

JUSTICE IN TEAMS: ANTECEDENTS AND CONSEQUENCES OF PROCEDURAL JUSTICE CLIMATE

JASON A. COLQUITT
Department of Management
University of Florida

RAYMOND A. NOE
Department of Management and Human Resources
The Ohio State University

CHRISTINE L. JACKSON
Department of Management
University of Florida

This study examined antecedents and consequences of procedural justice climate (Mossholder, Bennett, & Martin, 1998; Naumann & Bennett, 2000) in a sample of manufacturing teams. The results showed that climate level (i.e., the average procedural justice perception within the team) was significantly related to both team performance and team absenteeism. Moreover, the effects of climate level were moderated by climate strength, such that the relationships were more beneficial in stronger climates. In addition, team size and team collectivism were significant antecedents of climate level, and team size and team demographic diversity predicted climate strength.

Recent years have signaled an increased interest in the study of procedural justice, defined as the fairness of decision-making procedures (Cropanzano, Byrne, Bobocel, & Rupp, 2001; Cropanzano & Greenberg, 1997). Much of this work has focused on fostering perceptions of procedural justice, usually accomplished by providing employees input into decisions (i.e., process control) or by adhering to several rules of fair treatment such as consistency, bias suppression, accuracy, and correctability (Leventhal, 1980; Leventhal, Karuza, & Fry, 1980; Thibaut & Walker, 1975). Other work has focused on relationships between procedural justice and important organizational outcomes. For example, procedural justice has been linked meta-analytically to job satisfaction, organizational commitment, citizenship behavior, and job performance (Colquitt, Conlon, Wesson, Porter, & Ng, 2001).

Despite its increasing breadth, the procedural justice literature has one important limitation. With few exceptions, all of the studies have oc-

Correspondence and requests for reprints should be addressed to Jason A. Colquitt, Warrington College of Business Administration, Department of Management, 201 Stuzin Hall, PO Box 117165, University of Florida, Gainesville, FL 32611; colquitt@ufl.edu.

curred in individual work contexts, despite the fact that more and more individuals work in team-based structures (Cropanzano & Schminke, 2001; Konovsky, 2000). Teams are defined here as a collection of employees who are interdependent in their tasks, who share responsibility for team level outcomes, and who see themselves and are seen by others as a social entity (Cohen & Bailey, 1997; Guzzo & Dickson, 1996; Hackman, 1987; Sundstrom, DeMeuse, & Futrell, 1990). The use of teams has risen throughout the past two decades, partly as a means of reorganizing work in response to increased foreign competition, renewed interest in the quality of work life, and changing task requirements and technologies (e.g., Cohen & Bailey, 1997).

The failure to consider team contexts represents an important gap in the justice literature, for several reasons. For example, a recent review suggests that justice effects may vary according to decision contexts, as employees compare their treatment to context-specific expectations (Ambrose & Kulik, 2001). It is therefore an empirical question whether results from individual decision contexts will generalize to team settings. Moreover, teams introduce the potential for social comparisons, a phenomenon only recently examined with respect to procedural justice (Ambrose, Harland, & Kulik, 1991; Ambrose & Kulik, 1989; Grienberger, Rutte, & van Knippenberg, 1997; Lind, Kray, & Thompson, 1998). Finally, the practical utility of procedural justice in teams is unknown, because it has never been linked to team effectiveness.

The purpose of the present study was to examine the relationship between team level procedural justice and team effectiveness, operationalized in terms of team performance and absenteeism. In examining this relationship, we draw on recent examinations of *procedural justice climate*, defined as a distinct team level cognition regarding how fairly the team as a whole is treated procedurally (Naumann & Bennett, 2000; see also Mossholder et al., 1998). As with any form of climate, procedural justice climate can be described as having both a "level" (i.e., a group mean) and a "strength" (i.e., a within-group variance; Chan, 1998; Lindell & Brandt, 2000). We propose that procedural justice climate level and strength will have both direct and interactive relationships with team effectiveness. This study also examines antecedents of the two climate variables. Specifically, we propose that team size, team demographic diversity, and team collectivism will be significantly related to both climate level and strength. These predictions are summarized in Figure 1.

Procedural Justice at the Team Level

As noted above, the vast majority of procedural justice research has occurred in individual contexts at the individual level of analysis (Cropanzano & Schminke, 2001; Konovsky, 2000). Mossholder et al.,

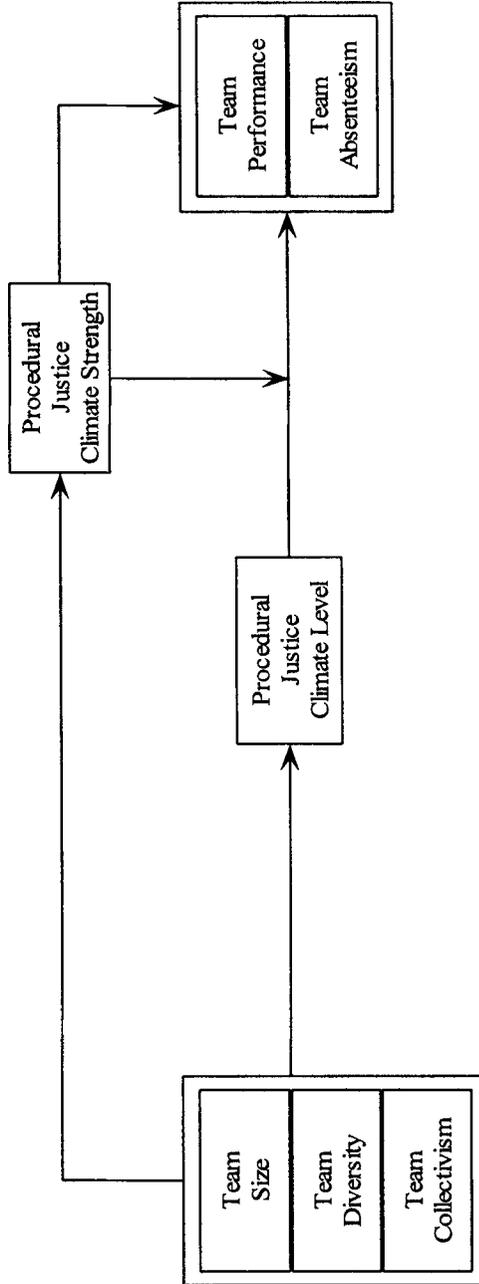


Figure 1: Summary of Study Predictions

(1998) were among the first to examine procedural justice at a higher level, in their investigation of "procedural justice context." The authors reviewed research linking justice perceptions to contextual factors such as norms and work environments. They also reviewed research suggesting that individuals' justice perceptions rely in part on others' views of fairness. These lines of reasoning suggest that members of the same unit will, over time, arrive at similar justice judgments. Using a sample of bank branches, Mossholder et al., (1998) showed that justice context explained variance in individual level commitment and satisfaction, even after controlling for individual level procedural justice perceptions.

Naumann and Bennett (2000) continued the examination of procedural justice at higher levels of analysis. Drawing from the larger literature on organizational climate, the authors proposed that justice climates can arise from (a) mere exposure to the same policies or leaders; (b) shared meanings resulting from social construction; and (c) attraction, selection, and attrition of group members over time (Schneider & Reichers, 1983). Such processes may create climates at the team level, the department level, or the organizational level (Powell & Butterfield, 1978; Schneider & Reichers, 1983). Like Mossholder et al., (1998), Naumann and Bennett (2000) examined procedural justice climates in bank branches. They found that procedural justice climate explained incremental variance in individual level helping behaviors, even after controlling for individual level procedural justice perceptions.

Besides examining individual level consequences of procedural justice climate, Naumann and Bennett (2000) explored when climate perceptions exhibited the most within-branch agreement. Their results suggested that more visible supervisors acted as "climate engineers," reducing variation in climate perceptions. The authors' focus on within-branch climate agreement is consistent with recent work by Lindell and Brandt (2000), who suggest that all forms of climate have both a level (or "quality") and a strength (or "consensus"). Climate level is captured by the favorability of the group mean (i.e., whether the group's average procedural justice rating is high or low). Climate strength is captured by the within-group variance (i.e., whether group member justice ratings converge). Lindell and Brandt (2000), in a sample of emergency planning committees, proposed that climate strength would moderate the effects of climate level, with level having stronger effects at higher levels of strength. Their results failed to reveal strong direct or moderating effects for climate strength.

Although the studies by Mossholder et al., (1998) and Naumann and Bennett (2000) provide support for the further examination of procedural justice climate, four critical research questions remain unexplored. First, can procedural justice climate level be used to predict team level

(rather than individual level) outcomes such as team performance or absenteeism? Second, does procedural justice climate strength have direct effects on team level outcomes, over and above climate level? Third, does climate strength act as a moderator of climate level effects, as suggested by Lindell and Brandt (2000)? Fourth, what team characteristics can be leveraged to improve justice climate? The present study attempts to answer these four questions.

Procedural Justice Climate Level and Team Effectiveness

Lindell and Brandt (2000) defined climate level (or quality) as “the proximity of the group mean to the positive endpoint of the response scale” (p. 333). In the present study, climate level consisted of the favorability of the team’s ratings of procedural justice. Teams with a higher climate level believed their procedures to be more fair than teams with a lower climate level. What effects will such a climate have on team outcomes such as performance and absenteeism? Predictions can be derived from two different theories of organizational justice: the instrumental model and the relational model.

The instrumental model posits that procedural justice is valued because it signifies that long-term outcomes are protected due to the existence of a “level playing field” (Lind & Tyler, 1988; Thibaut & Walker, 1975). Lind and Tyler (1988) suggested that “procedural justice judgments should have strong effects on group cohesiveness and loyalty, because fair procedures will reassure members that their interests will be protected and advanced through group membership” (p. 227). To the extent that members believe the team will advance their interests, they should be more likely to fulfill their individual role requirements, improving both performance and absenteeism.

The relational model posits that procedural justice is important because it signifies that people are valued by their authority figures and the collectives to which they belong (Lind & Tyler, 1988; Tyler & Lind, 1992). In the relational view, procedural justice is one of the key determinants of individuals’ perceptions of authority legitimacy, and their willingness to comply with the rules and decisions of the collective (Tyler, DeGoej, & Smith, 1996; Tyler & Lind, 1992). This model would also suggest a linkage between procedural justice and performance and absenteeism. If members see the team’s leadership as legitimate and seek to comply with team rules and decisions, they should remain more attached to the team and exert more effort to benefit it.

Although the relationship between team level procedural justice, performance, and absenteeism has never been examined, some individual level results from team settings can provide indirect support. In a

laboratory study, Colquitt (2000) found a positive relationship between team member procedural justice perceptions and team member role performance. Other research has linked procedural justice to commitment to the team in both laboratory and field settings (Colquitt, 2001; Korsgaard, Schweiger, & Sapienza, 1995). We therefore hypothesize:

Hypothesis 1: Procedural justice climate level will be positively related to team performance and negatively related to team absenteeism.

Procedural Justice Climate Strength and Team Effectiveness

Lindell and Brandt (2000) defined climate strength (or consensus) as the dispersion of respondents' climate ratings. In the present study, climate strength consisted of the (lack of) variation in the team members' ratings of procedural justice. Teams with higher climate strength agreed more completely on the favorability (or unfavorability) of procedural justice within the team. Although Lindell and Brandt (2000) failed to demonstrate consistent direct or interactive effects of climate strength, there are several reasons to expect strength to be particularly important for justice climates.

Low justice climate strength is indicative of variations in procedural treatment within the team. Such variation could occur for a variety of reasons. Team leaders might provide more process control to some members than to others. Alternatively, differences in team roles may provide some members more of an opportunity for voice. Biases or conflicts within the team may create circumstances where some members are treated less neutrally than others, or some members are more able to successfully appeal decisions. Even formalized procedures may benefit some members more than others. For example, procedures that reward seniority may benefit older members more than younger members.

Any within-team variation in procedural justice is itself a violation of Leventhal's (1980) consistency rule for justice. Recent research supports the detrimental effects of procedural justice variation in team settings. A study by Colquitt (2000) grouped participants into teams led by a confederate. The confederate manipulated team members' procedural justice by scripting the amount of control members had in the team's decisions. In some teams control was uniformly high or low; in other teams control varied within the team. His results showed that inconsistency in procedural treatment resulted in lower levels of cooperation and performance, even for members who received more control than their teammates (see also Grienberger et al., 1997). Such results suggest that, when holding climate level constant, climate strength should have beneficial effects on team outcomes. We therefore hypothesize:

Hypothesis 2: Controlling for climate level, procedural justice climate strength will be positively related to team performance and negatively related to team absenteeism.

Interactive Effects of Climate Level and Strength

Chan (1998) and Lindell and Brandt (2000) both speculated that climate level should have stronger relationships with outcome variables when climate strength is high than when climate strength is low. Although intuitively appealing, Lindell and Brandt (2000) found little empirical support for this notion. However, there is one theory within the organizational justice literature that does support such a prediction. Fairness heuristic theory seeks to explain how and why individuals form and act on justice judgments (Lind, 2001; Van den Bos, 2001; Van den Bos, Lind, & Wilke, 2001). The theory suggests that individuals are faced with several daily decisions regarding whether to cooperate with others or act in their own self interest. Lacking concrete data on how trustworthy other parties are, individuals rely on justice judgments to decide whether to cooperate (Van den Bos, Wilke, & Lind, 1998).

In a recent discussion of the theory, Lind (2001) suggests that justice judgments are formed quickly, during the initial interaction with the party in question (see also Van den Bos et al., 2001). Lind (2001) refers to this process as the “judgmental phase,” and it relies on an examination of justice-relevant information (e.g., process control, consistency, bias suppression). Once a judgment has been formed, the individual enters the “use phase,” in which the judgment is used as a heuristic for deciding between responses indicative of cooperation versus self-interest (Lind, 2001). The use phase is responsible for the instrumental and relational model effects reviewed above, as individuals with positive justice heuristics exhibit attitudes and behaviors that are in the best interest of the collectives to which they belong.

Lind (2001) further suggests that individuals will minimize the extent to which initial justice heuristics are revised, because such re-examinations consume valuable cognitive resources. Thus the use phase continues for fairly long periods, accounting for the strong relationships between justice judgments and many attitudinal and behavioral outcomes (Colquitt et al., 2001). However, if an individual encounters justice-relevant information much better or worse than his or her heuristic, a “phase shifting event” ends the use phase, prompting the individual to re-enter the judgmental phase.

Fairness heuristic theory suggests that relationships between justice judgments and outcome variables will be stronger as the use phase is prolonged, because this is when justice heuristics guide attitudes and behav-

iors. As phase shifting events occur more frequently, justice-outcome relationships should become weaker. One could argue that low climate strength is an important cause of such phase shifting events. In weak climates, individuals will continually communicate with others who hold higher or lower justice judgments, triggering new iterations of the judgmental phase. During that time, justice-outcome relationships will be less significant. In strong climates, however, phase shifting communications will not occur, and the use phase will go on uninterrupted. We therefore hypothesize:

Hypothesis 3: Procedural justice climate strength will moderate the relationships between climate level and both team performance and team absenteeism. Specifically, the relationships with climate level will be stronger when climate strength is high than when climate strength is low.

Antecedents of Procedural Justice Climate

The hypotheses listed above seek to link procedural justice climate to team performance and absenteeism. If supported, it becomes important to discover what team characteristics can be leveraged to create beneficial justice climates. Thus the present study also examined the links between procedural justice climate and three commonly examined team characteristics: size, demographic diversity, and collectivism. Leventhal's (1980) justice criteria provided the theoretical foundation linking team characteristics to climate level, while general systems theory (Miller, 1978; Von Bertalanffy, 1968, 1972) was used to derive predictions for climate strength.

Antecedents of Climate Level

"Proactive" justice research seeks to find ways of fostering fairness perceptions (Greenberg, 1987; Greenberg & Wiethoff, 2001). The most common theoretical foundation for such research is Leventhal's (1980) writings on justice criteria, which list consistency, accuracy, bias suppression, representativeness, correctability, and ethicality as key drivers of fairness perceptions (see also Leventhal et al., 1980). The current study relied on Leventhal's (1980) work to link size, demographic diversity, and collectivism to procedural justice climate level.

Team size. Team size has long been a variable of interest in teams research (Bettenhausen, 1991; Cohen & Bailey, 1997). Hare (1981) reviewed existing research on team size conducted since 1898. One consistent theme is that larger teams are marked by less average participation by individual members (Hare, 1981). Solomon (1960) compared

participation rates in 3-person groups and 10-person groups. His results showed that the least active member in a 3-person group was over twice as active as the least active member in a 10-person group.

Less average participation by team members should harm Leventhal's (1980) representativeness criteria, which requires that procedures consider the views of all interested parties. Members who fail to participate will be less likely to voice their views, reducing representativeness. Such members may also be less likely to appeal decisions or seek out information on the procedure, harming perceptions of correctability and bias suppression (Leventhal, 1980). The effects of team size on member participation therefore suggest a negative relationship between size and procedural justice climate level. We hypothesize:

Hypothesis 4: Team size will be negatively related to procedural justice climate level.

Team demographic diversity. The past decade has seen a renewed interest in diversity in teams due to the changing nature of today's labor market. Projections suggest that as many as three-quarters of the new entrants into the workforce over the next decade will be women and minorities (Williams & O'Reilly, 1998). Employees are also working and living longer, which also increases the age diversity of the workforce (Milliken & Martins, 1996). The result of these trends is that more and more teams are marked by demographic diversity.

Although the outcomes associated with demographic diversity often vary across gender, age, and ethnicity conceptualizations, some common themes have emerged from past research (Milliken & Martins, 1996; Williams & O'Reilly, 1998). For example, demographic diversity—whether gender, age, or ethnicity-related—leads to a variety of communication difficulties (Milliken & Martins, 1996). Specifically, diversity reduces informal communication within the team (O'Reilly, Caldwell, & Barnett, 1989) and is associated with message distortion (Triandis, 1960). As a result, diverse teams often fail to capture the complete set of information possessed by their individual members (Williams & O'Reilly, 1998).

These communication difficulties should result in many of the same effects as team size. Without possessing the full set of information held by his or her subordinates, it is difficult for a supervisor to fulfill Leventhal's (1980) representativeness criterion. It is also difficult to ensure that a procedure is based on a complete set of accurate information. Even apart from these communication difficulties, the supervisor may possess biases in favor of his or her demographic group. Demographic dissimilarity has been shown to encourage subordinates to

withdraw from the relationship (O'Reilly et al., 1989) and can reduce the positive affect felt by the supervisor for the subordinate (Judge & Ferris, 1993). To the extent that actual treatment differences arise, this harms Leventhal's (1980) consistency and bias suppression criteria. We therefore predict:

Hypothesis 5: Team demographic diversity will be negatively related to procedural justice climate level.

Team collectivism. Collectivism is defined here as the degree to which the interests and well-being of the collective take precedent over individual interests (Wagner, 1995). Collectivism is a concept that has received a great deal of attention from researchers in cross-cultural psychology over the past 2 decades. Much of this attention has been spurred by Hofstede's (1980) landmark study, which identified collectivism and its antithesis, individualism, as one of four predominant cultural dimensions.

Although traditionally examined as a characteristic of cultures, collectivism has also been researched as a within-culture individual difference variable. For example, Triandis and colleagues proposed that collectivism could be conceptualized as a psychological dimension that corresponds to the construct at the cultural level (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988; Triandis, Leung, Villareal, & Clack, 1985). Others have continued to study collectivism as an individual, rather than cultural, characteristic (e.g., Earley, 1989; Earley, 1994; Eby & Dobbins, 1997; Moorman & Blakely, 1995; Wagner, 1995; Wagner & Moch, 1986).

Past research has shown that collectivism can influence justice perceptions (Konovsky, 2000; Lind & Earley, 1992; Leung & Lind, 1986). Generally speaking, collectivists tend to prefer procedures that foster harmony and solidarity (Earley & Gibson, 1998). As a result, procedures governing collective teams (i.e., teams with more collective members) should offer higher levels of consistency, bias suppression, and representativeness. Indirect support for this assertion comes from Moorman and Blakely (1995), who found a positive relationship between collectivism and perceptions of procedural fairness. We therefore hypothesize:

Hypothesis 6: Team collectivism will be positively related to procedural justice climate level.

Antecedents of Climate Strength

General systems theory can be defined as a set of principles, assumptions, and propositions that seek to explain the defining characteristics of systems (Miller, 1978; Von Bertalanffy, 1968, 1972). Theorists in this domain define systems as a "set of elements standing in interrelation among

themselves and with the environment” (Von Bertalanffy, 1972, p. 31). Among other things, systems can be defined according to the strength of the linkages among their component parts. Simon (1973) refers to this as “bond strength,” and argues that bond strength is determined by the strength of the interactions among the components of the system.

We suggest that bond strength in human systems, like work teams, manifests itself in perceptual convergence on the part of team members. This proposition was supported by a recent study that found that the greater the social interaction among the members of a group, the less variability in members’ perceptions of the work environment (Klein, Conn, Smith, & Sorra, 2001). Thus the current study relied on the notion of bond strength to link size, demographic diversity, and collectivism to procedural justice climate strength.

Team size. According to Miller (1978), bond strength in human groups is driven by physical factors such as the proximity of system members. The more proximate the system members, the more members interact, and the more member perceptions should converge (Klein et al., 2001; Salancik & Pfeffer, 1978). Miller (1978) argued that members rarely interact with others who are not close to them in physical space. This is consistent with earlier arguments by Simon (1973), who suggested that greater distance between system members reduces bond strength. Larger teams are characterized by both less social interaction among members and more physical distance between members (Hare, 1981). As a result, larger teams should have weaker bond strengths—and thus lower climate strengths—than smaller teams. We predict:

Hypothesis 7: Team size will be negatively related to procedural justice climate strength.

Team demographic diversity. Miller (1978) also suggests that psychological factors drive bond strength. Psychological factors include anything that creates perceived, rather than actual, distances between system members. Demographic diversity is one such factor, as past research has linked diversity with increased psychological distance among team members (Wiersema & Bird, 1993; Williams & O’Reilly, 1998). Thus demographically diverse teams should be marked by weaker bond strengths. Indeed, Klein et al., (2001) noted that demographically diverse team members should be more likely to perceive, interpret, and evaluate their work environment in a different fashion. Harrison, Price, and Bell (1998) showed that demographic diversity leads to “attitudinal diversity,” as diverse members are more likely to develop attitudes which depart from one another. We therefore hypothesize:

Hypothesis 8: Team demographic diversity will be negatively related to procedural justice climate strength.

Team collectivism. As previously noted, Miller (1978) suggests that psychological factors that create perceived distances between members should reduce bond strength. Collectivism is a psychological factor that has been associated with reduced psychological distances among team members (Earley & Gibson, 1998). Collectivists tend to identify with social systems to a greater degree than individualists do. In fact, they are more likely to communicate using pronouns such as “we” rather than “I” (Triandis, 1995). Thus, for collectivists, there is a blurring of the individual–team boundary, which should promote bond strength. We therefore predict:

Hypothesis 9: Team collectivism will be positively related to procedural justice climate strength.

Method

Sample

A total of 1,747 employees working in 88 teams took part in the study. The teams involved worked in six different plants of a leading automobile parts manufacturing firm. Most of the teams were comprised along functional lines, according to whether their primary task centered around production, assembly, engineering, maintenance, service, molding, grinding, packaging, setup, paint, or inspection. The production and assembly teams were also comprised according to type of customer, with different teams serving different automobile clients. Team size averaged 20 members with a mode of 9 members. Team tenure averaged 29 months.

Most taxonomies of work teams would classify the teams in our sample as “semiautonomous work groups.” Banker, Field, Schroeder, and Sinha (1996) proposed a taxonomy of teams ranging from low levels of autonomy to high levels of autonomy. Ordered from low to high autonomy, their classifications included “traditional work groups,” “quality circles,” “high performance work teams,” “semiautonomous work groups,” “self-managing teams,” and “self-designing teams.” Banker et al., (1996) define semiautonomous work groups as follows: “Workers manage and execute major production activities. Other groups perform support activities, such as quality control and maintenance, that are related to but outside the scope of major production activities” (p. 869). The teams in our sample are not self-managing teams because they

depend on their team leader to acquire necessary raw materials and provide quality control goals (though they themselves devise the methods for meeting quality goals). They are not self-designing teams because they do not have the authority to add and remove members.

In terms of task interdependence, each of the teams in our sample possessed at least sequential task interdependence (Thompson, 1967). This type of interdependence characterizes most manufacturing jobs that use assembly line technologies. Many of the teams also possessed reciprocal interdependence, where a network of two-way relationships tie team members together. Reciprocal interdependence represents a higher degree of task interdependence, requiring iterative mutual adjustment to maintain coordination. For example, assembly teams performed a series of iterative tasks, as components of the larger part were first assembled before the components themselves were combined. Each of the component assemblies would most often be accomplished by two or three members working together, then a larger segment of the team would participate in the combining of the components into the final part.

Finally, the teams in our sample possessed high levels of outcome interdependence. Teams as a whole were evaluated based solely on team-level goals corresponding to various metrics of team performance. Team performance on each of the metrics was fed back to the team in the form of monthly "report cards," which were often turned into posters hanging near the team's work areas. Team leaders frequently emphasized that the fulfillment of these metrics had strong implications for the company's profitability. Members also understood that their own raises and promotions would be dependent on the performance of their team. In fact, the company tracks virtually no performance indicators at the individual level.

Procedure

Procedural justice, demographic diversity, and collectivism were collected as part of a survey given to team members during their meetings with their team leader. These leaders were formal supervisors to whom the members reported, they did not directly participate in the team's functioning. Teams met with their leaders with varying frequency, with some plants holding meetings once a week and others holding meetings daily. Data collection occurred during normal hours, insuring that virtually 100% of the team members participated.

Team performance data were supplied by the team leaders and were collected 2 months after the above survey. Team leaders were expected to be accurate judges of team performance because they were responsible for tracking and reacting to performance indicators. Team

performance data were only supplied for 46 teams (a 52% response rate). Almost 40% of the nonrespondents worked in a plant that failed to return any performance surveys. This plant did not differ from the others in terms of contact person commitment, or in terms of management practices or reward systems. Moreover, respondents and nonrespondents did not significantly differ from one another on any independent variable ($t = .55$ for procedural justice climate level, $t = .02$ for procedural justice climate strength, $t = -1.64$ for team size, $t = -.51$ for demographic diversity, $t = -.51$ for collectivism).

Team absenteeism data were supplied by each plant's contact person and covered the 3-month period following the survey administration. Absenteeism data were supplied for 59 teams (a 67% response rate). Respondents and nonrespondents did significantly differ with respect to team size ($t = -2.67, p < .05$). This difference means that absenteeism data were supplied more often for large teams than for small teams. Respondents and nonrespondents did not significantly differ with respect to any other independent variable ($t = .98$ for procedural justice climate level, $t = .28$ for procedural justice climate strength, $t = -1.00$ for diversity, $t = 1.80$ for collectivism).

Measures

Procedural justice climate level. Procedural justice was measured using the 7-item scale validated in Colquitt (2001). This scale assesses both Thibaut and Walker's (1975) and Leventhal's (1980) conceptualizations of procedural justice. The directions referred respondents to the procedures used to arrive at their teams' key outcomes (e.g., pay, promotions, etc.). Items asked to what extent team members were able to express their views and feelings during procedures, influence the outcomes arrived at by procedures, and appeal the outcomes arrived at by procedures. Items also asked to what extent the procedures were applied consistently, were free of bias, were based on accurate information, and upheld ethical and moral standards. (1 = *to a small extent*; 5 = *to a large extent*). The coefficient alpha for this scale was .97. Procedural justice climate level was created by averaging across team member perceptions and using that average as the level value for each team.

Procedural justice climate strength. Procedural justice climate strength was calculated using the coefficient of variation (Allison, 1978), which corrects for the lack of independence between measures of central tendency and measures of dispersion. The climate strength value for each team was created by computing the standard deviation of team members' procedural justice perceptions within each team and dividing that by the team's mean level. That value was then standardized and reversed in sign, so that higher values represented higher levels of strength.

Team performance. Team leaders were asked to rate their team's performance in several categories deemed critical by the organization. These categories are routinely captured on monthly report cards given to the leaders and fed back to the teams. Each report card lists a goal given to the team by the team leader, in consultation with other managers within the plant. The report card then lists the team's current levels of performance alongside that goal. As noted above, these report cards comprised the primary source of evaluation for team members and team leaders, and were often posted near the teams' work areas.

Leaders were instructed to review their team's report cards over the past several months, and rate performance on seven dimensions: (a) productivity (i.e., parts/person hour), (b) timeliness (i.e., daily schedule attainment), (c) safety (i.e., OSHA recordables), (d) order accuracy (i.e., short ships), (e) efficiency (i.e., material and labor scrap), (f) quality (i.e., defective parts/million), (g) overall performance. Leaders were instructed to consider their team's level of performance in relation to its report card goals using this scale: 1 = *has definitely failed to meet its goals* to 7 = *has definitely exceeded its goals*. The coefficient alpha for the seven dimensions of performance was .89.

Team absenteeism. As noted above, absenteeism data were supplied by each plant's contact person and covered the 3-month period following the survey administration. Absenteeism values are interpreted as the team's hours of absence per member over the entire 3-month period.

Team size. Information on team size was taken from team descriptions provided by plant contact persons.

Team demographic diversity. The measure of demographic diversity was adapted from Champion, Medsker, and Higgs's (1993) team heterogeneity measure. Team members were asked to rate the diversity of the team on three dimensions: age, ethnicity, and gender. The diversity index was created by averaging across those three ratings to form a global measure of demographic diversity. This index ranged from 1 to 5, with 5 representing the highest level of demographic diversity and 1 representing the lowest.

Team collectivism. Collectivism was measured using six items taken from Wagner (1995): "Only those who depend on themselves get ahead in life" (R), "If you want something done right, you have to do it yourself" (R), "In the long run the only person you can count on is yourself" (R), "People should realize that if they're part of a team, they will sometimes have to do things they don't want to do," "People who belong to a team should realize that they're not always going to get what they want," and "People in a team should be willing to make sacrifices for the sake of the team's well-being." (1=*strongly disagree*; 5=*strongly agree*). The

coefficient alpha for this scale was .82. Team collectivism was operationalized as the average collectivism of the team members.

Levels of Analysis Issues

Kozlowski and Klein (2000) provide several recommendations for researchers conducting cross level or multilevel research. First, they recommend explicitly declaring the level of theory, which consists of the level of the primary dependent variable. The level of theory in the current study was the team level, and all constructs were posited to reside at the team level of analysis. Kozlowski and Klein (2000) also recommend specifying the processes that link the level of measurement with the level of theory. For example, individual procedural justice perceptions were measured at the individual level but were expected to “emerge” at the team level to form a “shared unit property.”

Shared unit properties are constructs describing characteristics that are shared by a unit, such as procedural justice climate (Kozlowski & Klein, 2000). They originate as individual level cognitions or attitudes which emerge as unit level constructs through processes such as attraction–selection–attrition, social comparison, socialization, or leadership. Chan (1998) and Kozlowski and Klein (2000) present typologies of “composition models” that can be used to specify the nature of the emergence process. Three such models are relevant to the current study: additive models, consensus models, and dispersion models.

In Chan’s (1998) typology, additive composition models posit that the meaning of the unit level construct is an average of the lower level perceptions, regardless of the variance among those perceptions. Following this model, procedural justice climate level would be captured by the average procedural justice perception of the team members, regardless of within-team variability in those perceptions. Consensus composition models also posit that the unit-level construct is an average of the lower-level perceptions, but contain the additional requirement that variation among those perceptions is low. Following this model, justice climate level would still be captured by average member justice perceptions, but would only exist if variability in perceptions was low based on indices of within-group agreement or interrater reliability (James, 1982; James, Demaree, & Wolf, 1984; Shrout & Fleiss, 1979)

Chan (1998) discusses a third composition model relevant to this study: a dispersion composition model. In discussing this model, Chan (1998) writes “instead of treating within-group variance as error variance (which is what consensus models do), within-group variance (i.e., the within-group dispersion of scores) could serve as an operationalization of a focal construct” (p. 239). From this perspective,

TABLE 1
Means, Standard Deviations, and Zero-Order Correlations

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	1	2	3	4	5	6	7
1. Team size	19.74	11.33	88	–						
2. Team diversity	3.19	.55	88	.14	–					
3. Team collectivism	3.6	.28	88	–.46*	–.10	–				
4. Procedural justice climate level	3.29	.42	88	–.39*	.05	.40*	–			
5. Procedural justice climate strength	.00	.3	88	–.28*	–.21*	.21*	.24*	–		
6. Team performance	4.06	.92	46 ^a	–.16	–.13	.10	.39*	.07	–	
7. Team absenteeism	24.18	7.83	59 ^a	.31*	.08	–.36*	–.28*	–.27*	–.11	–

^aBased on listwise deletion of missing data.

* $p < .05$ one-tailed.

procedural justice climate strength would be captured by the variance of the procedural justice perceptions of the team members.

The present study relied on an additive composition model for justice climate level and a dispersion composition model for justice climate strength. An additive model frames procedural justice climate level as a team resource. The more favorable members' justice perceptions are, the more of the resource the team possesses, regardless of whether team members vary in their perceptions. The validity of this model is supported if the group average correlates with key outcome variables (Chan, 1998). A consensus model was not appropriate for this study because within-team variance in justice perceptions was substantively meaningful. Indeed, within-team variance was necessary for testing the climate strength hypotheses, as a lack of variance would indicate a restriction of range in that independent variable.

Results

Descriptive Statistics

The means, standard deviations, and zero-order correlations are shown in Table 1.

Tests of Hypotheses

Hypothesis 1 predicted that procedural justice climate level would be significantly related to team performance and absenteeism. The regression results used to test this hypothesis are shown in Table 2. Climate level was in fact significantly related to team performance ($\beta = .39$, $\Delta R^2 = .15$, $p < .05$) and team absenteeism ($\beta = -.28$, $\Delta R^2 = .08$, $p < .05$). Thus Hypothesis 1 was supported.

TABLE 2
Consequences of Procedural Justice Climate

Step:	Team performance			Team absenteeism		
	β	ΔR^2	R^2	β	ΔR^2	R^2
1 Procedural justice climate level	.39*	.15*	.15*	-.28*	.08*	.08*
2 Procedural justice climate strength	-.09	.01	.16*	-.20	.04	.12*
3 PJC level \times PJC strength	2.15*	.07*	.23*	-1.89*	.06*	.18*

Note: $n = 46$ teams for performance, 59 for absenteeism, based on listwise deletion of missing data. One-tailed for β weights; two-tailed for R^2 values.

* $p < .05$

Hypothesis 2 predicted that, when controlling for climate level, procedural justice climate strength would be significantly related to team performance and absenteeism. As shown in the second step of Table 2, climate strength was not significantly related to either team performance or team absenteeism. Hypothesis 2 was therefore not supported.

Hypothesis 3 predicted that the effects of procedural justice climate level on team performance and team absenteeism would be moderated by climate strength. This hypothesis was tested in the third step of Table 2, which tests the effects of the climate level \times strength product term. The interaction was significant for team performance ($\Delta R^2 = .07$, $p < .05$) and for team absenteeism ($\Delta R^2 = .06$, $p < .05$). The plots of the performance and absenteeism effects are shown in Figure 2, using Cohen and Cohen's (1983) recommendations for plotting interactions. As predicted, climate level was more strongly related to the outcomes in teams with higher climate strength. Thus Hypothesis 3 was supported.

Hypotheses 4–6 predicted that team size, demographic diversity, and collectivism would be significantly related to procedural justice climate level. The regression results used to test these hypotheses are shown in Table 3. Team size was negatively related to climate level ($\beta = -.27$, $p < .05$), while collectivism was positively related to climate level ($\beta = .28$, $p < .05$), supporting Hypotheses 4 and 6. Team diversity was not significantly related to climate level, failing to provide support for Hypothesis 5.

Hypothesis 7–9 predicted that team size, demographic diversity, and collectivism would be significantly related to procedural justice climate strength. The regression results used to test these hypotheses are also shown in Table 3. Team size was negatively related to climate strength ($\beta = -.21$, $p < .05$), as was team diversity ($\beta = -.18$, $p < .05$), supporting Hypotheses 7 and 8. The significant effect for team diversity was primarily attributable to age diversity, which was the only diversity dimension significantly related to climate strength ($r = -.18$, $p < .05$). Team collectivism was not significantly related to climate strength, failing to provide support for Hypothesis 9.

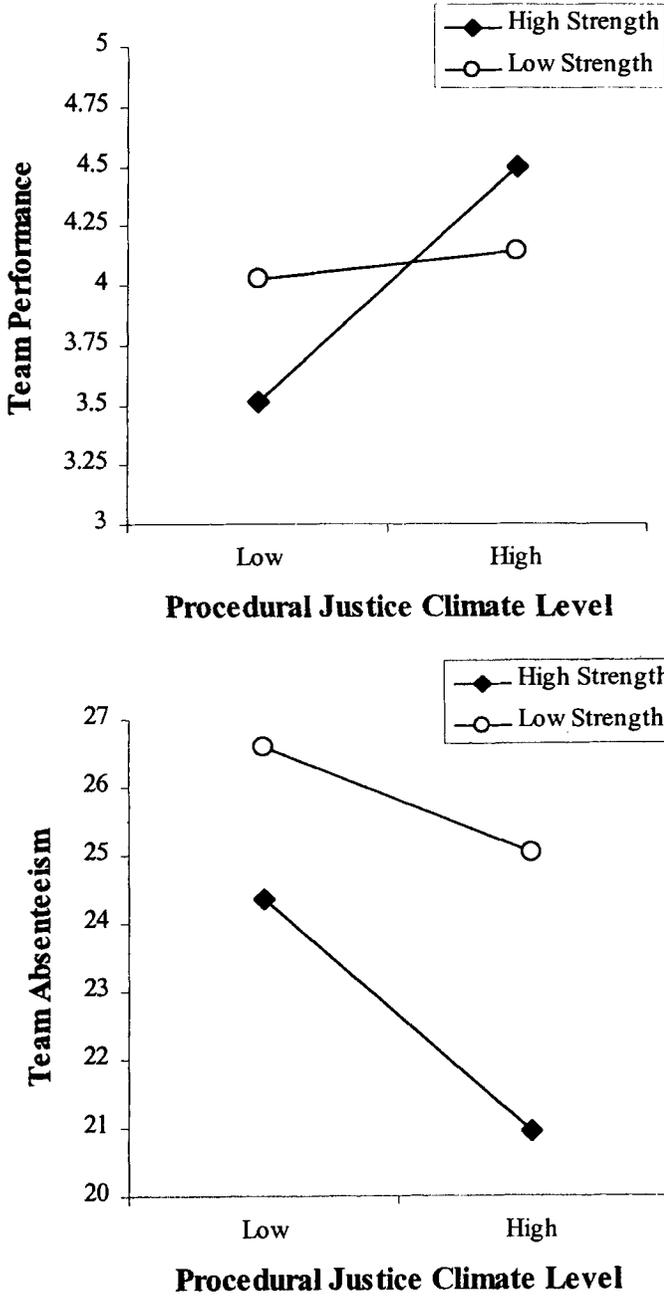


Figure 2: Plots of the Procedural Justice Climate Interactions

TABLE 3
Antecedents of Procedural Justice Climate

Variables:	Procedural justice climate level		Procedural justice climate strength	
	β	R^2	β	R^2
Team size	-.27*	.12*	-.21*	.12*
Team diversity	.12		-.18*	
Team collectivism	.28*		.10	

Note: $n = 88$ teams. * $p < .05$ one-tailed for β weights; two-tailed for R^2 values.

Discussion

What stands out most from the results of this study is the beneficial relationship between procedural justice climate and team effectiveness (as operationalized by team performance and absenteeism). Teams with favorable climate levels tended to perform their jobs better and engage in less absenteeism. These relationships are consistent with both the instrumental and relational models of justice, which posit that justice is valued because it protects long-term outcomes and reinforces perceptions of esteem and value, promoting loyalty and compliance (Lind & Tyler, 1988; Thibaut & Walker, 1975; Tyler & Lind, 1992).

Although climate strength lacked a direct relationship with team performance and absenteeism, it did moderate the effects of climate level. Specifically, climate level was more strongly related to performance and absenteeism when climate strength was high than when climate strength was low. Fairness heuristic theory provided a theoretical foundation for such effects (Lind, 2001; Van den Bos, 2001; Van den Bos et al., 2001). Weak climates should supply more "phase shifting events," causing team members to re-examine their justice heuristics. This ends the use phase for justice heuristics and reactivates the judgmental phase, weakening justice effects.

In addition to examining the effects of justice climate, this study also explored its antecedents. The results showed that larger teams were associated with less favorable climate levels, and collective teams were associated with more favorable climate levels. Members of large teams likely participated less in the team's functioning (Hare, 1981; Solomon, 1960), reducing the degree to which the procedures were representative of everyone's concerns (Leventhal, 1980). In contrast, teams with many collective members likely enjoyed procedural characteristics geared to foster harmony and solidarity (Earley & Gibson, 1998). Procedures marked by consistency, bias suppression, and representativeness should simultaneously meet collectivist preferences, fostering favorable procedural justice climates.

In terms of antecedents of climate strength, larger and more diverse teams were associated with weaker climates. General systems theorists would argue that both of those team characteristics would be associated with weaker bonds among system members (Miller, 1978; Simon, 1973). Team size is an example of a physical factor which reduces bond strength by increasing the physical distance of system members (Miller, 1978). Demographic diversity is an example of a psychological factor which reduces bond strength by increasing the psychological distance between system members. It is important to note, however, that the significant diversity effect was due to age diversity, not gender or ethnicity diversity. The age diversity effect suggests that younger and older workers disagree more on "what is just" than do men and women, or members of different ethnic groups.

Practical Implications

The study results provide several practical implications for team leaders. Leaders concerned with improving the effectiveness of their teams should make efforts to foster a favorable justice climate. This can be done in a variety of ways, from providing members more involvement into key decisions, to providing opportunities to appeal decisions, to making decisions consistently and neutrally. Past research has shown that managers can be trained to make decisions in a more procedurally just manner as a means of improving subordinate behavior (Skarlicki & Latham, 1996). Justice training may be particularly necessary for large teams or teams lacking collective members.

The significant climate strength interaction suggests that training team leaders in procedurally just decision-making techniques will have weaker effects if inconsistency in treatment remains (or is perceived) within the team. This is a critical point, because team leaders often give more discretion to more senior or more able subordinates (Gerstner & Day, 1997; Graen & Scandura, 1987). In doing so, leaders should take care to emphasize the reasons for this increased discretion. For example, leaders could explain the neutrality and accuracy behind their decision, or leverage other forms of justice to make up for low discretion. This is particularly vital in teams marked by diversity or large sizes, which should possess weaker climate strength.

Limitations

There are several limitations of this study. First, some of the relationships observed here could be inflated by same source bias. However, it

is important to note that only two of the twelve predicted effects are susceptible to percept–percept inflation. Relationships with performance are not same source, and relationships with climate strength should not be affected by response tendencies. Same source bias is also unlikely to artifactually create interaction effects (Schmitt, 1994).

Second, the data presented here are cross sectional, making it impossible to assess causality. The true causal direction can only be ascertained using experimental or longitudinal data collection methods. In addition, some of the relationships tested were based on small sample sizes. In part this is an inherent challenge in conducting team level research, particularly where teams average 20 members. It was also a function of the 52% response rate for the team performance measure completed by the team leaders. However, such small sample sizes only reduce the ability to detect significant effects.

Two final limitations should be noted. Concerns over the identifiability of individual respondents forced us to rely on a perceptual measure of diversity. Future research should rely on diversity measures constructed from actual demographic data. In addition, some of the teams studied in this manuscript were larger than those found in many organizations. Although this maximized the variance of one of our independent variables—increasing the potential power of some of our analyses—our effects might not be observed in a more size restricted sample. It may also be that differences in size capture more than just number of members, as size could be related to the clarity of team boundaries, the types of tasks completed by the team, or the psychological meaningfulness of the team entity.

Suggestions for Future Research

Despite these limitations, this article suggests several avenues for future research. For example, future research should examine justice climates at the organizational level of analysis. Climate level and strength may have different effects in units larger than teams or bank branches (Mossholder et al., 1998; Naumann & Bennett, 2000). Our results suggest that size is an important contextual variable to consider when examining justice climates. Although many of the teams in our sample were large, they certainly did not approach the size of most departments or organizations. Given that larger units likely possess weaker climates and, as a result, weaker climate effects, the boundary conditions for justice climate need to be explored.

Future research should also examine other ways of fostering justice climate. Certain management practices or reward systems may serve to create strong and favorable justice climates. For example, practices

such as 360-degree feedback may promote justice climates by improving the representativeness and bias suppression of the performance evaluation process. Similarly, compensation plans built on employee involvement may improve justice climates by enhancing perceptions of voice, correctability, and representativeness. To the extent that such effects occur, management practices become critical ways of fostering justice climates because they are more mutable than many of the antecedents examined in this study.

Finally, future research should examine other forms of justice climate. In particular, aggregate perceptions of interpersonal or informational justice could have a variety of beneficial effects in teams. Those forms of justice have been linked meta-analytically to trust, commitment attitudes, and citizenship behaviors (Colquitt et al., 2001), all of which are critical in teams. A key question with regards to interpersonal or informational justice climates will be their strength. On the one hand, they are often more easily observable than formalized procedures. On the other hand, they are dependent on individuals whose behavior is more variable than formalized systems. It is therefore an empirical question whether interpersonal or informational justice climates will be more or less strong than procedural justice climates.

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