 3 when controlling for work organization. However, the work organization-past EI participant and work organization seniority interactions do explain a significant amount of additional variance in organizational commitment (change in R^2=.010, $p<.05$). Subgroup regression analysis (shown in Table 7.9) elucidates the moderator effect. These results suggest that individuals that have participated in EI and are now currently working in the team system report higher organizational commitment than those who participated in EI and are working in the traditional system. Thus, Hypothesis 9A is supported.

Similar analysis was conducted with job satisfaction as the dependent variable (see Table 7.7). These results indicate that EI participation had no relationship with job satisfaction for those working in traditional or team systems. Again, these results provide limited support for the view expressed in Hypothesis 6A regarding EI participation and its stronger relationship with organizational commitment rather than with job satisfaction.

Table 7.1. Correlation Matrix[a]

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Org Com.	(.92)											
2. Job Sat.	.55	(.91)										
3. Age	.08	.11	—									
4. Sex[b]	-.08	-.02	.06	—								
5. Race[c]	-.02	-.09	.04	.23	—							
6. Education[d]	-.11	-.09	-.21	.03	-.10	—						
7. EI Past[e]	.06	.04	.13	-.02	.05	-.04	—					
8. EI Now[f]	-.01	-.01	.03	-.01	.11	.01	.19	—				
9. Leader[g]	.05	.06	-.04	.04	-.02	-.01	.01	-.02	—			
10. Union Part	.16	.09	.04	-.08	-.03	.03	.12	.05	.01	—		
11. Seniority	.07	.14	.72	.24	.12	-.20	.14	.01	.02	.01	—	
12. Work Org.[h]	.05	.02	-.09	-.08	-.07	-.11	-.05	-.42	.20	.01	-.12	—

Note: [a] Coefficient alpha in parentheses; N=742; (correlation > .07 --> p<.05)
[b] Sex is coded 1=male, 0=female
[c] Race is coded 1=white, 0=non-white
[d] Education is coded 1=more than high school, 0=high school or less
[e] EI Past is coded 1=participated in EI in the past, 0=never participated in EI
[f] EI Now is coded 1=currently participating in EI, 0=not currently participating
[g] Leader is coded 1=EI or team leader, 0=not an EI or team leader
[h] Work Org. ("work organization") is coded 1=working in a team department, 0=not working in a team department

Table 7.2. t Tests Comparing Dependent Correlations

Correlation Seniority & Job Satisfaction	Correlation Seniority & Organizational Commitment	t[a]
.14*	.07	1.99*
[a] n=742; * p<.05		

Table 7.3. t Tests Comparing Dependent Correlations

Correlation Union Participation & Job Satisfaction	Correlation Union Participation & Organizational Commitment	t[a]
.09*	.16*	2.00*
[a] n=742; * p<.05		

Table 7.4. t Tests Comparing Dependent Correlations

Correlation EI Participation (Past) & Job Satisfaction	Correlation EI Participation (Past) & Organizational Commitment	t[a]
.04	.06	.56
EI Participation (Now) & Job Satisfaction	EI Participation (Now) & Organizational Commitment	
-.01	-.01	.00
[a] n=742; * p<.05		

Table 7.5. Hierarchical Regression Results

Dependent Variable = Organizational Commitment (n=784).

Predictor	B[a]	R^2 (change)
A. Past Participant in EI	-.09	.005
B. Current EI Participant	-.52**	
C. View EI as Effective	.36***	.175***
Interaction A*C	.10	.010**
Interaction B*C	.49**	

Dependent Variable = Job Satisfaction (n=791).

Predictor	B[a]	R^2 (change)
A. Past Participant in EI	-.31*	.001
B. Current EI Participant	-.10	
B. View EI as Effective	.37***	.208***
Interaction A*B	.29	.004
Interaction B*C	.06	

[a] B=Beta, the standardized regression coefficient for the full equation
***p<.001; ** p<.01; * p<.05

Table 7.6.
Regression Models: Dependent Variable - Job Satisfaction

Variable	Model 1[a]	Model 2	Model 3
(1) Age	.10***	-.01	-.01
(2) Sex	-.01	-.03	-.03
(3) Race	-.10***	-.10***	-.10***
(4) Education	-.08**	-.07**	-.07**
(5) Past EI Participant		.01	.01
(6) Current EI Participant		.01	.01
(7) EI or Team Leader		.06	.05
(8) Union Participation		.08**	.08**
(9) Seniority		.15***	.15***
(10) Work Organization			.02
- Overall Model F	5.23***	4.23***	3.82***
- Adjusted R^2	.022	.037	.036
- (R^2 change)	-----	(.022**)	(.001)
*p<.10; **p<.05; ***p<.01	(n=748)	(n=748)	(n=748)
[a] standardized reg. coef.			

Table 7.7. Subgroup Regression Analysis - Job Satisfaction

Variable	Team	Traditional
- Age	.01	-.05
- Sex	-.02	-.01
- Race	-.11**	-.11**
- Education	-.12**	-.02
- Past EI Participant	.04	.01
- EI or Team Leader	.09	-.01
- Union Participation	.17***	-.01
- Seniority	.04	.30***
Model F	3.37***	3.59***
Adj. R^2	.045	.056
	(n=399)	(n=350)
*p<.10; **p<.05; ***p<.01		
[a] standardized reg. coef.		

Table 7.8.
Regression Models: Dependent Variable - Organizational Commitment

Variable	Model 1[a]	Model 2	Model 3
(1) Age	.06	.01	.02
(2) Sex	-.08**	-.08**	-.08**
(3) Race	-.01	-.01	-.01
(4) Education	-.09**	-.10**	-.09**
(5) Past EI Participant		.04	.03
(6) Current EI Participant		-.02	-.01
(7) EI or Team Leader		.05	.04
(8) Union Participation		.15***	.15***
(9) Seniority		.05	.06
(10) Work Organization			.03
- Overall Model F	4.23**	4.37***	4.00***
- Adjusted R^2	.017	.039	.039
- (R^2 change)	-----	(.028***)	(.001)
*p<.10; **p<.05; ***p<.01	(n=741)	(n=741)	(n=741)
[a] stand. reg. coefficient			

Table 7.9. Subgroup Regression Analysis - Organizational Commitment

Variable	Team	Traditional
- Age	.02	-.01
- Sex	-.07	-.05
- Race	.03	-.06
- Education	-.11**	-.08
- Past EI Participant	.10**	-.01
- EI or Team Leader	.07	-.01
- Union Participation	.28***	.04
- Seniority	-.04	.15*
Model F	6.66***	1.75*
Adj. R^2	.102	.017
	(n=398)	(n=344)
*p<.10; **p<.05; ***p<.01		
[a] standardized reg. coef.		

Context within context: Work group diversity and work organization effects on work-related attitudes

Hypothesis 1B. Hypothesis 1B stated that demographic dissimilarity with respect to seniority, sex and race will be associated with both lower job satisfaction and organizational commitment. Table 7.10 shows the results of the correlation analysis. The only significant correlation is between sex dissimilarity and organizational commitment. However, the correlation is positive ($r=.11$, $p<.05$). None of the other correlations involving dissimilarity and the dependent variables are statistically significant.

Tables 7.11 and 7.12 provide OLS regression results for the hierarchical models for organizational commitment and job satisfaction, respectively. In terms of organizational commitment (see Table 7.11), model 1 shows the results including only the control variables. These results indicate that women report higher organizational commitment than men, the higher an individual's education the lower the reported organizational commitment, and the greater an individual's seniority the greater the reported organizational commitment.

When the dissimilarity block of variables is added in model 2, the change in R^2 is statistically significant. Thus, dissimilarity does explain an additional amount of variance in organization commitment beyond simple demographics. However, the only dissimilarity variable with a statistically significant regression coefficient is sex dissimilarity. Contrary to the hypothesis, the coefficient is positive, indicating that the more dissimilar an individual is from the other members of their work group in terms of sex, the higher the reported level of organizational commitment. Note also that the regression coefficient for sex is no longer significant. This may indicate that women generally are not more committed than men, but that "token" women in male-dominated

work groups report higher organizational commitment because they view themselves as overcoming barriers and thus place higher value on their organizational membership. Konrad, et al. (1992) suggest that women are anomalies in work groups dominated by males and the presence of women in male-dominated groups provokes questions regarding the appropriateness of their presence. Thus, the difficult process of legitimizing their presence in the male-dominated setting may lead to expressions of higher levels of organizational commitment. Meanwhile, the coefficient on education remains negative and statistically significant and the coefficient on seniority remains positive and significant. Thus, Hypothesis 1b is not supported in terms of organizational commitment.

In terms of job satisfaction, model 1 in Table 7.12 shows that of the control variables, whites report lower job satisfaction than non-whites, individuals with greater education are less satisfied and those with higher seniority report higher job satisfaction. The addition of the block of dissimilarity variables in model 2 does not significantly change R^2, however, the regression coefficient for race dissimilarity is negative and significant. Thus, individuals that are more dissimilar from the other members of their work group with respect to race report lower job satisfaction. None of the other dissimilarity regression coefficients are significant. Meanwhile, the regression coefficients for simple race, education, and seniority remain significant. In sum, hypothesis 1B is partially supported in terms of job satisfaction.

Hypothesis 2B. Hypothesis 2B maintained that demographic heterogeneity would explain a significant amount of additional variance in both organizational commitment and job satisfaction, controlling for simple demographics and demographic dissimilarity. The correlational analysis, shown in Table 7.10, finds that both sex and race

heterogeneity have a significant positive correlation with organizational commitment ($r=.11$, $p<.05$; $r=.08$, $p<.05$, respectively). None of the other correlations involving heterogeneity and the dependent variables are statistically significant.

Building on the models used to test Hypothesis 1B, Tables 7.11 and 7.12 show the impact of adding the heterogeneity measures to the organizational commitment and job satisfaction regression analysis. In terms of organizational commitment (see Table 7.11), model 3 shows that the addition of the heterogeneity variables as a block do not explain a significant additional amount of variance (change in $R^2=.007$, $p>.10$). However, the coefficient for race heterogeneity is positive and significant, indicating that the more heterogeneous the work group (controlling for simple demographics and relational demography), the greater the reported organizational commitment. In addition, the coefficient for race dissimilarity is negative and statistically significant ($p<.10$). This suggests that individuals that are more dissimilar from the other members of their work group with respect to race report lower organizational commitment. Meanwhile, the regression coefficient for sex dissimilarity is no longer statistically significant in model 3, yet the sign remains positive. The coefficients on education and seniority continue to be statistically significant. Thus, Hypothesis 2B is not supported in terms of organizational commitment.

In terms of job satisfaction, model 3 in Table 7.12 shows that the block of heterogeneity variables explains a significant additional amount of variance in job satisfaction beyond simple demographics and demographic dissimilarity (change in $R^2=.014$, $p<.05$). The regression coefficient for sex heterogeneity is positive and statistically significant ($p<.01$). This suggests that the more sex heterogeneous the work group, the higher the reported job satisfaction. After entering the heterogeneity block,

the coefficient for sex dissimilarity is now negative and significant, while the coefficient for race dissimilarity is no longer statistically significant. In model 3, the coefficient on education is no longer significant. The pattern of relations involving simple race and seniority variables remains relatively constant. In sum, Hypothesis 2B is supported in terms of job satisfaction.

Hypothesis 3B. Hypothesis 3B stated that work organization will moderate the relationship between work group demography (dissimilarity and heterogeneity) and both organizational commitment and job satisfaction. For both dependent variables, work organization and workflow variables were added to the hierarchical regression models developed in Hypotheses 1B and 2B. Subsequently, work organization-demography interaction terms were incorporated into both regression equations.

Table 7.11 provides results relating to organizational commitment. Model 4 indicates that the addition of work organization and workflow variables has virtually no effect on the overall model, nor does their inclusion alter any particular regression coefficient. However, the inclusion of the three work organization-demographic dissimilarity interaction terms and three work organization-demographic heterogeneity interaction terms together explain a statistically significant additional amount of the variance in organizational commitment (change in R^2=.014, $p<.10$).

Turning to job satisfaction, model 4 in Table 7.12 indicates that the addition of work organization and intragroup workflow variables does explain a significant additional amount of variance (change in R^2=.006, $p<.10$). The regression coefficient for intragroup workflow is negative and significant, implying that the more interdependent the workflow, the lower reported job satisfaction. In essence, workflow seems to be more strongly related to job satisfaction than organizational commitment. This result

reaffirms the findings from earlier hypotheses which indicate that job satisfaction is related to more proximal (day-to-day) influences, such as workflow, whereas organizational commitment is influenced by more distal factors. Simultaneously, model 4 indicates that the relationship between other variables and job satisfaction are not altered by the addition of work organization and intragroup workflow variables. Next, inclusion of the six work organization-demography interaction terms explains a statistically significant amount of additional variance in job satisfaction (change in R^2=.019, $p<.05$). In conclusion, Hypothesis 3B is supported for both organizational commitment and job satisfaction.

Hypothesis 4B. Hypothesis 4B claimed that work organization would moderate the relationship between demographic dissimilarity and work-related attitudes, where dissimilarity within a team-based work organization would be associated with more negative work-related attitudes. Table 7.13 provides the results of a subgroup regression analysis concerning organizational commitment. The coefficients for both seniority dissimilarity and race dissimilarity are negative and statistically significant for the team system regression, while none of the dissimilarity coefficients are significant in the traditional system regression.

Table 7.14 provides the results of a subgroup regression for job satisfaction. The results indicate that individuals that are dissimilar from the other members of the work group with regard to sex in a team-based work system report significantly lower levels of job satisfaction than those individuals who are dissimilar from their work group with regard to sex in a traditional work system. The other dissimilarity terms are not significant in the team regression (although the signs on all of the dissimilarity coefficients are negative). In summary, Hypothesis 4B is partially supported.

Hypothesis 5B. Hypothesis 5B asserted that work organization would moderate the relationship between heterogeneity and work-related attitudes, where heterogeneity within a team-based work organization would be associated with more positive work-related attitudes. In terms of organizational commitment, Table 7.13, reveals that the race heterogeneity term is positive and statistically significant for the team regression and not significant in the traditional system regression. These results imply that individuals in a team work organization will report higher levels of organizational commitment when work group race heterogeneity is high, while race heterogeneity has no impact on organizational commitment for workers in a traditional system. These results provide limited support for Hypothesis 5B.

In terms of job satisfaction, Table 7.14 indicates that the sex heterogeneity coefficient is positive and statistically significant in the team regression, whereas it is not significant in the traditional work system regression. These results imply that in the team-based work organization, sex heterogeneity is associated with higher reported job satisfaction. Interestingly, the coefficient for seniority heterogeneity is negative and statistically significant for the traditional regression equation and not significant for the team regression equation. Again, this finding advances the view that seniority has a dissimilar role, with distinctive implications, in a team-based work system compared to a traditional work system. Thus, these results provide robust, yet limited, support for Hypothesis 5B.

Table 7.10. Correlation Matrix[a]

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Org. Commitment	**.92**													
2. Job Satisfaction	.54	**.91**												
3. Sex[b]	-.08	-.01	–											
4. Race[c]	-.01	-.08	.24	–										
5. Education[d]	-.10	-.06	.03	-.10	–									
6. Seniority	.06	.12	.25	.14	-.18	–								
7. Seniority Diss[e]	-.05	-.06	-.09	-.01	.11	-.36	–							
8. Sex Dissimilarity	.11	.01	-.71	-.22	-.03	-.36	.15	–						
9. Race Dissimilarity	.01	.02	-.23	-.70	.02	-.18	.02	.36	–					
10. Seniority Het.[f]	.01	-.04	-.17	-.06	.12	-.50	.31	.37	.13	–				
11. Sex Heterogeneity	.11	.06	-.40	-.18	-.06	-.37	.08	.82	.33	.44	–			
12. Race Heterogeneity	.08	.01	-.18	-.31	-.07	-.15	-.03	.40	.74	.16	.47	–		
13. Work Organization[g]	.05	.01	-.10	-.08	-.11	-.14	-.36	.13	.15	.02	.26	.33	–	
14. Workflow[h]	.04	-.03	-.20	-.09	-.12	-.16	-.20	.33	.16	.03	.43	.28	.56	–

Note: [a] Coefficient alpha in bold; n=760; (r > .06 –> p<.05)
[b] Sex is coded 1=male, 0=female; [c] Race 1=white, 0=non-white; [d] Education 1=more than high school, 0=high school or less
[e] "Diss." (short for dissimilarity) is how much the individual differs from the work group on the characteristic
[f] "Het." (short for heterogeneity) is how heterogeneous the work group is on the characteristic
[g] Work organization is coded 1=working in a team department, 0=not working in a team department
[h] Workflow is coded 1=high interdependent intragroup workflow, 0=low interdependent intragroup workflow

Table 7.11.
Demography Regression Models:
Dependent Variable - Org. Commitment

Variable	Model 1	Model 2	Model 3	Model 4
(1) Sex	-.09**	.01	-.03	-.03
(2) Race	-.01	-.01	-.06	-.06
(3) Education	-.08**	-.08**	-.07*	-.07*
(4) Seniority	.07*	.09**	.10**	.10**
(5) Seniority Diss.		-.03	-.02	-.02
(6) Sex Dissimilarity		.16***	.07	.07
(7) Race Dissimilarity		-.02	-.14*	-.14*
(8) Seniority Het.			.01	.01
(9) Sex Heterogeneity			.06	.07
(10) Race Heterogeneity			.12*	.12*
(11) Work Organization				.02
(12) Intragroup Workflow				-.03
- Overall Model F	4.03***	3.56***	3.06***	2.60***
- Adjusted R^2	.016	.023	.026	.024
- (R^2 change)	-----	(.011**)	(.007)	(.001)
*p<.10; **p<.05; ***p<.01;	(n=762)	(n=762)	(n=762)	(n=762)
ª standardized regression coefficients				

Table 7.12.
Demography Regression Models:
Dependent Variable - Job Satisfaction

Variable	Model 1	Model 2	Model 3	Model 4
(1) Sex	-.02	.02	-.06	-.06
(2) Race	-.10***	-.16***	-.15***	-.15***
(3) Education	-.06*	-.06*	-.05	-.06
(4) Seniority	.14***	.14***	.17***	.17***
(5) Seniority Diss.		-.01	.02	.01
(6) Sex Dissimilarity		.06	-.18**	-.17*
(7) Race Dissimilarity		-.09*	-.07	-.07
(8) Seniority Het.			.01	-.01
(9) Sex Heterogeneity			.23**	.26***
(10) Race Heterogeneity			-.01	-.02
(11) Work Organization				.05
(12) Intragroup Workflow				-.10**
- Overall Model F	6.25***	4.01***	3.92***	3.69***
- Adjusted R^2	.026	.027	.036	.040
- (R^2 change)	-----	(.004)	(.014**)	(.006*)
*p<.10; **p<.05; ***p<.01;	(n=770)	(n=770)	(n=770)	(n=770)
[a] standardized regression coefficients				

Table 7.13. Subgroup Regression Analysis[a] - Organizational Commitment

Variable	Team	Traditional
- Sex	-.08	.07
- Race	-.05	-.13
- Education	-.05	-.06
- Seniority	-.01	.18***
- Seniority Dissimilarity	-.11**	.07
- Sex Dissimilarity	.03	.16
- Race Dissimilarity	-.36***	-.12
- Seniority Heterogeneity	.01	-.01
- Sex Heterogeneity	.04	.07
- Race Heterogeneity	.35***	.01
- Workflow	-.05	-.03
Model F	2.37***	1.97**
Adj. R^2	.036	.029
	(n=409)	(n=352)

Table 7.14. Subgroup Regression Analysis[a] - Job Satisfaction

Variable	Team	Traditional
- Sex	-.15**	.12
- Race	-.12*	-.26**
- Education	-.07	-.02
- Seniority	.05	.26***
- Seniority Dissimilarity	-.02	.09
- Sex Dissimilarity	-.46***	.19
- Race Dissimilarity	-.08	-.20
- Seniority Heterogeneity	-.01	-.10*
- Sex Heterogeneity	.40***	.11
- Race Heterogeneity	.10	-.09
- Workflow	-.02	-.12**
Model F	2.29***	4.32***
Adj. R^2	.033	.093
	(n=411)	(n=358)

*p<.10; **p<.05; ***p<.01

[a] standardized reg. coef.

Context and Climate: A Mixed-Level View

Hypothesis 1C. Hypothesis 1C stated that work group climate would be a significant predictor of both organizational commitment and job satisfaction. Contextual analysis using hierarchical regression was used to test this hypothesis involving cross-level effects. Table 7.15 provides regression results for both dependent variables using both the "weak view" and the "strong view" of agreement for work group climate (see Chapter Six for a full discussion of the weak vs. strong view of agreement).

In model 1, which is based on the weak view of agreement, individual-level climate variables are entered into each regression equation and explain a significant amount of the variance in both organizational commitment and job satisfaction. Next, aggregated group climate variables are entered and explain a significant additional amount of variance for both work-related attitudes. This suggests that work group climate, at the group-level, has an impact on work-related attitudes beyond individual perceptions of group climate. Similar analysis was conducted based on the strong view of agreement (see model 2). In this case, however, group-level climate did not explain a significant amount of additional variance in organizational commitment. Meanwhile, group-level climate did explain a significant amount of additional variance in job satisfaction. Thus, Hypothesis 1C was fully supported for the weak view model and partially supported for the strong view model.

Hypothesis 2C. Hypothesis 2C proposed that work group climate would explain a significant amount of the variance in group-level extra-role behavior and performance. This analysis was conducted at the group-level. Preliminary analysis indicated that all of the dimensions of work group climate together did not explain a significant amount of additional variance in either extra-role behavior or performance. Subsequent analysis

concluded that the intragroup coordination climate dimension was the most robust of the entire set of climate dimensions. Therefore, the impact of intragroup coordination climate on both group-level dependent variables was assessed. With respect to extra-role behavior, intragroup coordination climate was not a significant predictor based on either the weak or strong view of agreement. However, intragroup coordination climate did explain a statistically significant amount of the variance in work group performance under both weak (R^2 = .058, $p<.05$) and strong (R^2 = .127, $p<.05$) assumptions of agreement. These results provide limited support for Hypothesis 2C.

Hypothesis 3C. Hypothesis 3C stated that context will explain a significant amount of the variance in work group climate. In other words, context and climate are linked together. Table 7.16 shows the regression analysis where the various dimensions of work group climate are regressed on the set of context variables. Under both weak and strong views of agreement, the contextual variables as a set explain a significant amount of the variance in all of the work group climate dimensions except supervisor support.

In particular, work organization is a significant predictor of work group climate (i.e., groups operating under a team-based work system generally report a more positive work group climate). Intergroup interdependence is a significant predictor of group conflict and intragroup coordination climate. In essence, the more interdependent the work group with other work groups, the more positive the conflict and coordination climate. The only other consistent significant relationship between context and climate appears to be a negative relationship between task complexity and intergroup cooperation climate. However, while other relationships between specific context variables and climate dimensions are not consistently significant, the sign of the

regression coefficients remains stable under both weak and strong views of agreement. In sum, Hypothesis 3C is essentially supported.

Hypothesis 4C. Hypothesis 4C asserted that context will explain a significant amount of the variance in work-related attitudes. In order to test this hypothesis, the set of context variable were entered into separate regression equations for organizational commitment and job satisfaction. For the subjects that were included based on a weak view of agreement, the context variables explained a significant amount of variance in both work-related attitudes (organizational commitment: R^2 = .029, $p<.10$; job satisfaction: $R^2 = .028$, $p<.10$). Similar results were found for the subjects that remained based on a strong view of agreement (organizational commitment: $R^2 = .038$, $p<.10$; job satisfaction: $R^2 = .040$, $p<.05$). Thus, Hypothesis 4C is supported.

Hypothesis 5C. Hypothesis 5C suggested that context would explain a significant amount of variance in group-level extra-role behavior and performance. In order to test this hypothesis, group-level extra-role behavior and group performance were each regressed separately on a set of context variables. Under a weak view of agreement, the context variables explained a significant amount of variance in both group-level outcomes (extra-role behavior: $R^2 = .172$, $p<.01$; group performance: $R^2 = .146$, $p<.05$). Likewise, under a strong view of agreement the finding were similar (extra-role behavior: $R^2 = .299$, $p<.01$; group performance: $R^2 = .291$, $p<.01$). Hence, Hypothesis 5C is supported.

Hypothesis 6C. Hypothesis 6C stated that work group climate would mediate the relationship between context and work-related attitudes. Brass's (1981) strategy regarding the investigation of a mediation model was followed. One necessary, but not sufficient, condition for a mediation model to hold involves finding a relationship between

context and work-related attitudes. This was found during the testing of Hypothesis 4C. A second necessary, but not sufficient, condition for a mediation model to hold involves finding a relationship between climate and work-related attitudes. This was essentially found in testing Hypothesis 1C. A third necessary, but not sufficient, condition involves finding a relationship between context and climate. For the most part, this was found in testing Hypothesis 3C. Finally, if, after controlling for climate, context does not show a significant independent relationship with work-related attitudes, then this is evidence of a mediating role for work group climate.

Table 7.17 shows the hierarchical regression results testing for the mediation model under both weak and strong assumptions concerning agreement. In the first step of the analysis, the context variables are entered as a set followed by the entry of both individual and group-level work group climate variables as a set. In the second step, the climate variables are entered first, followed by the set of context variables.

The results for organizational commitment (for both weak and strong views) indicate that when the context variables are entered into a hierarchical regression equation first, followed by climate variables, the climate variables significantly increase the amount of variance explained in organizational commitment ($p<.001$). More importantly, when the climate variables are entered first, followed by the set of context variables, the context variables as a set do not

show any significant independent relationship to organizational commitment. These results suggest that work group climate mediates the relationship between context and organizational commitment.

A similar analysis was conducted for job satisfaction. As Table 7.17 shows, the results, for both weak and strong views of agreement, indicate that, after controlling for

work group climate, the set of context variables significantly increases the amount of variance explained in job satisfaction ($p<.10$). Nonetheless, under both weak and strong views, the additional variance, accounted for by the entry of the context variables to the model which already includes the climate variables, is less than half of the amount of variance attributed solely to the set of context variables in step 1. This suggests work group climate may nevertheless be mediating the relationship between context and job satisfaction in part. In sum, Hypothesis 6C is partially supported.

Hypothesis 7C. Hypothesis 7C states that work group climate mediates the relationship between context and group-level extra-role behavior and performance. Since the results associated with Hypothesis 2C indicated that none of the work group climate dimensions were related to extra-role behavior, a test of the mediation model for extra-role behavior was not viable. However, since Hypothesis 2C was supported showing that context did explain a significant amount of variance in group-level extra-role behavior, a regression model is shown in Table 7.18 which regresses extra-role behavior on context variables and intragroup coordination climate. Note, that the context variables used in this and subsequent analysis at the group-level included a subset the context variables discussed in Chapter 5 (e.g., race heterogeneity, group size, and workflow were omitted). Preliminary analysis found that the inclusion of the entire set of contextual factors unreasonably reduced the sample size, constrained the degrees of freedom, and did not contribute to the strength of the regression analysis.

The results in Table 7.18 indicate that the more heterogeneous a work group is in terms of seniority, the lower the reported extra-role behavior exhibited by the group. In addition, the greater the intergroup interdependence the lower the extra-role behavior. Under a weak view of agreement, task complexity was significantly associated with

lower extra-role behavior, while under a strong view of agreement work organization was positive and significant. While this analysis was not meant to, nor does it, support Hypothesis 7C, it does provide justification for further examination of extra-role behavior as a group-level variable.

On the other hand the mediation model for group performance was testable. First, the results associates with Hypothesis 5C found that the set of context variables explained a significant amount of variance in group performance. Second, the results found in testing Hypothesis 2C indicated that intragroup coordination climate explained a significant amount of the variance in group performance. Table 7.19 illustrates the hierarchical regression results from testing for the mediation model under both weak and strong assumptions concerning agreement.

In the first step of the analysis, the context variables are entered as a set followed by entering intragroup coordination climate. In the second step, intragroup coordination climate is entered first, followed by the set of context variables. For the available sample based on a weak view of agreement, the results indicate that when the context variables are entered into a hierarchical regression equation first, followed by intragroup coordination climate, the climate variable significantly increases the amount of variance explained in group performance ($p<.05$). However, when the intragroup coordination climate variable is entered first, followed by the set of context variables, the context variables as a set do show a significant independent relationship to group performance. Thus, the mediation model is not supported. Similar analysis was conducted for the sample based on a strong view of agreement, and the results also show that the mediation model is not justified. Therefore, Hypothesis 7C was not sustained.

In order to examine the relationship among context, climate and group performance, group performance was regressed on context variables and intragroup coordination climate. Table 7.20 shows the results of the regression analysis for samples based on weak and strong views of agreement. These results indicate that the more heterogeneous work groups are in terms of seniority the lower the performance ratings of the group. Meanwhile, there is limited evidence that work organization and intragroup coordination climate are positively related to group performance.

Table 7.15. Hierarchical Regression: Cross-Level Effects of Work Group Climate on Work-Related Attitudes

MODELS	Organizational Commitment		Job Satisfaction
Model 1[a]: (weak view) - Enter Individual-Level Climate Variables	R^2 = .189****		R^2 = .642****
- Enter Work Group-Level Climate Variables	R^2 change = .012*		R^2 change = .013***
[a] Org Com. (n=641); Job Sat. (n=647)			
Model 2:[b] (strong view) - Enter Individual-Level Climate Variables	R^2 = .224****		R^2 = .600****
- Enter Work Group-Level Climate Variables	R^2 change = .006		R^2 change = .010**
[b] Org Com. (n=490); Job Sat. (n=493)			
*p<.10; **p<.05; ***p<.01; ****p<.001			

Table 7.16. Regression Analysis: Relationship Between Context and Work Group Climate Under Weak & Strong Views

Context Variables	Supervisor Support[a]	Low Conflict	Intragroup Coord.	Intergroup Coop.	Participation
(Weak View)[b]					
- Seniority Heterogeneity	-.21	-.11	-.05	-.01	-.16
- Sex Het.	.39**	-.03	.06	.01	.21*
- Race Het.	-.05	-.11	-.12	.10	.04
- Work Org.	.09	.31***	.54***	.22*	.39***
- Supervisor Role Conflict	.04	-.08	-.14	-.17*	.01
- Intergroup Interdependence	-.04	.23**	.25**	.17	.09
- Task Complexity	-.06	-.15	-.09	-.18*	-.01
- Workflow	.01	.03	-.02	.05	.01
- Group Size	-.01	-.02	-.02	.01	-.04
R^2	.123	.213**	.372***	.153*	.221**
(Strong View)[c]					
- Seniority Heterogeneity	-.29*	-.20	-.15	-.01	-.23*
- Sex Het.	.29*	-.05	.09	-.14	.05
- Race Het.	-.07	-.15	-.03	.02	.07
- Work Org.	.11	.31**	.53***	.34**	.45***
- Supervisor Role Conflict	.15	.03	.03	-.12	.09
- Intergroup Interdependence	.02	.18*	.25**	.16	.16
- Task Complexity	-.23*	-.16	-.07	-.30**	-.07
- Workflow	.03	-.01	.05	.02	.04
- Group Size	-.03	-.04	-.06	-.02	-.03
R^2	.176	.280**	.435***	.299**	.355**

*p<.10; **p<.05; ***p<.01

[a] standardized reg. coefficients
[b] n=70; [c] n=51

Table 7.17. Hierarchical Regression Results: Test for Work Group Climate Mediation

MODELS	Organizational Commitment		Job Satisfaction[b]
Model 1 (weak view)[a]			
Step 1:			
- Enter Context Variables	R^2 = .029*		R^2 = .028*
- Enter Climate Variables	R^2 change = .173****		R^2 change = .652****
Step 2:			
- Enter Climate Variables	R^2 = .184****		R^2 = .669****
- Enter Context Variables	R^2 change = .017		R^2 change = .011*
Model 2 (strong view)[b]			
Step 1:			
- Enter Context Variables	R^2 = .038*		R^2 = .040**
- Enter Climate Variables	R^2 change = .210****		R^2 change = .593****
Step 2:			
- Enter Climate Variables	R^2 = .231****		R^2 = .617****
- Enter Context Variables	R^2 change = .017		R^2 change = .016*
*p<.10; **p<.05; ***p<.01; ****p<.001 [a] Org. Com. (n=441) Job Sat. (n=445) [b] Org. Com. (n=337) Job Sat. (n=338)			

Table 7.18. Regression Analysis: Context and Work Group Extra-Role Behavior Under Weak & Strong Agreement Views

Context Variables[a]	Work Group Extra-Role Behavior (Weak View) n=73	Work Group Extra-Role Behavior (Strong View) n=52
- Seniority Heterogeneity	-.25**	-.38**
- Sex Heterogeneity	-.16	-.13
- Work Organization	.02	.25*
- Intergroup Interdependence	-.21*	-.27*
- Task Complexity	-.25**	-.17
- Intragroup Coordination Climate	.13	.08
- Overall Model F	3.08***	3.33***
- Adjusted R^2	.146	.212
*p<.10; **p<.05; ***p<.01		
[a] standardized reg. coeff.		

Table 7.19. Hierarchical Regression Results: Test for Mediation Under Weak & Strong Agreement Views

MODELS	Group Performance (weak view) n=91	Group Performance (strong view) n=65
Step 1:		
- Enter Context Variables	R^2 = .146**	R^2 = .291***
- Enter Climate Variable	R^2 change = .037**	R^2 change = .016
Step 2:		
- Enter Climate Variable	R^2 = .058**	R^2 = .127**
- Enter Context Variables	R^2 change = .126**	R^2 change = .179**
*p<.10; **p<.05; ***p<.01		

Table 7.20. Regression Analysis:
Influence of Context and Work Group Climate on Group Performance
Under Weak & Strong Agreement Views

Context Variables[a]	Group Performance (weak view) n=91	Group Performance (strong view) n=65
- Seniority Heterogeneity	-.32***	-.38***
- Sex Heterogeneity	-.03	.03
- Work Organization	.02	.27*
- Intergroup Interdependence	-.07	-.03
- Task Complexity	-.13	-.02
- Intragroup Coordination Climate	.23**	.16
- Overall Model F	3.18***	4.35***
- Adjusted R^2	.126	.236
*p<.10; **p<.05; ***p<.01		
[a] standardized reg. coeff.		

CHAPTER EIGHT

DISCUSSION

Introduction

This chapter presents a discussion of the results of this dissertation research. The discussion contains an overall summary of the findings presented in Chapter Seven. In addition, limitations of this study are discussed. Finally, implications for research and theory, as well as for practice are drawn.

Summary

The results of this study generally support the belief that work group context is an important component in an examination of group member work-related attitudes and work group effectiveness. Three related, but unique, lines of analysis were utilized to frame questions regarding the role of context. The first line of analysis focused on the relationship between work-related attitudes and industrial relations variables, such as seniority, union participation and employee involvement, in context. The findings indicated that the relationships between all of these industrial relations variables and work-related attitudes are best understood after a consideration of the context.

In terms of seniority, these results provide evidence that in a unionized context, seniority is more strongly related to job satisfaction than to organizational commitment. More importantly, the relationship between seniority and work-related attitudes appears to be moderated by the type of work organization. Thus, these findings imply that seniority is associated with more positive work-related attitudes for those working under a traditional work organization. However, seniority is not associated with work-related attitudes for individuals who are assigned to a team-based work system.

With respect to union participation, the results indicate that there is a positive relationship between union participation and work-related attitudes. On the whole, prior research has been inconclusive regarding the connection between union participation and work-related attitudes. These findings offer some support to viewing the relationship between union participation and work-related attitudes as dependent on the context of labor-management relations. Moreover, the results suggest that union participation, viewed as encompassing a range of union activities, is more strongly related to organizational commitment versus job satisfaction. While the causality of this relationship is not verifiable within this study, the results do offer the possibility that union participation should be more broadly conceived as a communication mode where workers come to understand the organization and the employment relationship. This is in contrast to the more traditional view, where union participation is primarily a means for workers to voice concern or dissatisfaction about aspects of their job.

In addition, the relationship between union participation and work-related attitudes is particularly robust for individuals in the team-based work organization. Perhaps the abstract conception of a "cooperative frame" of labor relations (i.e., a strategic union-management partnership) is made more concrete through actual experiences of labor-management cooperation arising under the team system.

The findings associated with employee involvement are informative. First of all, participation in EI, itself, is not associated with work-related attitudes. This was also true for individuals that occupied leadership positions in EI. Second, there was limited support for the premise that EI participation would tend to have a stronger relationship with organizational commitment rather than job satisfaction. In other words, EI appears to influence organizational perceptions, whereas it has less influence on day-to-day job

experiences. Third, the relationship between an individual's participation in EI and organizational commitment is moderated by whether or not the worker views the EI program as effective. Interestingly, EI participants that view EI as ineffective report lower organizational commitment than those who do not participate and view the EI program as impotent. Fourth, the analysis indicated that individuals who have participated in the EI program and are currently working under a team-based system report higher organizational commitment than those who have participated in EI and are working under a traditional work system. The role of work organization as a moderator of prior EI participation supports the view that worker commitment increases as employee expectations and needs arising from EI participation are met under the auspices of a team-based work organization.

The second line of analysis investigated the role of context within context. Specifically, the relationship between work group demography (one aspect of context) and work-related attitudes, as well as the moderating influence of work organization (another aspect of context), was examined. Several interesting outcomes were found when examining the impact of work group demography along with work organization on work-related attitudes.

First of all, work group demography added to the explanation of the variance in organizational commitment and job satisfaction beyond simple demographic measures. With respect to organizational commitment, the more dissimilar an individual was from their work group in terms of race, the lower their reported organizational commitment. In turn, the more heterogeneous the work group in terms of race, the higher the reported organizational commitment. These results were found controlling for race and other demographic characteristics. Interestingly, the race variable itself was not

statistically significant. These results indicate that individuals who are more racially different from other group members express more detachment from the organization. Whereas individuals in racially mixed groups tend to report higher levels of organizational commitment. Moderator analysis found that this racial demography effect was more robust for employees operating in the team-based work organization.

In terms of job satisfaction, the impact of work group demography showed that the more dissimilar an individual was in terms of sex from their work group, the lower the reported job satisfaction. Moreover, the more heterogeneous the work group in terms of sex, the more positive were the reported levels of job satisfaction. The results of the moderator analysis confirmed the relevance of work organization. The findings indicate that being different from one's work group in terms of sex has a more negative impact on the job satisfaction reported by individuals working in teams. In addition, there appeared to be a team specific impact associated with sex heterogeneity. Apparently, job satisfaction is generally higher for those individuals working in both sexually-mixed and team-based work groups. Interestingly, employees tended to report lower job satisfaction if they worked in a seniority-mixed group under the traditional work system. In sum, demographic differences emerged as a more important predictor of work-related attitudes for workers in a team-based work context compared to those working in a traditional work context.

The third and final line of investigation involved considering work group climate as a potential mediator of the relationship between context and both individual and group-level outcomes. There were three major findings arising from this examination. First, work group climate, based on the aggregation of individual perceptions of group climate, was essentially found to be useful as a predictor of work-related attitudes.

However, it appeared that work group climate had a much stronger relationship with job satisfaction than with organizational commitment.

Second, at the group-level of analysis, contextual variables explained a significant amount of the variance in all of the work group climate dimensions, except supervisor support. With respect to the other climate dimensions, the results for both weak and strong views of agreement were fairly consistent. For example, work groups operating under the team-based system tended to have a work group climate characterized by low conflict, as well as high intragroup coordination, intergroup cooperation, and participation. Work groups with higher seniority heterogeneity tended to have a more negative group climate, while groups with higher sex heterogeneity had a propensity for a more positive work group climate.

Technology also appeared to be a factor in predicting work group climate. To a degree, the results showed that the more complex the group's task, the more negative the work group climate. This was particularly true for intergroup cooperation climate. Perhaps groups working on fairly complex types of work become more egocentric and exert fewer resources in establishing and maintaining linkages across groups. Thus, any cross-group interactions may be viewed as an imposition or additional burden on groups performing relatively complex tasks. Meanwhile, it was found that the greater the intergroup interdependence, the lower the level of conflict climate and the higher the intragroup coordination climate. Conceivably, as the technology drives work groups to interact with other work groups, the distinction of being in "a group" becomes more salient. As the group becomes a salient entity, a process of social-categorization may lead the group to be more cohesive (Forsyth, 1990, p. 395).

Third, there was strong support for work group climate as a complete mediator of the relationship between context and organizational commitment, while there was limited support for work group climate as a partial mediator of the relationship between context and job satisfaction. This provides some support to the notion that context does impact organizational commitment, but the effect is mediated through climate. With respect to job satisfaction, both context and climate appear to have independent effects.

Finally, work group climate did not appear to mediate the relationship between context and both group-level extra-role behavior and performance. Additional analyses indicated that work groups with higher seniority heterogeneity were associated with both lower extra-role behavior and group performance. There was some evidence supporting a positive relationship between work organization and both group-level outcomes. In essence, work groups within the team system tended to be rated more positively by different management levels. Technology (i.e., task complexity and intergroup interdependence) tended to have a negative relationship with extra-role behavior. Lastly, there was some evidence supporting a positive relationship between intragroup coordination climate and work group performance.

Limitations of This Study

This study is not without limitations. First, while the demographic composition of the respondents was fairly representative of the entire plant population, still just half of the plant population completed surveys. It is unclear why individuals did not volunteer to complete a questionnaire. Some of the nonrespondents may not have participated because they felt uncomfortable or intimidated by the survey due to literacy problems. Others may have been unavailable during the time-period of survey

administration because of sick leave or vacation. Further, some of the nonrespondents may not have been aware of the opportunity to participate, even though the administration of the survey was communicated throughout the plant in advance. Finally, since participation in the survey was voluntary, this study cannot discount the possibility of a selection effect driving the results. For example, those who did respond to the survey (i.e., volunteer to participate) may be individuals that tend to have a unique set of views regarding various aspects of the employment relationship compared to the nonrespondents. Thus, the results must be interpreted with this caveat.

Another limitation arising from the modest overall response rate is the constraint that this places on group-level analyses. This is particularly important in the part of this study where the investigation involves the calculation of a group-level index, such as work group climate. Recall that a 50 percent rule (i.e., groups were retained for the calculation of the group climate index if responses were available from at least half the group members) was utilized in this study. It is assumed here that the group members that did respond to the survey provided fairly representative answers to the climate questions. On the other hand, there is no way of ascertaining whether those group members that responded to the survey differed dramatically in their perceptions of group climate from the nonrespondents within respective work groups.

A third limitation concerns the lack of controls regarding the internal mobility of workers. It is not known to what degree individuals chose a particular context or whether individuals find themselves embedded in a context. For example, workers can attempt to access positions within either the team-based work system or the traditional work system. In other words, it is uncertain whether or not the outcomes associated with work organization are a result of a "work organization effect" or a "selection effect."

Individuals that self-select to work in the team-based system may already have a particular set of perceptions and attitudes. Similarly, those that self-select to work in the traditional system may already have a set of attitudes. However, management and union representatives at the plant asserted that the major reason people move between, as well as within, team and traditional work organizations is to secure a more desirable shift. They did not feel that there was a significant amount of movement associated with a desire to avoid working in a team or traditional system. Nonetheless, the validity of these results must be viewed with caution because of uncontrolled selection effects.

Fourth, the direction of causality of the relationships found in this study cannot be unambiguously ascertained. The study was cross-sectional and was unable to account for temporal precedence. However, theory guided the hypotheses about causal relationships and when applicable, theory guided the order of variable entry for analysis. Still, any causal implications arising from this study must be viewed with caution. A study which would have allowed for a compelling examination of causality would have involved a longitudinal design which measured antecedents prior to consequences.

Another important limitation of this study arises from consideration of common method variance as an alternative explanation for some of these results. For example, the individual-level dependent variables (i.e., organizational commitment and job satisfaction) and several of the independent variables were assessed through self-reports, and in some cases, with similar response formats. Therefore, it is unclear whether the relationship between the dependent variables and the independent variables, for some of the analysis in this dissertation, is attributable to a true relationship or because of bias resulting from assessing variables from the same sources (Podsakoff & Organ, 1986; Williams & Brown, 1994).

Finally, as was acknowledged earlier in this dissertation, the generalizability of the findings from this single plant study must be viewed with caution. In assessing the generalizability of this study, on the one hand the research site is somewhat unique. The plant not only has a well regarded history of employee involvement and union-management cooperation, it is also recognized as a leading edge manufacturer regarding the use of teams on the shop-floor. At the same time, however, it is worth noting that at this cutting edge location, there is both considerable variation in context within the plant and evidence of strong contextual influences on both work-related attitudes and group effectiveness. Perhaps these findings can be generalized beyond this location, since many other manufacturers are experiencing similar contextual changes.

Implications for Research and Theory

This dissertation offers several contributions to research and theory, as well as stimulating further research recommendations. For example, seniority, which is an important industrial relations concept, has not received much research attention from behavioral scientists. This research reaffirmed the importance of seniority from a competitive seniority status perspective. In order to better understand the role of seniority, it should be viewed in context. Thus, the relationship between seniority and work-related attitudes depends on the ways in which differences in seniority are manifest. When those differences result in more attractive job-related experiences, then seniority will be found to have a strong relationship with job satisfaction. Given this perspective, it is less surprising to find that seniority has a more positive influence on work-related attitudes for individuals in traditional work systems. The day-to-day

benefits of seniority are not salient for individuals working in a team-based system.

This competitive status framework also explains the findings associated with seniority heterogeneity. The results indicated that seniority heterogeneity has a negative impact on job satisfaction for individuals working in a traditional system compared with those working under a team arrangement. Seniority under a traditional system is more likely to be associated with high seniority individuals working on a preferred set of tasks and low seniority individuals assigned a less attractive set of tasks. In work groups where seniority is more heterogeneous, tensions and feelings of inequity surrounding job and other seniority-based preferences may become more conspicuous. As a result, seniority becomes an obstacle to effective group process. Further support for this perspective is based on the negative, but not always statistically significant, relationship between seniority heterogeneity and the various dimensions of work group climate. Interestingly, this study also found that seniority heterogeneity is associated with lower group-level extra-role behavior and performance. Thus, seniority heterogeneity effects are not confined to individual employee attitudes.

Hopefully, this study will stimulate additional research on seniority. First, researchers need to explore the generalizability of these findings regarding seniority to other manufacturers. Likewise, it would be interesting to examine seniority effects in other sectors of the economy, particularly as other sectors of the economy embrace more team-based forms of work organization.

Another contribution from this dissertation involves the findings which challenge theories of union participation based implicitly on assumptions about the adversarial nature of the union-management relationship. These results support a view that participation in union activities is not necessarily associated with more negative work-

related attitudes. On the contrary, the context of union-management relations may be a key driver which dictates how employees come to understand the employment relationship. In this study, the tone of union-management relations was based on the researcher's interpretation of qualitative data. Additional research needs to be conducted to assess the generalizability of this finding. For example, a more thorough study involving multiple organizations which assesses the quality of union-management relations, the degree of union participation, and work-related attitudes within each organization would provide a much stronger test of this assertion.

This research provides micro-level empirical support to those scholars who have suggested that first generation work organization innovations (i.e., employee involvement) are a useful starting point to participation in second generation innovations, such as teams. The results imply that exposing individuals to either employee involvement or to teams is not sufficient for creating a high commitment workforce. On the contrary, it is the combination of experiences which is pivotal. While this research could not address issues of causality, future research should investigate this evolutionary perspective, particularly as organizations gradually embrace various forms of worker participation and teams.

Contributions to the diversity literature, as well as suggestions for future demography research, were advanced by this study. First, the results of this study show that diversity needs to be more broadly conceived than in just racial or gender terms. Diversity in terms of seniority was found to be a particularly important factor in this analysis. It may be informative for future research to consider other attributes which are associated with an individual's work-relevant background. For example, work groups composed of members that had diverse backgrounds in terms of union

participation, participation in an employee involvement program, or training experiences would not share common experiences which may reduce intragroup relations.

Consistent with prior research, these findings indicated that the more dissimilar individuals were from the other members of their work group in terms of sex and race, the less positive were the reported work-related attitudes. Interestingly, individuals (controlling for their own individual dissimilarity) working in sexually heterogeneous groups tended to report more positive work-related attitudes. Thus, the results for sex heterogeneity appear to confirm the contact hypothesis. Alternatively, sexual tension or awareness associated with mixed-sex groups may provide an explanation. Recently, there has been some discussion indicating that sexual energy arising from mixed-sex groups leads to improved group performance as group members try to impress and help one another (Fisher, 1994). Future research should explore and test the efficacy of the contact perspective versus sexual tension view.

These results also address concerns about the interface between diversity and the adoption of teams. First, work organization moderates the relationship between demography and work-related attitudes. More importantly, dissimilarity appears to be more devastating in terms of work-related attitudes for individuals in teams versus traditional work systems. Evidently, the interactions arising from the work system intensify individual feelings and experiences of isolation. On the other hand, increased race heterogeneity appears to have a positive relationship with work-related attitudes under the team system. Team-based work may provide a context for structured contact between diverse individuals in which cooperation and interaction are necessary for success. Traditional work systems do not formally provide for such structured contact. Future research needs to investigate the validity of this finding in other contexts.

Finally, this study attempted an exploratory examination of the efficacy of work group climate as a mediator of the relationship between context and both individual and group-level outcomes. Though the results were somewhat mixed, they do provide a point of departure for further investigation within the climate paradigm. Several compelling research areas are briefly discussed below.

The findings which link context and work group climate are intriguing. The results indicated that, while there were common relationships across several context variable and all of the work group climate dimensions, there were several context variables that had unique relationships with specific climate dimensions. Moreover, no relationship was found between context and climate for some of the context variables which had been theoretically coupled with climate. As Mowday & Sutton (1993) argue, "discovering that contextual variables are present but don't appear to be influential is often as important from a research perspective as confirming their power" (p. 209). For example, most of the research to date has assumed that there is a relationship between heterogeneity and conflict. In other words, it has been assumed that conflict is an underlying process associated with heterogeneity (Jackson et al., 1991; Sessa, 1993). These results imply that there is no significant relationship between the different types of heterogeneity and group conflict climate. On the other hand, some of the evidence suggest that sex heterogeneity is related to more positive work group participation climate, whereas seniority heterogeneity has the opposite relationship. In sum, future research needs to more fully articulate the linkages among context and climate. In addition, consideration of other aspects of context not assessed in this study, as well as other dimensions of work group climate would add to understanding.

The perspective taken in this study has focused on linking context to work group climate, where work group climate is the mean level of climate for a work group which has been shown to share or have consensus around perceptions of group climate. Alternatively, it may be informative to consider what would be the factors leading to either work group consensus or lack of consensus regarding the various dimensions of work group climate. In what way does context contribute to levels of shared understanding among group members? Perhaps, it would be useful to use the climate indices as dependent variables in an effort to understand this phenomenon.

This study confronted three major challenges when attempting to utilize work group climate in a mixed-level analysis. First, climate researchers have not shown consensus regarding what level of agreement is necessary for aggregation of individual perceptions. This study adopted a "weak" and "strong" view of agreement and illustrated the outcomes for both perspectives. The differences in outcomes were modest. However, it must be recognized that both of these assumptions were somewhat liberal. A more conservative approach, using a higher index value as the rule for exclusion, would have dramatically reduced the sample size available for analysis. Therefore, these results may not provide a pure assessment of the potential role of work group climate.

Another, related, challenge involved constraints associated with characteristics of the research location. In particular, the size of work groups was relatively small. This issue is particularly troublesome when the interest is in group consensus, because agreement tends to be attenuated with fewer raters (Kozlowski & Hattrup, 1992). In addition, relatively low response rates further constrained the number of work groups available for analysis. It may be possible to consider aggregation of group climate to

the higher department level. However, clear theoretical linkages must be established between this higher level of aggregation and its relationship to antecedents and outcomes. In sum, future research attempting to investigate the mediating role of work group climate must be cognizant of the need to not only have a large number of groups, but, perhaps more importantly, that the work groups must be sufficiently large and that response rates are fairly high.

A third challenge involved the utilization of an appropriate analytical technique to assess the cross-level effects of group-level climate on individual-level work-related attitudes. Contextual analysis was used to assess the unique impact of group-level climate after controlling for individual-level climate perceptions. For the purposes of this study, this approach was sufficient. However, whenever individuals are nested within groups, departments or organizations, and the outcomes of interest are at the individual-level, concerns regarding mis-estimated standard errors are tenable (Bryk & Raudenbush, 1992). Future studies of context and climate, particularly when the interest is in cross-level effects, should consider the use of hierarchical linear models as an analytical technique (Bryk & Raudenbush, 1992).

In conclusion, this study has attempted to advance a better understanding of work groups and the individual employees embedded within work groups. This study explicitly recognized that individuals and work groups are nested in multi-faceted contexts. In other words, individuals and groups are embedded in more than one aspect of context. The key contribution centers on the findings which indicate that various facets of context should not be treated as isolated and sterile, but rather the facets of context have an interactive quality which enhances understanding of individual and group-level outcomes. This was particularly true in the analysis that considered the

relationship between individual worker attitudes and both work organization and group demography contextual facets.

More importantly, perhaps, this dissertation challenges many pervasive notions of organizations and the employees that populate them. Some of the results were provocative, in particular, the implications associated with union participation, seniority, and workgroup diversity. It is only after explicit recognition of contextual effects that the nature of the relationship between these factors and work-related attitudes becomes more clear. In many ways, the results indicate that if individuals are placed in a particular context it will likely lead to certain reactions and outcomes, change the parameters or context and you may change the reaction and outcome. This suggests that organizations (both management and union) should not adopt a laissez faire attitude when considering the efficacy of interventions to improve organizational life. Indeed, they need to anticipate the potential points of leverage at their disposal which can be a support or barrier to enhancing attitudes and behaviors at the workplace.

Implications for Practice

This study offers several implications for practitioners. The first implication concerns the implementation and development of employee participation programs. Managers cannot expect participation programs alone to have a positive impact on work-related attitudes. In order for employee attitudes to be positively impacted by participation programs, the programs must be viewed by the participants as effective. If the participation plan is viewed as ineffective, then participants' work-related attitudes will be more negative than those who do not participate. Managers who are considering implementing some type of employee participation plan need to consider if and how

employee needs and expectations will be met by the plan. In addition, managers and union leaders need to think of employee participation from a long-term perspective. The results from this dissertation indicate that workers who have at some point participated in EI and currently work in a team system report higher levels of commitment. It appears that an organization interested in forging a commitment strategy would move towards some type of team-base work organization as an extension of a participation plan.

A second implication involves a reconsideration of union participation. The results in this study imply that union participation is associated with more positive work-related attitudes, after accounting for the tone of labor-management relations. Participation in the union is one of many ways in which workers access information and come to understand the employment relationship. A consideration of the quality of labor-management relations appears to be a more critical focus. This is particularly important as greater interest in labor-management cooperation is being explored.

The results regarding seniority are revealing. At one level, these results suggest that practitioners may need to pay more attention to addressing the concerns of high seniority employees as the firm embarks on changes in work organization. At another level, manufacturers must be aware of changes in workforce demography. In particular, firms that face the impending retirement of large cohorts of older workers and the entrance of large cohorts of new employees must be cognizant of the seniority-related implications. In a traditional work system, according to the results in this study, seniority heterogeneity may lead to job dissatisfaction, whereas under a team-based work system, seniority heterogeneity does not have a negative impact on work-related attitudes.

Practitioners interested in workplace diversity may find the results of this study informative. On balance, efforts to promote diversity in traditional work systems would appear to be at odds with the structure of the system. Traditional work systems focus on individual jobs and hierarchical control and do not require formal interaction among workers. On the other hand, team-based work systems rely on formal interactions among workers, where commitment, voluntary behavior, continuous improvement and effective group process become critical for success. Individual workers experiencing tokenism may feel even more estranged under a team system because the intensified interaction required among members accentuates token status. However, increased diversity, in the sense that the work group becomes more heterogeneous, becomes a point of instrumentality as cooperation and eclectic input become key for continuous improvement, effective group process, and group success. In short, team-based work systems may be one important element in an overall organizational strategy to manage diversity.

Lastly, this study offers broad implications for the larger employment relations system. In a sense, this study presented a window into the attitudes and behaviors of people in a work system that is on the edge of change. Within one location, there has been an opportunity to view the transition from a traditional or mass production orientation, to a team-based or high performance work system. Other research in union and nonunion settings, in the manufacturing and nonmanufacturing sectors, would complement these efforts to better understand the contextual changes occurring within organizations, to work groups, and to workers.

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