

The Role of Justice in Organizations: A Meta-Analysis

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The correlates of distributive, procedural, and interactional justice were examined using 190 studies samples, totaling 64,757 participants. We found the distinction between the three justice types to be merited. While organizational practices and outcomes were related to the three justice types, demographic characteristics of the perceiver were, in large part, unrelated to perceived justice. Job performance and counterproductive work behaviors, considered to be outcomes of perceived justice, were mainly related to procedural justice, whereas organizational citizenship behavior was similarly predicted by distributive and procedural justice. Most satisfaction measures were similarly related to all justice types. Although organizational commitment and trust were mainly related to procedural justice, they were also substantially related to the other types of justice. Findings from laboratory and field studies are not always in agreement. Future research agendas are discussed. © 2001 Academic Press

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The study of work-place justice has been proliferating in recent years. Whereas early studies on justice were conducted in the early 1960s (Adams, 1963, 1965), the majority of studies on justice in organizations were published

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since 1990. Our records in compiling sources for our meta-analysis (which undoubtedly are incomplete) show approximately 400 empirical studies and over 100 theoretical papers focusing on issues of fairness and justice (which we use interchangeably in this article) in organizations. Given the importance researchers attribute to fairness in organizational life, we believe it is now an appropriate time to summarize, using the quantitative method of meta-analysis, what we have learned thus far about the role of fairness in organizations. Therefore, we focus the analysis on the correlates of fairness in organizations.

We start the article with a brief review of organizational fairness, defined and examined in three ways: (a) distributive, (b) procedural, and (c) interactional. We then describe correlates of fairness we examine in this analysis. Some correlates are considered to influence justice perceptions and include organizational practices and their perceived value for the employee. They also include demographic and personality differences. Other correlates are considered reactions to justice perceptions. These reactions are behavioral, attitudinal, and affective and can be directed toward a specific outcome, the job, the supervisor, and the organization.

FAIRNESS IN ORGANIZATIONS

The study of fairness in psychology started with Adams's work on equity theory (Adams, 1963, 1965), emphasizing the perceived fairness of outcomes, that is, distributive fairness. Following the inability of equity theory and other distributive justice models (Crosby, 1976; Deutsch, 1975; Folger, 1984) to completely explain and predict peoples' reactions to perceived injustice, the focus of research shifted to procedural justice (for a historical review see Cropanzano & Randall, 1993). The study of procedural justice—the perceived fairness of the process by which outcomes were arrived at—expanded the study of distributive justice, since findings showed that the distribution of rewards was not always as important as the process by which they were allocated (for a review see Lind & Tyler, 1988). Meanwhile, an additional conceptualization of interactional justice emerged (Bies & Moag, 1986). Interactional justice is focused on the interpersonal side of organizational practices, specifically, the interpersonal treatment and communication by management to employees.

Whereas the distinction between procedural and distributive justice was supported (e.g., Alexander & Ruderman, 1987; Folger & Konovsky, 1989; Gilliland, 1994; Sweeney & McFarlin, 1993), there is less agreement about the distinction between interactional justice and procedural justice, some supporting this distinction (e.g., Colquitt, 1999; Cropanzano & Prehar, 1999; Moorman, 1991) and some questioning it (e.g., Byrne & Cropanzano, 1999; Tyler & Bies, 1990). It is one of our goals to examine the empirical merit of the distinction among these three types of organizational justice. Therefore, in this meta-analysis we examine the relations between each of these justice types and other individual and organizational variables.

Distributive Justice

The notion of fairness in organizations emerged from the social-psychological literature on distributive justice (Adams, 1963, 1965; Deutsch, 1975, 1985). As distributive justice deals with the perceived fairness of outcomes, it has the potential to have strong implications in the organizational context, of which distribution of outcomes is an integral part. Realizing the potential implications of distributive justice, and especially equity theory, on the organizational context, researchers examined the perceived fairness of organizational outcomes (e.g., pay selection, and promotion decisions) and the relations of these justice perceptions to numerous criterion variables, such as quality and quantity of work (Walster, Walster, & Berscheid, 1978). Due to its focus on outcomes, distributive justice is predicted to be related mainly to cognitive, affective, and behavioral reactions to *particular outcomes*. Thus, when a particular outcome is perceived to be unfair, it should affect the person's emotions (e.g., experience anger, happiness, pride, or guilt; Weiss, Suckow, & Cropanzano, 1999), cognitions (e.g., cognitively distort inputs and outcomes of himself/herself or of the other; Adams, 1965; Austin & Walster, 1974; Walster et al., 1978), and ultimately their behavior (e.g., performance or withdrawal).

Procedural Justice

As the research in social psychology shifted from emphasizing purely the results of reward allocation (distributive justice) to emphasizing the process by which allocations were made (procedural justice; Leventhal, 1980; Thibaut & Walker, 1975), the study of justice in organizations made a similar shift. No longer was the perceived fairness of outcomes considered the only determinant of perceived organizational justice, but rather, the perceived fairness of the process by which the outcomes were achieved was also important and in some cases even the most important determinant of perceived organizational justice (Lind & Tyler, 1988).

Procedural justice, defined as the fairness of the process by which outcomes are determined (Lind & Tyler, 1988), is considered to exist when procedures embody certain types of normatively accepted principles. For example, according to Leventhal's (1980) conceptualization, there are six rules which, when followed, yield procedures that are considered to be fairer than otherwise would have been the case: (a) the consistency rule, stating that allocation procedures should be consistent across persons and over time; (b) the bias-suppression rule, stating that personal self-interests of decision-makers should be prevented from operating during the allocation process; (c) the accuracy rule, referring to the goodness of the information used in the allocation process; (d) the correctability rule, dealing with the existence of opportunities to change an unfair decisions; (e) the representativeness rule, stating that the needs, values, and outlooks of all the parties affected by the allocation process should be represented in the process; and (f) the ethicality rule, according to which the allocation process must be compatible with fundamental moral and ethical values of the perceiver.

Organizational procedures represent the way the *organization* allocates resources. This is why procedural justice is predicted to be related to cognitive, affective, and behavioral reactions toward the *organization*, such as organizational commitment (e.g., Martin & Bennett, 1996; Mossholder, Bennett, Kemery, & Wesolowski, 1998a). Accordingly, when a process leading to a certain outcome is perceived to be unfair, the person's reactions are predicted to be directed at the whole organization, rather than at his/her tasks or the specific outcome in question. This differs from predictions made for distributive justice, which emphasize outcome-focused, rather than organization-focused reactions (Cropanzano & Folger, 1991; Sweeney & McFarlin, 1993).

Interactional Justice

Interactional justice, an extension of procedural justice, pertains to the human side of organizational practices, that is, to the way the management (or those controlling rewards and resources) is behaving toward the recipient of justice. As such, interactional justice relates to the aspects of the communication process between the source and the recipient of justice, such as politeness, honesty, and respect (Bies & Moag, 1986; Tyler & Bies, 1990).¹

Because interactional justice is determined by the interpersonal behavior of management's representatives, interactional justice is considered to be related to cognitive, affective, and behavioral reactions toward these representatives, that is, *the direct supervisor or source of justice* (Bies & Moag, 1986; Cropanzano & Prehar, 1999; Masterson, Lewis-McClearn, Goldman, & Taylor, 2000). Thus, when an employee perceives interactional injustice, he/she is predicted to negatively react toward his/her supervisor (or the entity that was interactionally unfair to that person) rather than negatively react toward the organization as a whole, as is predicted by procedural justice models, or toward the specific outcome, as is predicted by distributive justice theory. Hence, the employee is predicted to be dissatisfied with his/her direct supervisor rather than with the organization as a whole. Similarly, the employee will be predicted to be less committed to his/her supervisor, rather than to the organization, and to develop negative attitudes toward the supervisor, but less so toward the organization (Cropanzano & Prehar, 1999; Masterson et al., 2000). These predictions, based on interactional justice, are limited to the extent the perceiver believes the source of interactional injustice is the person enacting the formal procedure rather than the procedure itself. When interactional injustice is

¹ A different conceptualization of interactional justice was recommended by Greenberg (1993a). Greenberg suggested we look at interactional justice as composed of two facets: informational justice and interpersonal justice. Whereas informational justice refers to "providing knowledge about procedures that demonstrate regards for people's concerns" (p. 84), interpersonal justice refers to "showing concern for individuals regarding the distributive outcome they receive" (p. 85). Another meta-analysis looked at justice as a four-dimensional construct of distributive, procedural, informational, and interpersonal justice (Colquitt, Conlon, Wesson, Porter, & Ng, in press) as opposed to our traditional three-dimensional approach. The interested reader is invited to compare both studies.

perceived to be an integral part of the formal procedure, the person will infer procedural injustice (Bies & Moag, 1986).²

In this meta-analysis we examine if distributive, procedural, and interactional injustice indeed relate to performance, cognitions, and emotions in a different way from one another. For example, does distributive injustice affect the reactions to the immediate job environment rather than the organization as a whole? Does perceived interactional injustice lead one to be less committed to her supervisor, but remain committed to the organization?

CORRELATES OF ORGANIZATIONAL JUSTICE: INFLUENCES ON JUSTICE PERCEPTIONS

Justice perceptions are considered to be influenced by (a) outcomes one receives from the organization, (b) organizational practices (procedures and quality of interactions), and (c) characteristics of the perceiver (please see Fig. 1, summarizing only those variables that were well studied).

Organizational Outcomes

Justice perceptions can be based on the organization's adherence to distributive justice rules (i.e., equity, equality, or need) as well as by the valence of the outcomes. Thus, justice is at least in part, determined by the perceptions of outcomes as positive or negative to the perceiver (an egocentric bias; e.g., Diekmann, Samuels, Ross, & Bazerman, 1997; Greenberg, 1994; Messick & Sentis, 1979).

Organizational Practices

Justice perceptions also depend on the organization's adherence to procedural justice rules (Leventhal, 1980; Thibaut & Walker, 1978). For example, a procedure that allows participants to have voice will be considered fairer than a procedure that prohibits participants from having their say. Interactional justice is perceived based on the quality of treatment and explanation one receives from organizational authorities (Bies & Moag, 1986). Thus, given the same outcomes and procedures, when one is treated with dignity and respect, interactional justice should be higher than when one is treated rudely and with disrespect. We examine if characteristics of organizational practices and outcomes affect justice perceptions and if there is a difference between the effect of various practices and outcomes on the three types of justice examined.

² A different approach to the sources of procedural and interactional justice was taken by Cropanzano and Byrne (2000), whose multifoci approach claims that both the direct supervisor and the organization can influence procedural *and* interactional justice, depending on whether the measure's focus is the organization or the supervisor.

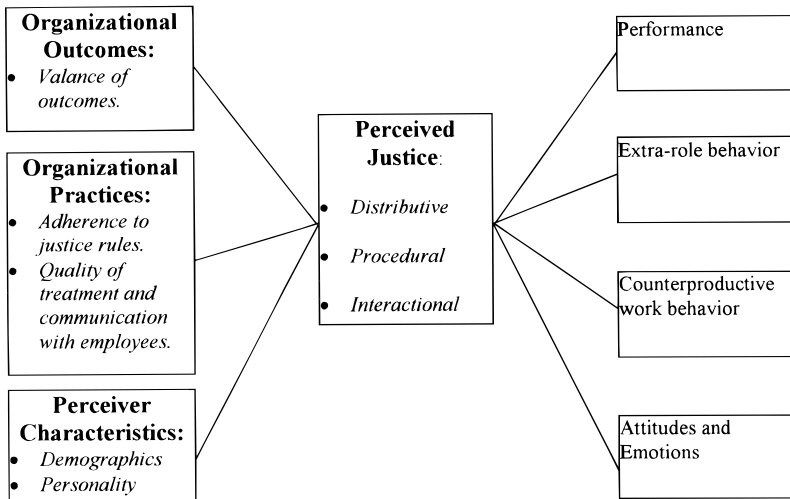


FIG. 1. Justice in organizations.

Characteristics of the Perceiver

Justice perceptions might also be influenced by the characteristics of the perceiver. These can be demographic characteristics (e.g., age, gender, race, and tenure) and personality traits (e.g., negative affectivity, and self-esteem).

Demographic characteristics. One way by which demographic characteristics, such as gender, race, and age, might influence justice perceptions is through self-interest, or egocentric bias (Kulik, Lind, Ambrose, & MacCoun, 1996). In this case, beneficiaries of certain outcomes and procedures might prefer them over other outcomes and procedures. For example, an affirmative action program that emphasizes race might be perceived as fair by the races benefiting from such program and might be perceived as unfair by the races that are not benefited by it (Truxillo & Bauer, 1999, Study 3).

Self-interest explanations by themselves are limited in their ability to explain justice preferences. Because preferences for justice rules and distributions will shift with the specific circumstance of the perceiver, it is impossible to make general predictions about the preferences of certain demographic groups.³ Furthermore, it is not necessarily the case that all members of the same demographic group share similar experiences and hence have similar justice perceptions (Bauer, 1999; Crosby, 1984; Heilman, McCullough, & Gilbert, 1996; Major, 1994; Truxillo & Bauer, 1999, Studies 1 and 2).

Another way by which demographic variables can affect fairness perceptions is through different emphases given by different demographic and personality groups to justice issues (Brockner & Adsit, 1986; Kulik et al., 1996). For example, Leventhal and Lane (1970) predicted and found that males and females differently adhere to the equity rule of justice. Specifically, whereas males' major concern in reward allocation was protecting their own interests, females'

³ We thank an anonymous reviewer for pointing out this issue.

major concern in reward allocation was maintaining the welfare of all group members. Brockner and Adsit (1986) found gender differences in the saliency of distributive justice such that males reacted more strongly than females to inequitable outcomes. Major and Adams (1983), documenting repeated findings of gender differences in reward allocations, offered and examined two additional explanations for gender differences in justice perceptions. One was the *self-presentation perspective*, according to which there are normatively different expectations of males and females for reward allocation, with women expected to be generous and men expected to be equitable; and the other was the *cognitively oriented perspective*, according to which the genders differently evaluate their inputs. According to this explanation, females are expected to perform more poorly than males and attribute their success to external rather than internal factors. However, in their study, Major and Adams failed to support any of these perspectives on gender differences in reward allocation.

With respect to procedural justice, Kulik et al. (1996) examined whether females, being more sensitive to interpersonal issues, will perceive procedures that favor social harmony (e.g., neutrality) as fair, and males, being more sensitive to material outcomes, will perceive procedures that reflect contributions (e.g., control) as fair and will be more influenced by outcome favorability. Contrary to these predictions, however, Kulik et al. (1996) found that females emphasized outcomes more than males did, hence supporting predictions based on the group-value model of justice (Lind & Tyler, 1988). Thus, gender differences are more complex than any one theoretical perspective could explain.

Personality traits. Personality traits (mainly negative affectivity) were mostly examined as (a) moderators between fairness perceptions and reactions to these perceptions (e.g., Skarlicki, Folger, & Tesluk, 1999), (b) as determinants of reactions to justice perceptions (e.g., George, 1991), or (c) as control variables (e.g., Folger & Konovsky, 1989). Only few researchers (e.g., Wanberg, Bunce, & Gavin, 1999) actually hypothesized a relationship between perceived justice and personality. For example, Wanberg et al. (1999) hypothesized that people high in trait *negative affectivity (NA)*, that is, people who tend to experience negative emotional states across time and situations, will be more likely to perceive situations as unfair compared to people low in trait NA. Similarly, Irving and Coleman (1999) explained the negative relationship between high NA and between fairness perceptions in the tendency of high-NA individuals to focus on negative aspects of the situation, such as on unfair aspects of situations.

Another personal variable, *self-esteem*, is usually considered to be an outcome of perceived fairness. The Group Value Model, for example, is based on the premise that procedural justice is important to people because it shows they are valuable members of their groups (Lind & Tyler, 1988; Tyler, 1994; Tyler & DeGoey, 1996). Thus, respectful treatment provides people with positive information about their worth to the group, and therefore enhances their self-esteem. According to this model there should be a positive correlation between

procedural justice and self-esteem. Attribution theory, on the other hand, predicts that under some circumstances, for example, when outcomes are negative, perceived unfairness can actually increase self-esteem. This is because poor outcomes can be attributed to unfair procedures rather than to low personal ability (Schroth & Pradhan Shah, 2000; van den Bos, Bruins, Wilke, & Dronkert, 1999). When outcomes are positive, however, perceived unfairness will decrease self-esteem because the attribution to the outcomes will shift from the person to the process.⁴

CORRELATES OF ORGANIZATIONAL JUSTICE: OUTCOMES OF JUSTICE PERCEPTIONS

Work Performance

Equity theory provided specific hypotheses regarding the impact of perceived distributive injustice on performance (Adams, 1965; Austin & Walster, 1974) such that when an employee perceives distributive injustice, the employee can alter his or her quality or quantity of work to restore justice. With few exceptions, procedural justice models did not follow with concrete predictions regarding the relationship between procedural justice and performance, but rather focused on the influence of procedural justice on attitudes and quality of work life (Lind & Tyler, 1988). In fact, it was claimed that procedural justice concerns are salient when the goal is group harmony, whereas distributive justice concerns are salient when productivity and efficiency are the focus of attention (Barrett-Howard & Tyler, 1986; Lind & Tyler, 1988). Procedural justice, then, may affect performance through its effects on attitudes. For example, when procedural injustice influences attitudes toward the organization and its authorities, attitudes negatively affect performance (e.g., Brockner & Wiesenfeld, 1996; Greenberg, 1987).

Some justice researchers, however, relied on *social exchange theory* to predict relations between perceived procedural fairness and work performance (Cropanzano & Prehar, 1999; Masterson et al., 2000). Social exchange theory views organizations as arenas for long-term, mutual social transactions between the employees and the organization (Cropanzano & Prehar, 1999; Greenberg & Scott, 1996; Wayne, Shore, & Liden, 1997). Justice is considered to be an input of the organization to the exchange relationship and can come from either (a) the organization or (b) the direct supervisor (Masterson et al., 2000; Settoon,

⁴ Self-esteem was also examined as a moderator of the relationship between situational antecedents and perceived fairness. For example, self-esteem was examined as a moderator of the relationship between respectful treatment and perceived procedural justice (Heuer, Blumenthal, Douglas, & Weinblatt, 1999). The rationale for examining self-esteem as a moderator was that people high in self-esteem perceive themselves to be more deserving of respectful treatment and are more sensitive to respectful treatment than people low in self-esteem. Indeed, Heuer et al. (1999) found a stronger relationship between respect and perceived fairness for high self-esteem than for low self-esteem respondents. In our study we examine direct relations between justice and self-esteem. We will not examine self-esteem as a moderator due to there being too few moderator studies to analyze.

Bennett, & Liden, 1996). Researchers using the social exchange theory in areas other than justice view work performance as related to both the organizational and the leader levels of exchange (Settoon et al., 1996; Wayne et al., 1997). Thus, to the extent work performance is influenced by the relationship between the employee and the organization, it should be related to procedural justice. To the extent work performance is influenced by the relationship between the employee and his/her supervisor, it should be related to interactional justice. Other researchers, however (Cropanzano & Prehar, 1999; Masterson et al., 2000), suggested that work performance is related to the leader-member relations and not to the organization-member relations. Hence, these researchers only predicted a relationship between interactional justice and performance and not between procedural justice perceptions and work performance.

Research findings regarding the relations between procedural justice and performance were mixed. Some research found positive relations between procedural justice and performance (Konovsky & Cropanzano, 1991), other research found negative relations between procedural justice and performance (Kanfer, Sawyer, Earley, & Lind, 1987), yet other research did not find such relations to exist (Gilliland, 1994). We hope the current meta-analysis will shed light on the magnitude of relations between procedural justice and performance.

Where interactional justice researchers provided concrete hypotheses regarding a relationship between interactional justice and performance, it was based on *social exchange theory* (Cropanzano & Prehar, 1999; Masterson et al., 2000). Given that the source of perceived interactional justice is the interpersonal treatment by one's supervisor or other management representatives, interactional justice is more personal in nature than procedural justice. As such, it may be perceived as an outcome an employee receives, and hence, it should influence the outcome/input ratio of the employee (Greenberg, 1993a). In this case, because managers treat employees fairly, employees reciprocate by better performance (Masterson et al., 2000; Settoon et al., 1996). Alternatively, given that managers give performance appraisals to employees, positive performance appraisals may be the contribution of the leader to the employee in a social exchange relationship. In this case, positive correlation between interactional justice and performance are not necessarily due to the performance, but due to the appraisal (Wayne et al., 1997).

A second mechanism by which interactional justice might be related to performance is through its relations to attitudes toward the supervisor. For example, dissatisfaction with the direct supervisor can be translated into poor performance. In this meta-analysis we examine if interactional justice correlates with job performance.

Organizational Citizenship Behavior

One of the most studied correlates of organizational justice is that of organizational citizenship behavior (OCB) and its components (sportsmanship, civic virtue, altruism, conscientiousness, and courtesy). Organizational citizenship

behaviors are “organizationally beneficial behaviors and gestures that can neither be enforced on the basis of formal role obligations nor elicited by contractual guarantee of recompense. OCB consists of informal contributions that participants can choose to proffer or withhold . . .” (Organ, 1990, p. 46). Perceived procedural and interactional justice are hypothesized to be the major predictors of OCB (Moorman, 1991). Distributive justice might also be related to OCB to the extent OCBs are considered inputs employees can manipulate in their response to justice perceptions.

Procedural justice was predicted to be “. . . a source of both satisfaction and positive evaluations of the organization . . . [and to] make individuals more willing to subordinate their own short-term individual interests to the interests of a group or organization” (Lind & Tyler, 1988, p. 191). Therefore, to the extent employees perceive procedural justice to be part of the organizational conduct, and to the extent they want to keep their work organization just, employees will be willing to contribute to the betterment of their fellow employees by contributing more than their role demands (Organ & Moorman, 1993).

Interactional justice represents the way the direct supervisor behaves toward employees when enacting the formal procedures set by the organization. As most OCB behaviors are addressed toward those one most often works with (OCBI, Skarlicki & Latham, 1996), it is likely that the quality of personal treatment by the manager will influence personal gestures by employees. It is also the case, however, that OCB is directed toward the organization as a whole (OCBO, Skarlicki & Latham, 1996), such as voluntary committee service. In this case, we would expect OCBO to relate to procedural justice rather than to interactional justice, as procedural justice is hypothesized to be related to the perception of the organization and management. In this meta-analysis we examine how distributive, procedural, and interactional justice are related to OCB.

Counterproductive Work Behavior and Withdrawal Behavior

Counterproductive and withdrawal behaviors should be related to all three forms of justice: distributive, procedural, and interactional. From a distributive justice perspective, counterproductive and withdrawal behaviors can be seen as reactions to perceived injustice, when an employee changes his/her input to restore equity (Greenberg & Scott, 1996). Thus, when employees perceive distributive injustice, they might hurt the organization to make the outcome/input ratio less negative from their perspective. Indeed, distributive justice was found to be related to turnover intentions (Bies & Shapiro, 1987; Hendrix, Robbins, Miller, & Summers, 1999) through its effects on attitudes, such as extrinsic and intrinsic satisfaction (Hendrix et al., 1999).

From a procedural justice perspective, perceived injustice will lead to negative perceptions of the organization and, hence, to counterproductive behaviors that will hurt the organization. We can examine counterproductive behaviors as following a similar reasoning as that leading to OCB, that is, as viewing the relations between the employee and the organization as social exchange

(Organ & Moorman, 1993). This means the logic behind OCB and counterproductive behaviors should be similar: To the extent employees perceive their organization to be unfair because it uses unfair procedures for resource allocations, employees will develop negative attitudes toward the organization (e.g., lower trust and commitment and greater anger). Negative attitudes and emotions lead to employees not having incentives to work in favor of the organization. Moreover, they might lead employees to act against the organization (Dailey & Kirk, 1992; Skarlicki & Folger, 1997).

It might be that distributive justice is related to particular behaviors employees can perform themselves (e.g., withdrawal behaviors); procedural justice is related to socially oriented counterproductive behaviors (Alexander & Ruderman, 1987); and interactional injustice leads to counterproductive behaviors at the local level, such as conflict with one's supervisor. However, it might also be that the counterproductive behaviors would not differ by the kind of perceived injustice. In this case, various antecedents (i.e., distributive, procedural, and interactional sources of injustice) will lead to the corresponding perceptions of justice (i.e., distributive, procedural, and interactional, respectively), but the negative outcomes will be at all organizational levels. The present meta-analysis will help in clarifying this point.

Attitudinal and Affective Reactions toward Specific Outcomes, the Organization, and the Supervisor

Attitudinal and affective reactions toward the organization were predicted mainly by procedural justice models. For example, Lind and Tyler (1988) predicted a strong positive influence of procedural justice on organizational commitment and on the reduction of conflict within organizations. Research also found stronger relations between procedural justice and attitudes compared to the relationship between distributive justice and attitudes (Alexander & Ruderman, 1987). Whereas procedural justice predicted cognitive reactions toward the organization, distributive justice theory predicted and found affective and cognitive reactions toward outcomes (Austin & Walster, 1974). Finally, interactional justice is predicted to influence attitudinal reactions toward managers and their decisions (Bies & Shapiro, 1987). For example, trust in supervisor is supposed to be related to interactional justice rather than to procedural justice. Procedural justice perceptions, on the other hand, are predicted to influence trust in management rather than in a supervisor (Cropanzano & Prehar, 1999). In this meta-analysis we examine how different or similar are the relations between the three organizational justice types and the perceiver's cognitive and affective reactions toward specific outcomes, the organization, and the direct supervisor.

METHOD

Studies

Our meta-analysis included 190 samples (148 field studies and 42 laboratory studies) based on a total of 64,626 participants (56,531 from field studies and

8,095 from laboratory studies). There were 101 samples for distributive justice (80 field and 21 laboratory), 26 for interactional justice (all field), and 161 for procedural justice (124 field and 37 laboratory). This sums to more than 190 because some samples had more than one measure of justice. The number of samples per variable that we report varied from 3 (our minimum) to 62.

Literature Search

We used several methods to collect data for our meta-analysis. First, we conducted a computerized bibliographic search in the PsychInfo and ABI databases. We used the following terms in our computerized search: "workplace justice," "workplace fairness," "organizational justice," and "organizational fairness." Second, we conducted a manual search of recent issues from journals that regularly publish field studies on organizational fairness: *Academy of Management Journal*, *Administrative Science Quarterly*, *Applied Psychology: An International Review*, *Journal of Applied Psychology*, *Journal of Applied Social Psychology*, *Journal of Management*, *Journal of Occupational and Organizational Psychology*, *Journal of Organizational Behavior*, *Journal of Vocational Behavior*, *Organizational Behavior and Human Decision Processes*, and *Personnel Psychology*. Our manual search focused on journal issues of the past 6 years. Third, we went over bibliographical lists of recent papers to extract from them other citations that did not appear in the computerized literature review. Fourth, we posted calls for additional in-press or unpublished articles on three I/O and Management Internet listservs, IOOB-L, HRDIV_NET, and RMNET. Fifth, we wrote to several researchers publishing often on organizational justice, asking them for any unpublished papers they might have or might know of (e.g., student empirical work). Sixth, we searched our files for conference papers dealing with organizational justice.

Because our search relied on multiple methods of data collection, sometimes we had two studies of the same author(s). This happened, for example, when one version of an article was collected in a conference and another version was found in a publication or when two versions of the same study were found in two different publications. If the two versions we had were identical, we only used the published data. If some variables were reported in one version but not in the other, we used both articles, but only the nonoverlapping data. Thus, we did not have duplications in using our data.

Criteria for Inclusion

We used the following criteria for including empirical papers in the meta-analysis: (a) The paper had to examine perceived fairness at the individual level of analysis. (b) The paper had to report on correlations or any other statistic that could be converted to a correlation coefficient, e.g., independent group *t* test or one-way ANOVA with two levels. As such, studies reporting only statistics such as ANOVAs with more than two levels of the independent variable, ANCOVA, partial correlations, regression coefficients, or path coefficients were excluded from the analysis. (c) The study had to use some specific

measure of perceived distributive, procedural, or interactional justice. In a few studies, the authors combined the interactive and procedural justice items into a measure of procedural justice because the interactive items failed to demonstrate discriminant validity (e.g., Mansour-Cole & Scott, 1998). (d) As for laboratory studies, we used only studies that represented organizational phenomena, such as studies manipulating workplace conditions/events. We omitted studies that were concerned with other domains of life, such as fairness in romantic relationships or encounters with law authorities.

Variables Included in Analysis

Organizational practices and outcomes. Potentially, we wanted to include in this category all aspects of justice that are determined by the organization. In practice, there were only few variables that were examined enough times to be included in the meta-analysis. Thus, we examined the organizational practices of (a) voice, (b) communication with employees (including two-way communication and perceived quality of communication), (c) organizational support, (d) outcome negativity (a manipulated, objectively measured, or a self-report of the outcome as negative or positive), and (e) outcome satisfaction (an attitudinal reaction to outcomes that was measured using self-report).

Characteristics of the perceiver. *Demographic characteristics* of perceivers included in this meta-analysis were (a) age, (b) gender (males coded "1"; females coded "0"), (c) race (Whites coded "1"; non-Whites including Asians, Blacks, Hispanics, and Other, coded "0"), (d) education, (e) tenure (including organizational tenure and job tenure), and (f) salary. *Personality characteristics* of perceivers were (a) negative affectivity and (b) self-esteem.

Work performance. Due to the large number of contexts in which organizational justice was studied, we used a wide variety of performance measures that came from various sources: the organization, the justice/performance recipient, and the justice/performance source (i.e., self-reports). For example, under work performance we included effort exerted by justice/performance source (Brockner, DeWitt, Grover, & Reed, 1990), official performance ratings as appear in organizational files (George, 1991; Konovsky & Cropanzano, 1991; Masterson et al., 2000; Renn, 1998), in-role behavior ratings (Byrne & Cropanzano, 1999; Deluga, 1995; Kim & Mauborgne, 1996), and performance measures provided for a specific study (Cropanzano & Prehar, 1999; Dulebohn & Ferris, 1999; Korsgaard, Roberson, & Rymph, 1998). A separate analysis was conducted for *compliance with decisions*.

Organizational citizenship behavior. Organizational citizenship behavior was measured (a) generally, (b) as directed toward the organization (OCBO), and (c) as directed toward one's supervisor (OCBI). Additionally, separate aspects of OCB were also included in our analysis, provided they passed our inclusion criteria. These were (a) altruism and (b) conscientiousness.

Counterproductive work behavior: Under this category we looked at studies that used scales of various counterproductive behaviors (e.g., destroying equipment, doing work incorrectly, spreading rumors, and stealing). We also looked at studies examining interpersonal conflict. We looked separately at withdrawal behaviors (e.g., absenteeism, lateness, and turnover), but as there were only few studies examining these variables, we did not include them in the meta-analysis.

Emotional and attitudinal reactions toward specific outcomes, the organization, and the leader/supervisor: *Negative emotional reactions* included in the study were those of anger and of negative mood. The attitudinal reactions we examined were general *job satisfaction* (overall measures of satisfaction), facet satisfaction with specific aspects of the organization (e.g., pay and management), specific facets of satisfaction with aspects of the supervisory level, such as supervisor satisfaction, and satisfaction with a specific outcome (e.g., performance appraisal). Another kind of reaction included under this category is of *organizational commitment*. Most measures of organizational commitment were of affective commitment. When measuring reactions to specific outcomes or to supervisors, measures were more specific, for example, commitment to decisions. Additional reactions included are *trust* in management, supervisor, both, or any other justice source, such as an appeal board, business partner, and monitoring source (under the "other" category). Also included were measures of *leader-member exchange*. Finally, this category includes measures of *intentions*, specifically, turnover intentions and recommendation intentions (intentions to recommend the organization to others).

Statistical Methods

We used the Rosenthal (1991) approach to conducting meta-analysis. According to this method, we chose as our indicator of effect size the correlation coefficient. Descriptive statistics (mean, weighted mean, standard deviation of the observed correlations, ranges, and confidence intervals) are shown in our tables only for cases where we had at least three samples. Field and laboratory studies were kept separate because they do not represent the same underlying participant populations. Whereas in field studies participants are employees in a work context, in laboratory studies participants are students in a university setting. This allowed us to make comparisons to see where they might agree and disagree in results.

Confidence intervals were computed using the procedure recommended by Lee (1989) that takes the square root of the reciprocal of the total sample size across studies as the standard deviation for each variable combination. A 95% confidence interval is created by multiplying the standard deviation by 1.96 and then adding and subtracting the result from the mean correlation.

This approach to meta-analysis is similar to the Hunter and Schmidt approach (1990), which is used more frequently in organizational studies in that

both begin by computing the same descriptive statistics on the sample of correlations. However, where Rosenthal (1991) stops here, Hunter and Schmidt advocate applying adjustment formulas to estimate how much of the variance among observed correlations is attributable to artifacts, such as sampling error or unreliability, and allows for the adjustment of observed mean correlations to compensate in an attempt to get a better estimate of the underlying theoretical population parameters. This approach has not been without its critics both inside and outside of our field (e.g., James, Demaree, & Mulaik, 1986; Rosenthal, 1991), and it has been noted that adjustments can be particularly problematic (inaccurate) with small numbers of studies being analyzed (Spector & Levine, 1987), as we have here. Therefore, we chose to be conservative and stop short of statistical adjustments to our observed means, as recommended by Rosenthal (1991) as well as other meta-analysis experts who do not advocate adjustments.

RESULTS

As explained under Method, we conducted separate analyses for field studies and laboratory experiments. Since there were far more field studies, unless otherwise stated, the results describe outcomes of field studies.

Distributive, Procedural, and Interactional Justice

Table 1 presents the results of the meta-analysis concerning the relations between distributive, procedural, and interactional justice and shows the three

TABLE 1
Meta-Analysis of Relations between Distributive, Procedural, and Interactional Justice

		<i>k</i>	<i>N</i>	Mean <i>r</i>	Weighted Mean <i>r</i>	<i>SD</i>	Min	Max	CI
Field studies									
Distributive justice	Procedural justice	62	38,337	.51	.55	.19	-.27	.89	.54/.56
	Interactional justice	14	3,018	.47	.46	.13	.32	.77	.42/.50
Procedural justice	Interactional justice	20	4,703	.58	.54	.18	.20	.93	.51/.57
Laboratory experiments									
Distributive justice	Procedural justice	19	3,229	.61	.62	.16	.19	.88	.59/.65
	Interactional justice	3	491	.46	.45	.11	.38	.59	.36/.54
Procedural justice	Interactional justice	4	619	.57	.55	.20	.40	.77	.47/.63

Note. *k* = number of studies; CI = 95% confidence interval for weighted mean *r*.

constructs to be strongly related, yet distinct (in field studies the weighted r ranged from .46 to .55, and in laboratory experiments the weighted r ranged from .45 to .62). Although the relationship between distributive and procedural justice was significantly stronger in laboratory experiments (weighted mean $r = .62$) than in field studies (weighted mean $r = .55$), in general, the pattern of relationship between the three justice types was similar in field and laboratory studies.

Organizational Practices and Outcomes and Perceived Justice

Table 2 presents the results of the meta-analysis concerning the relations between the organizational antecedents of justice and perceived justice. As predicted, in field studies, *voice* related to procedural justice (weighted mean $r = .52$) to a significantly larger extent than to distributive justice (weighted mean $r = .20$). In laboratory experiments, however, there were no significant differences between the relationship of voice and distributive justice (weighted mean $r = .35$) and voice and procedural justice perceptions (weighted mean $r = .38$).

Organizational support and the perception that an organizational procedure is *Affirmative Action related* were related to perceptions of procedural justice (weighted mean $r = .54, .14$, respectively), as expected. Also as expected, the perception that an organizational procedure relates to Affirmative Action was not correlated with distributive justice (weighted mean $r = -.06$).

There was no significant difference between the correlation of *amount of pay raise* and distributive justice (weighted mean $r = .32$) and the correlation of amount of pay raise and procedural justice (weighted mean $r = .20$). Thus, according to our data, the amount of pay raise similarly affects perceptions of procedural and distributive justice, although, as an outcome, we would expect it to correlate higher with distributive justice. Still, even though the difference is not significant, it is in the predicted direction.

In field studies and laboratory experiments, *outcome negativity* and distributive justice were similarly related (weighted mean $r = -.49, -.42$, respectively, difference not significant), and the correlations were significantly stronger than those between outcome negativity and procedural justice (weighted mean $r = -.41, -.30$, respectively, difference was significant), as was expected.

The Characteristics of the Perceiver and Perceived Justice

According to Table 3, *age, gender, race, education, and tenure* were not strongly related to justice perceptions (weighted mean r range from $-.10$ to $.13$). *Salary* was related to procedural justice (weighted mean $r = .18$) to a significantly larger extent than to distributive justice (weighted mean $r = .11$). As for the personality variables, *negative affectivity* was similarly related to procedural (weighted mean $r = -.21$) and to interactional justice (weighted mean $r = -.26$, the difference between the correlations not being significant),

TABLE 2

Meta-Analysis of the Relations between Organizational Practices and Outcomes and Justice Perceptions

		<i>k</i>	<i>N</i>	Mean <i>r</i>	Weighted Mean <i>r</i>	<i>SD</i>	Min	Max	CI
Voice (field studies)	Distributive justice	3	446	.29	.20	.21	.15	.54	.11/.27
	Procedural justice	6	708	.50	.52	.15	.36	.78	.45/.59
Voice (laboratory experiments)	Distributive justice	6	699	.36	.35	.07	.27	.43	.28/.42
	Procedural justice	15	2,037	.39	.38	.17	.06	.79	.34/.42
Communication	Distributive justice	3	516	.35	.31	.11	.23	.45	.20/.40
Organizational support	Procedural justice	4	1,380	.52	.54	.19	.26	.69	.49/.59
Affirmative action related procedures	Distributive justice	3	496	-.04	-.06	.14	-.15	.12	-.15/.03
	Procedural justice	3	1,192	.27	.14	.27	.04	.56	.08/.20
Pay raise (amount)	Distributive justice	3	398	.31	.32	.14	.15	.42	.22/.42
	Procedural justice	3	398	.22	.20	.04	.18	.26	.10/.30
Outcome negativity (field studies)	Distributive justice	11	2,117	-.46	-.49	.21	-.73	-.15	-.53/-.45
	Procedural justice	18	3,422	-.40	-.41	.24	-.77	-.01	-.44/-.36
Outcome negativity (laboratory experiments)	Distributive justice	12	2,328	-.50	-.42	.23	-.87	-.11	-.46/-.38
	Procedural justice	3	2,433	-.34	-.30	.17	-.77	-.15	-.34/-.26
Outcome satisfaction (field studies)	Distributive justice	5	2,088	.50	.50	.19	.31	.76	.46/.54
	Procedural justice	6	2,338	.33	.44	.26	.08	.77	.40/.48
Outcome satisfaction (laboratory studies)	Distributive justice	3	617	.77	.75	.03	.74	.80	.67/.85

Note. *k* = number of studies; CI = 95% confidence interval for weighted mean *r*. Unless otherwise stated, all data are from field studies.

but almost negligibly to distributive justice (weighted mean $r = -.10$). *Self-esteem* was related to procedural justice (weighted mean $r = .14$), but not to a very strong degree.

Perceived Justice and Behavioral Outcomes

Table 4 presents the results concerning fairness and *performance*. It is seen that in both field and laboratory studies, work performance was mainly related

TABLE 3

Meta-Analysis of the Relations between Justice and the Characteristics of the Perceiver

		<i>k</i>	<i>N</i>	Mean <i>r</i>	Weighted Mean <i>r</i>	<i>SD</i>	Min	Max	CI
Age	Distributive justice	8	2,638	.05	.08	.09	-.04	.20	.04/.12
	Procedural justice	15	4,298	.04	.03	.11	-.12	.31	.00/.06
	Interactional justice	7	1,483	.02	.03	.07	-.09	.10	-.02/.08
Gender	Distributive justice	15	17,475	-.01	-.02	.08	-.16	.12	-.03/-.01
	Procedural justice	20	17,767	-.04	-.09	.10	-.27	.12	-.10/-.08
	Interactional justice	5	583	.01	-.00	.12	-.11	.14	-.08/.08
Race	Distributive justice	7	14,354	-.11	-.04	.23	-.62	.06	-.06/-.02
	Procedural justice	8	14,478	-.11	-.10	.25	-.64	.15	-.14/-.10
Education	Distributive justice	5	1,170	-.08	-.07	.12	-.24	.02	-.13/-.01
	Procedural justice	11	1,398	-.07	-.10	.12	-.22	.16	-.15/-.05
Tenure	Distributive justice	10	15,953	.02	.03	.08	-.12	.18	.01/.05
	Procedural justice	20	17,380	.03	.13	.10	-.25	.17	.12/.14
	Interactional justice	7	1,444	.04	.04	.13	-.16	.19	-.01/.09
Salary	Distributive justice	5	14,217	.08	.11	.12	-.05	.26	.09/.13
	Procedural justice	5	13,971	.02	.18	.12	-.14	.20	.16/.20
Negative affectivity	Distributive justice	8	1,377	-.10	-.10	.09	-.29	.03	-.15/-.05
	Procedural justice	11	1,869	-.24	-.21	.13	-.47	-.02	-.26/-.16
	Interactional justice	3	489	-.25	-.26	.31	-.50	.10	-.35/-.17
Self-esteem	Procedural justice	6	1,030	.20	.14	.25	-.02	.64	.08/.20

Note. *k* = number of studies; CI = 95% confidence interval for weighted mean *r*. Unless otherwise stated, all data are from field studies.

to perceived procedural justice (weighted mean $r = .45, .11$, respectively). In comparison, and contrary to expectations, distributive justice and interactional justice were relatively poor correlates of work performance (weighted mean

TABLE 4
Meta-Analysis of the Relations between Justice and Work Performance

		<i>k</i>	<i>N</i>	Mean <i>r</i>	Weighted Mean <i>r</i>	<i>SD</i>	Min	Max	CI
Work performance (field studies)	Distributive justice	6	888	.15	.13	.21	-.03	.56	.06/.20
	Procedural justice	11	2061	.47	.45	.13	.32	.77	.41/.49
	Interactional justice	4	493	.06	.16	.15	-.15	.20	.13/.25
Work performance (laboratory studies)	Distributive justice	5	722	.06	.05	.10	-.03	.17	-.02/.12
	Procedural justice	11	1863	.13	.11	.13	-.04	.31	.06/.16
Compliance	Procedural justice	3	1192	.27	.14	.27	.04	.56	.08/.20

Note. *k* = number of studies; CI = 95% confidence interval for weighted mean *r*. Unless otherwise stated, all data are from field studies.

r = .13, .16, respectively in field studies and .05 between distributive justice and work performance in laboratory studies). In laboratory studies the correlations were significantly lower than in field studies; *Compliance with decisions* was related to procedural justice (weighted mean *r* = .14), but not to a very strong degree.

Perceived Justice and Organizational Citizenship Behavior

According to Table 5, levels of OCB were similarly predicted by measures of distributive and procedural justice (weighted mean *r* = .25, .23 respectively, the difference not significant). We did not have enough studies to examine the relations between interactional justice and OCB. We also were able to examine some specific facets of OCB as they relate to justice. Altruism and conscientiousness were similarly predicted by the three justice types (weighted mean *r* ranged from .11 to .18 for altruism; and ranged from .20 to .24 for conscientiousness). As expected, there were relations between procedural justice and OCBO (weighted mean *r* = .22), but not between procedural justice and OCBI (weighted mean *r* = .03).

Justice and Counterproductive Work Behavior

As seen in Table 6, procedural and distributive justice were similarly related to *counterproductive work behaviors* (weighted mean *r* = -.22, -.28, respectively, difference not significant). Also, both procedural and distributive justice were similarly related to *conflict* with others at work (weighted mean *r* = -.18, -.19, respectively, difference not significant).

TABLE 5
 Meta-Analysis of the Relations between Justice and Organizational
 Citizenship Behavior

		<i>k</i>	<i>N</i>	Mean <i>r</i>	Weighted Mean <i>r</i>	<i>SD</i>	Min	Max	CI
Organizational citizenship behavior	Distributive justice	7	1688	.27	.25	.08	.17	.39	.20/.30
	Procedural justice	8	1835	.21	.23	.15	-.02	.46	.14/.24
Altruism	Distributive justice	4	865	.16	.16	.08	.07	.27	.09/.23
	Procedural justice	3	644	.11	.11	.06	.06	.17	.03/.19
	Interactional justice	4	865	.18	.18	.05	.12	.25	.11/.25
Conscientiousness	Distributive justice	3	644	.20	.20	.03	.17	.23	.12/.28
	Procedural justice	3	644	.20	.20	.07	.12	.25	.12/.28
	Interactional justice	3	644	.23	.24	.18	.18	.32	.16/.32
OCB organization	Procedural justice	4	925	.21	.22	.04	.17	.26	.16/.28
OCB individual	Procedural justice	4	925	.01	.03	.15	-.19	.18	-.03/.10

Note. *k* = number of studies; CI = 95% confidence interval for weighted mean *r*. Unless otherwise stated, all data are from field studies.

Emotional and Cognitive Reactions to Justice Perceptions

Based on our literature review, one might have expected *job satisfaction* to be mainly correlated with procedural justice. However, as seen in Table 7, in field studies job satisfaction was significantly more strongly related to distributive justice (weighted mean $r = .47$) than to procedural justice (weighted mean $r = .43$) or interactional justice (weighted mean $r = .41$). The correlations of job satisfaction with procedural and interactional justice were not significantly different from each other.

The correlations between fairness and *pay satisfaction* were significantly higher (weighted mean correlations ranged from .48 to .62) than the correlations between justice and job satisfaction, and as expected, were significantly higher with distributive justice than with procedural justice. In contrast to what can be expected, *supervisor satisfaction*, predicted to be mainly related to interactional justice (weighted mean $r = .52$), was related to distributive justice (weighted mean $r = .58, .55$, in field and laboratory studies respectively) and to procedural justice (weighted mean $r = .57, .52$, in field and laboratory studies respectively) at the same high level. The differences between the field and laboratory outcomes were not significantly different.

TABLE 6
 Meta-Analysis of the Relations between Justice and Counterproductive
 Work Behavior

		<i>k</i>	<i>N</i>	Mean <i>r</i>	Weighted Mean <i>r</i>	<i>SD</i>	Min	Max	CI
Counterproductive work behavior	Distributive justice	3	597	-.24	-.22	.17	-.44	-.14	-.30/-.14
	Procedural justice	3	597	-.29	-.28	.21	-.53	-.12	-.37/-.21
Conflict	Distributive justice	3	998	-.15	-.18	.33	-.43	.22	-.24/-.12
	Procedural justice	3	998	-.13	-.19	.58	-.57	.53	-.25/-.13

Note. *k* = number of studies; CI = 95% confidence interval for weighted mean *r*. Unless otherwise stated, all data are from field studies.

Management satisfaction was equally related to distributive and procedural justice (weighted mean $r = .27$), the relationship being relatively low in magnitude, in comparison to the other satisfaction measures. *Union satisfaction* was similarly related to procedural justice (weighted mean $r = .52$) and to distributive justice (weighted mean $r = .45$, difference not significant). These two outcomes contradict the expectation for a stronger relationship with procedural justice compared to distributive justice.

To summarize, according to Table 7, satisfaction measures were relatively strongly related to justice measures. However, it is important to differentiate between various measures of satisfaction. For example, facet satisfaction measures (pay and supervisor) had stronger correlations with justice than global measures of satisfaction.

Table 7 also displays the relations between justice and organizational commitment. Organizational *affective commitment* was significantly more strongly related to procedural justice (weighted mean $r = .50$) than to distributive (weighted mean $r = .47$) and interactional (weighted mean $r = .38$) justice, as expected. *Continuance commitment* was similarly and negatively related to procedural (weighted mean $r = -.22$) and interactional (weighted mean $r = -.12$) justice. *Normative commitment* data exist only for procedural justice measures, showing strong relationship between the constructs (weighted mean $r = .41$).

Justice perceptions, as seen from Table 7, were strongly related to *trust*. Contrary to expectations, *trust in the organization* was similarly related to procedural justice perceptions (weighted mean $r = .48$) and to distributive justice perceptions (weighted mean $r = .43$) rather than being significantly stronger with procedural justice perceptions. *Trust in supervisor* was even more strongly related to justice. This time, as expected, it was related to procedural

TABLE 7

Meta-Analysis of the Relations between Justice, Emotional, and Attitudinal Reactions toward Specific Outcomes, the Organization, and the Leader/Supervisor

		<i>k</i>	<i>N</i>	Mean <i>r</i>	Weighted Mean <i>r</i>	<i>SD</i>	Min	Max	CI
Job satisfaction	Distributive justice	23	26,277	.39	.47	.15	.12	.69	.46/.48
	Procedural justice	36	29,028	.40	.43	.13	.12	.68	.42/.44
	Interactional justice	8	2,205	.44	.41	.14	.29	.68	.37/.45
Pay satisfaction	Distributive justice	11	2,970	.58	.62	.15	.34	.81	.58/.66
	Procedural justice	13	3,670	.45	.48	.18	.07	.65	.45/.51
Supervisor satisfaction (field studies)	Distributive justice	6	14,232	.36	.58	.15	.21	.61	.56/.60
	Procedural justice	9	15,348	.47	.57	.15	.28	.76	.55/.59
	Interactional justice	3	766	.48	.52	.07	.43	.56	.45/.59
Supervisor satisfaction (laboratory experiments)	Distributive justice	4	320	.58	.55	.12	.46	.69	.44/.66
	Procedural justice	4	364	.52	.52	.19	.28	.75	.42/.62
Management satisfaction	Distributive justice	8	3,125	.28	.27	.09	.18	.43	.23/.31
	Procedural justice	8	3,125	.27	.27	.11	.13	.43	.23/.31
Union satisfaction	Distributive justice	8	3,125	.47	.45	.15	.41	.54	.43/.51
	Procedural justice	8	3,125	.55	.52	.13	.39	.76	.51/.59
Performance appraisal satisfaction	Distributive justice	3	364	.60	.63	.17	.41	.75	.53/.73
Task satisfaction (laboratory experiments)	Procedural justice	9	1,464	.31	.29	.15	.10	.58	.24/.34
Intrinsic satisfaction	Distributive justice	5	2,553	.32	.32	.15	.18	.57	.28/.36
	Procedural justice	6	2,787	.31	.30	.12	.17	.53	.26/.34
Extrinsic satisfaction	Distributive justice	5	2,553	.27	.24	.12	.16	.43	.20/.28
	Procedural justice	5	2,553	.27	.27	.11	.19	.46	.23/.31

TABLE 7—*Continued*

		<i>k</i>	<i>N</i>	Mean <i>r</i>	Weighted Mean <i>r</i>	<i>SD</i>	Min	Max	CI
Affective commitment	Distributive justice	27	20,257	.37	.47	.14	.07	.75	.46/.48
	Procedural justice	52	27,437	.43	.50	.11	.02	.61	.49/.51
	Interactional justice	13	2,355	.42	.38	.15	.09	.64	.34/.42
Continuance commitment	Procedural justice	3	688	−.08	−.22	.43	−.50	.36	−.29/−.15
	Interactional justice	3	596	−.09	−.12	.07	−.15	−.02	−.20/−.04
Normative commitment	Procedural justice	4	823	.42	.41	.08	.35	.53	.34/.48
Trust in organi- zation	Distributive justice	5	754	.43	.43	.09	.35	.56	.36/.50
	Procedural justice	9	1,330	.48	.48	.18	.08	.66	.43/.53
	Interactive justice	3	409	.40	.35	.24	.26	.68	.25/.45
Trust in supervisor	Distributive justice	8	1,849	.50	.55	.12	.35	.67	.50/.60
	Procedural justice	9	1,914	.59	.65	.13	.38	.77	.61/.69
Trust—other	Distributive justice	6	1,410	.29	.33	.43	−.55	.68	.28/.38
	Procedural justice	11	3,944	.61	.49	.19	.21	.79	.46/.52
Negative emotions	Distributive justice	3	890	−.28	−.27	.10	−.38	−.18	−.34/−.20
	Procedural justice	5	1,150	−.32	−.32	.16	−.54	−.18	−.38/−.26
Leader—member exchange	Distributive justice	4	791	.27	.27	.03	.24	.30	.20/.34
	Procedural justice	6	1,555	.41	.37	.20	.29	.80	.32/.42
	Interactional justice	3	871	.66	.67	.18	.48	.83	.60/.74
Turnover intentions	Distributive justice	8	14,572	−.26	−.40	.11	−.43	−.08	−.42/−.38
	Procedural justice	18	17,687	−.26	−.40	.16	−.50	.17	−.41/−.39
	Interactional justice	4	1,067	−.32	−.24	.15	−.52	−.17	−.30/−.18
Recommendation intentions	Procedural justice	3	2,166	.48	.53	.06	.43	.54	.49/.57

Note. *k* = number of studies; CI = 95% confidence interval for weighted mean *r*. Unless otherwise stated, all data are from field studies.

justice (weighted mean $r = .65$) to a significantly stronger extent than to distributive justice (weighted mean $r = .55$).

According to Table 7, procedural and distributive justice were similarly related to *negative emotions*. The correlations were $-.32$ and $-.27$, respectively, and the difference between the correlations was not significant. *Leader-member exchange* quality was, as expected, mainly related to interactional justice (weighted mean $r = .67$), followed by procedural justice (weighted mean $r = .37$) and distributive justice (weighted mean $r = .27$, the differences between the last two being nonsignificant).

Turnover intentions were equally, strongly, and negatively related to distributive and procedural justice (weighted mean $r = -.40$). Interactional justice was also related to turnover intentions, but to a significantly lower extent (weighted mean $r = -.24$). *Intentions to recommend the organization* to others were strongly related to procedural justice (weighted mean $r = -.53$).

DISCUSSION

We sought to summarize in this meta-analysis the existing data concerning perceived organizational justice in relation to other variables. Our investigation was guided by the topics that occupied researchers of organizational justice thus far. Therefore, the specific issues we examined dealt with the (a) justification of studying three major types of justice: distributive, procedural, and interactional; (b) the organizational and personal predictors of perceived organizational justice; and (c) the so-called outcomes of organizational justice, as are indicated by employees' behavioral, attitudinal, and affective reactions to perceived organizational justice.

Process and Outcome Predictors of Perceived Justice

Our field studies findings show that as predicted, the characteristics of the process (voice) are more strongly related to perceptions of procedural justice than to perceptions of distributive justice and that organizational-level practices (affirmative action-related procedures) are most strongly related to procedural justice rather than to distributive justice. However, the results of laboratory experiments regarding voice and justice do not follow the expected pattern and show no difference in the relationship of voice with distributive and procedural justice. We do not have an easy explanation for this difference in laboratory and field outcomes. However, it is an important finding that should be further examined.

Our findings show only partial support for the prediction that characteristics of the outcome are more strongly related to perceptions of distributive justice than to perceptions of procedural justice. Thus, the prediction is supported only with respect to *outcome negativity*. Yet, it is important to note that although differences exist between these correlates and procedural and distributive justice, the correlations are relatively high with both constructs. Outcome satisfaction and amount of pay raise (which can be looked at as a specific case of outcome negativity) similarly relate to procedural and distributive justice perceptions.

Why is there only partial support for the prediction regarding organizational outcomes and fairness perception? It may be that the answer to it lies in the interactive relations between procedural and distributive justice, as were documented in the literature (Brockner & Wiesenfeld, 1996). Thus, negative outcomes lead people to examine the procedure used to arrive at them, and poor procedures lead people to examine the valance and fairness of the outcomes resulting of them. Hence, both procedures and outcomes determine perceived fairness, and in general, negative and unsatisfactory outcomes are accompanied by perceptions of both distributive and procedural unfairness. These outcomes demonstrate the need by organizations wishing to appear as just to maintain justice in procedures and outcomes alike. In this respect, our conclusion supports the cautionary notes made by Brockner and Wiesenfeld (1996), clarifying that (a) procedural justice might reduce, but not eliminate, effects of unfavorable outcomes and (b) that process and outcome factors are related to each other (as also seen in our results).

Demographic Variables as Predictors of Perceived Justice

Our findings show that the demographic characteristics of the perceiver generally play a minor role in justice perceptions. Thus, regardless of *age*, *gender*, *race*, *education level*, and *tenure*, people tend to perceive justice similarly. Of these variables, gender and race were the main variables theorized to affect justice perceptions mainly through (a) egocentric bias, concentrating on the ability of a certain outcome and procedure to be favorable to the perceiver (Cohen-Charash, 1997; Heilman et al., 1996; Heilman, Simon, & Repper, 1987; Kravitz & Platania, 1993; Kulik et al., 1996); or through (b) different emphases placed by various groups on different aspects of procedures and outcomes (Brockner & Adsit, 1986; Gilliland, 1993; Kulik et al., 1996). That we did not find justice perceptions to be more strongly related to the perceiver's demographic group corroborates previous findings (Witt & Nye, 1992).

While we can say that we found little or no main effect of demographic variables on justice perceptions, we do not know, based on this meta-analysis, about interactions of demographics with other variables. For example, Bauer (1999) found no main effect of gender on the perceived fairness of mentoring, although she did find that gender interacts with other variables to predict perceived fairness. Similar interaction effects involving gender were found in other studies as well (e.g., Leung & Lind, 1986). Thus, rather than looking for main effects, future analyses should consider the contingencies under which gender influences justice perceptions.

One demographic variable we did not have specific hypotheses for, but did have a significant relationship with procedural justice, is salary. Thus, the higher the salary, the higher the perceived procedural fairness of organizational practices. The fact that salary is distributed by the organization, explains why its' perceived fairness relates to procedural, more than to distributive, justice. The relationship itself can be explained by self-interest models, according to

which better outcomes, combined with fair procedures, will guarantee future positive outcomes.⁵

Personality Variables

As for personality variables, our findings show *negative affectivity* to be negatively related to procedural justice and to interactional justice, significantly more than to distributive justice. Negative affectivity was mainly studied for its hypothesized role as a control variable affecting the relationship between perceived justice and the outcomes of these perceptions (Folger & Konovsky, 1989; Lowe & Vodanovich, 1995) or as a moderator of the relations between perceived fairness and reaction to it (Skarlicki et al., 1999). Recently, however, negative affectivity was studied for its direct effect on perceived fairness (Wanberg et al., 1999). According to Wanberg et al. (1999), people high in negative affectivity perceive events in a more negative way and hence are prone to perceive higher levels of injustice than people low in negative affectivity. The findings of this meta-analysis show the Wanberg et al. (1999) prediction to be correct mainly for perceived procedural and interactional justice, but only marginally for perceived distributive justice, although the reasons for this difference are currently unclear.

Unfortunately, we do not have the data needed to compare the relations of positive affectivity to procedural and distributive justice, but it should be interesting for future research to examine if people high in positive affectivity, who perceive events in a more positive way, will perceive an event to be more fair than people low in positive affectivity. On the same lines, other personality characteristics, such as agreeableness, may be good predictors of perceived justice, an issue that should be examined in the future.

Self-esteem was only marginally related to procedural justice. Our introduction specified competing hypotheses regarding the relationship between self-esteem and justice perception. Whereas the Group Value Model hypothesis predicted positive relationship between procedural justice and self-esteem, the attribution theory hypothesis predicted negative relationship between the two.

⁵ An additional demographic variable that might play a role in justice perceptions is *culture*. Justice researchers found differences in procedural and distributive justice perceptions among members of individualistic and collectivistic societies (Leung & Bond, 1984; Leung & Lind, 1986), attributed by the researchers to the different emphases put by members of different cultures. Whereas members of collectivistic cultures are predicted to prefer interpersonal harmony and group solidarity, members of individualistic societies tend to emphasize their own personal outcomes and value competitiveness, autonomy, and achievement. Because of these different values and emphases, predictions were made regarding the different preferences for various distributive and procedural justice rules. For example, research found that members of individualistic societies preferred process control (a component of fairness) more than members of collectivistic societies did (Leung & Lind, 1986). Apparently, process control can result in personal conflict, which is to be avoided under collectivistic values. Currently we do not have enough cross-cultural data that focuses on organizations to be able to examine culture differences in perceived organizational justice. However, this is a possible future venue for researchers to take. Furthermore, culture can be operationalized at the organizational, rather than at the societal, level. We thank an anonymous reviewer for pointing the issue of culture to us.

The positive correlation we received here gives some support to the Group Value Model prediction. However, this correlation is small enough to examine moderating factors (e.g., valance of outcomes; Schroth & Pradhan Shah, 2000) that can influence the relationship between procedural justice and self-esteem. As of yet, it is still unclear how and when personality variables affect justice perceptions. To the extent justice is in the eye of the beholder, this is an important question that should be further examined, as very few studies have looked at personality differences in perceived justice.

Justice and Work Performance

Results from field studies show that work performance is strongly related to procedural justice, but hardly to distributive and interactional justice. This contradicts most theorizing regarding the relationship between distributive justice and performance, which has been considered to be linked (Lind & Tyler, 1988). It may be that when outcomes are distributed unfairly, people examine the procedure (Brockner & Wiesenfeld, 1996) to see if it was fair, and only if it is not do they withhold performance as a legitimate means, in their view, of restoring equity (a social exchange perspective; Konovsky & Cropanzano, 1991). Our results support the social exchange predictions regarding procedural justice and performance, but not the predictions regarding interactional justice and performance. Apparently, performance is an organization-related, rather than supervisor-related, behavior.

There is a striking difference between laboratory and field studies outcomes when dealing with work performance. Whereas the results of field studies show a strong relationship between procedural justice and performance, results of laboratory studies show a weak relationship between the two and no relationship between distributive justice and performance. It may be that in laboratory setting, the relationship between justice and performance is much weaker than in field studies because performance is influenced by situational demands that are salient in the laboratory, more than in the field.

The outcomes regarding justice and *compliance* with decisions are different than the outcomes regarding justice and performance. To the extent justice is sufficient to affect performance, we would expect it to also affect compliance (Kim & Mauborgne, 1993), but it did not. According to our findings, procedural justice is only marginally related to compliance. It might be that compliance with decisions and regulations is different from routine performance, as it signifies a change in an existing situation that is typically given close scrutiny by management. For example, when a smoking ban is introduced, it means something is going to change in the normal course of events (Greenberg, 1994). Thus, it is an issue for future research, to examine under what conditions procedural justice affects compliance and under what conditions it does not.

Justice and Organizational Citizenship Behaviors

The outcomes of our meta-analysis show that procedural and distributive justice are similarly related to organizational citizenship behaviors. It is interesting to note that facets of citizenship behaviors (i.e., altruism and conscientiousness) have lesser magnitudes of relations with procedural and distributive justice compared to organizational citizenship behaviors in general, perhaps because the latter measures cover a larger set of behaviors. We also have data regarding the relationship between facets of citizenship behaviors and interactional justice, showing no difference in the magnitude of the relationship as compared to distributive and procedural justice. Therefore, we can say that our prediction that all three kinds of justice will be similarly related to organizational citizenship behaviors was supported.

It is important to note that as much as OCB is influenced by supervisors' and organizations' treatment of employees and by procedural and distributive justice, OCB can influence behaviors of supervisors and organizations toward employees. For example, it is possible that employee's willingness to engage in OCB will elicit a more considerate interpersonal treatment by managers. Therefore, although most OCB and justice research examines OCB as a criterion, it might also be a predictor of justice perceptions. We recommend future studies to focus on the causality of these relations, rather than continue to replicate the existence of relations.

Justice and Counterproductive Work Behaviors

Our results show that, as predicted, counterproductive work behaviors are similarly related to procedural and to distributive justice. We could not evaluate the relative magnitude of the relations between interactional justice and counterproductive behaviors due to the low number of studies examining this point. We also wanted to examine if interpersonal conflict will be mainly related to interactional justice, but were not able to conduct this examination. However, our outcomes show that procedural and distributive justice are similarly and marginally related to conflict.

Justice and Satisfaction

General job satisfaction, being an omnibus measure, is similarly and relatively highly related to all three justice types. This is contrary to the prediction that general satisfaction will be related to procedural justice more than to distributive justice. Likewise, *union satisfaction* is similarly related to procedural justice and to distributive justice, contrary to our expectations. Results contradicting our hypotheses were also found regarding *management satisfaction*, which was also similarly predicted by distributive and procedural justice rather than mainly by procedural justice. Likewise, although we predicted *supervisory satisfaction* to be mainly related to interactional justice, our findings do not support this prediction, showing that supervisory satisfaction is

similarly related to all three justice types. These findings are also found in laboratory experiments, corroborating outcomes from field studies. Intrinsic satisfaction is similarly related to procedural and distributive justice and so is extrinsic satisfaction. Our satisfaction hypotheses are supported, however, regarding *pay satisfaction*, which is highly related to both distributive and procedural justice, but significantly more so to distributive justice, as predicted.

To summarize, our results concerning satisfaction measures are, for the most part, not in accord with procedural justice theory (Lind & Tyler, 1988; Sweeney & McFarlin, 1993). Rather than finding a distinction between justice perceptions and satisfaction based on the focus of the object of satisfaction (organization wide, outcome specific, or relations specific), in all cases except one (pay satisfaction), we found similar relations among all justice types and satisfaction. Thus, to maintain employees' satisfaction, managers should take care that distributions, procedures, and interactions will all be fair.

Justice and Organizational Commitment

Affective commitment (emotional attachment to the organization) is an organizationwide outcome and, hence, usually predicted to be related mainly to procedural justice rather than to distributive justice (Konovsky & Cropanzano, 1991). In accordance with these predictions, our results show affective commitment to be significantly more strongly related to procedural justice than to distributive justice or to interactional justice, although the latter two are highly related to commitment as well. Continuance commitment (attachment to the organization that is based on an inability to quit rather than on positive endorsement of the organization), on the other hand, is usually predicted to be unrelated to justice (Konovsky & Cropanzano, 1991). Our findings, however, show continuance commitment to be negatively related to procedural and interactional justice. That is, when employees perceive fairness in procedures and respectful treatment, they perceive themselves to have more investments in the organization. Conversely, when procedures and treatment are unfair, the individual will likely feel that there is little to lose by moving to a new employer. Our results contradict some predictions (Schappe & Doran, 1997) and support others (Tepper, 2000). It may be that fair procedures lead people to feel obliged to the organization, again, supporting a social exchange view of organizational justice. In total, these findings show that multiple aspects of commitment are related to multiple justice types, indicating the role justice plays in organizational commitment is stronger than the role usually assumed.

Justice and Trust

Procedural justice, but not distributive justice, is said to predict organizational trust (Folger & Konovsky, 1989; Konovsky & Cropanzano, 1991; Konovsky & Pugh, 1994), as it refers to the general way by which the organization conducts its business. Thus, procedural justice means the organization acts fairly as a rule and hence can be trusted. This prediction, however, is not

supported by our findings. Trust in organization/management is similarly predicted by procedural, distributive, and interactional justice.

Trust in the supervisor is predicted by procedural justice better than by distributive justice. We were unable to examine the relation between trust in supervisor and interactional justice, which we predict should be stronger than the relation between trust and procedural justice. Still, although procedural justice is a better predictor of trust than distributive justice, one is not to take lightly the strong relation between distributive justice and trust. In accordance with our expectations, *leader-member exchange* quality is mainly related to interactional justice in comparison to distributive and procedural justice.

Justice and Turnover Intentions

Turnover intentions and actual turnover are predicted to relate to both procedural and distributive justice. As both justice forms mean the organization's distributions and procedures are fair, employees' motivation to leave should be reduced (Daly & Geyer, 1994; Konovsky & Cropanzano, 1991). Alternatively, it might be claimed that only procedural justice will be related to turnover because procedural justice indicates organizational norms of decision making, which are beyond any specific outcome (Dailey & Kirk, 1992). Thus, as long as procedures are fair, specific negative outcomes would not cause people the wish to leave the organization. Procedural justice is also considered to be a better predictor of turnover intentions than interactional justice (Masterson et al., 2000). Our results show procedural and distributive justice to equally predict turnover intentions and interactional justice to be the least potent predictor of intentions. There were too few studies of turnover itself for us to include in the meta-analysis. Additional research is needed to study the effects of justice perceptions on actual turnover behavior.

Negative Emotions

Negative emotional reactions are similarly predicted by procedural and distributive injustice. This is in accordance with our expectations.

CONCLUSIONS

Our findings allow us to answer the three questions that were in the basis of our analysis and to raise questions for future research.

1. *Is it justified studying three types of justice?* The general picture that emerges from the meta-analysis is that distributive, procedural, and interactional justice are strongly related, yet distinct constructs. This conclusion is based on (a) the level of correlations among the three types of justice and (b) the different relationships between the three types of justice and their correlates. Thus, our findings support the need in having separate operationalizations of justice (Colquitt, 1999). One possibility that was not examined in this meta-analysis or in existing research is that interactional justice is not an

independent justice type at all, but rather an antecedent of distributive and procedural justice, as are voice (Thibaut & Walker, 1978) and adherence to Leventhal's six justice criteria (Leventhal, 1980), which were examined in a recent meta-analysis (Colquitt et al., in press).⁶ It may be that interpersonal treatment is a kind of organizational outcome that contributes to perceptions of distributive justice as well as a part of organizational practices, hence contributing to perceptions of procedural justice.

2. *What do we know about the antecedents of organizational justice?* Our findings show that generally, we do not know enough. Although we have enough data on some aspects of organizational practices (e.g., voice), we do not have enough data on other aspects of organizational practices, such as correctability and representativeness. Also, we do not know enough about organizational antecedents of interactional justice. In fact, we did not have enough data on many predictors of justice to be included in our meta-analysis. Furthermore, almost all field studies of justice used a cross-sectional, single-source design, making it difficult to draw firm conclusions about the direction of causality. The range of variables studied in laboratory experiments is much smaller than that studied in field studies, but it allows us to conclude that voice, outcome negativity, and outcome satisfaction are predictors of fairness.

As for the personal antecedents of perceived fairness, we did not find much relation of demographic variables with perceived fairness, meaning that regardless of age, gender, race, and education, all people view justice similarly. Apparently, if there is a relation between demographics and perceived fairness, it is far from simple. We see it as a challenge for future research to examine this question further and to furnish us with a better knowledge of the conditions, if any, under which various demographic and personality variables affect justice perceptions. We also recommend expanding the range of demographic predictors to factors such as culture, as discussed above. Studies looking at personality have been quite scarce. The variable given the most attention has been negative affectivity, but it is not clear why it is more related to the perceptions of procedural than distributive justice. The relationship between self-esteem and procedural justice is smaller than we would expect based on the Group Value Model. Therefore, it should be further investigated to untangle its possible complexity.

3. *What do we know about the outcomes of organizational justice?* (a) Procedural justice is the best predictor of work performance and of counterproductive work behavior, but all justice forms are related to organizational citizenship behaviors. (b) All satisfaction and most trust measures (with the exception of trust in supervisor) are similarly predicted by all justice types. (c) Affective commitment is predicted by all justice types, but best by procedural justice. Procedural and distributive justice negatively predict continuance commitment. This is an important finding, stressing the need to learn more about

⁶ Of course, one justice type can serve as an antecedent to another, and several justice types can interact to influence perceived fairness (Brockner & Wiesenfeld, 1996).

continuance and normative commitment. (d) Perceived injustice causes negative emotional reactions in the forms of mood and anger.

A common problem with the attitudinal and emotional outcomes of perceived injustice is that no evidence exists allowing causal conclusions, and it is certainly possible that perceptions of justice are themselves an outcome of attitudes about work and of perceiver's emotions. Therefore, future research should establish that causal relations among fairness perceptions, emotions, and attitudes.

4. *Field studies and laboratory experiments.* Our findings show that at times, field and laboratory studies yield similar, corroborating results, if not in magnitude, than in direction. Thus, the relationship between procedural and distributive justice are stronger in the laboratory than in the field, but are still in the same direction. The relationship between distributive justice and interactional justice, and between procedural and interactional justice, are similar across field and laboratory studies. The direction of results concerning outcome negativity and justice perceptions is also similar across field and laboratory studies, but outcome satisfaction is more strongly related to distributive justice in the laboratory, than in the field. And finally, the relations between supervisor satisfaction and justice perceptions are identical in the field and in the laboratory.

At other times, however, field and laboratory studies yield different outcomes, not only in magnitude, but also in pattern. Voice influences both distributive and procedural justice when examined in the laboratory, but only procedural justice when examined in the field. Work performance is strongly related to procedural justice when examined in the field, but not in the laboratory. These findings mean that we should be careful when generalizing from laboratory experiments to field studies and that such generalizations should not be done without proper examination of their validity.

5. *Where do we go from here?* We have already stressed the need to examine (a) more antecedents of justice perceptions at the personal and the organizational levels, (b) more antecedents and consequences of interactional justice, and (c) causal relations between perceived justice and its correlates. We also recommend studying more personal and situational predictors of reactions to perceived organizational justice.

However, we should also improve our knowledge about the importance of context on perceived justice (Barrett-Howard & Tyler, 1986). For example, following Lind and Tyler (1988), we may predict that procedural justice will be more important than distributive justice under contexts of difficult decisions that might hurt or be of great significance to the person affected by them (e.g., layoffs). Context may influence not only the importance of kind of justice, but also the importance of various principles within each kind of justice. The notion that different distributive rules prevail in different situations is not new (Deutsch, 1975) and was also found to apply in organizations (Martin & Harder, 1994). A similar contextual influence of perceptions of procedural justice exists as well. A review by Cropanzano and Greenberg (1997) demonstrated various combinations of factors contribute to perceived

procedural fairness in various contexts (e.g., performance evaluations, strategic planning, drug screening, and personnel selection).

Another direction we need to take should focus on the nature of unfairness when it is beneficial for the perceiver. We know a lot about unfairness when it harms the person. However, what happens when unfairness is beneficial to the person? Will there be differences in the perception of distributive and procedural justice? Will there be a difference in the reactions to such unfairness? Finally, as we have already noted, most studies of fairness in field settings have been surveys. Thus we have a wealth of information concerning correlates of fairness, but we need studies that address causal relations. These include field experiments and quasiexperiments as well as longitudinal studies.

6. *The contribution of the current meta-analysis to our field.* Our meta-analysis complements another meta-analysis on the issue of justice in organizations which was conducted simultaneously with ours (Colquitt et al., in press). Although both meta-analyses examine the topic of organizational fairness, the studies are quite different. (a) Whereas the current meta-analysis examines justice as a three-construct concept, composed of distributive, procedural, and interactional justice, the Colquitt et al. meta-analysis treats justice as a four-construct concept composed of distributive, procedural, informational, and interpersonal justice (Greenberg, 1993a). These differences in the conceptualization of justice allow the reader a unique opportunity to compare and contrast the same issue examined from two points of view. (b) Whereas the current meta-analysis focuses on both antecedents and outcomes of organizational fairness and presents a fine-grained analysis of both, the Colquitt et al. meta-analysis focuses on the operationalizations of justice itself and compares various conceptualizations of procedural justice, as influenced by process control variables (Thibaut & Walker, 1978) or by the Leventhal six procedural justice criteria (Leventhal, 1980). (c) The studies differ in the way they treat various sources of data. Whereas the current study separates field and laboratory studies, a practice supported by our results, Colquitt et al. combine laboratory and field data in the same analysis. Also, whereas the present study uses only data that was measured in organizational contexts or used organizational-relevant manipulations, Colquitt et al. includes a broader range of justice studies. (d) The studies also differ in their methodological approach. We used procedures recommended by Rosenthal (1991), where Colquitt et al. chose the Hunter and Schmidt (1990) approach.

We do not see the present article as the appropriate place to debate the rationale and merit of some of the above differences. We do believe, however, that the mere fact that despite these differences in focus and methodology, the results of both studies point to similar directions in relations where results overlapped is very good news to the robustness of results in the field of organizational justice.

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