

## Justice at the Millennium: A Meta-Analytic Review of 25 Years of Organizational Justice Research

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The field of organizational justice continues to be marked by several important research questions, including the size of relationships among justice dimensions, the relative importance of different justice criteria, and the unique effects of justice dimensions on key outcomes. To address such questions, the authors conducted a meta-analytic review of 183 justice studies. The results suggest that although different justice dimensions are moderately to highly related, they contribute incremental variance explained in fairness perceptions. The results also illustrate the overall and unique relationships among distributive, procedural, interpersonal, and informational justice and several organizational outcomes (e.g., job satisfaction, organizational commitment, evaluation of authority, organizational citizenship behavior, withdrawal, performance). These findings are reviewed in terms of their implications for future research on organizational justice.

The study of justice or fairness has been a topic of philosophical interest that extends back at least as far as Plato and Socrates (Ryan, 1993). Colloquially, the term *justice* is used to connote “oughtness” or “righteousness.” Under the purview of ethics, an act can be defined as just through comparison with a prevailing philosophical system. Unfortunately, often there is no agreement on what that philosophical system should be. For example, Aristotle (reprinted in Frost, 1972) noted that people in different roles will advocate different justice rules, arguing that “the democrats are for freedom, oligarchs for wealth, others for nobleness of birth” (p. 136; see also Pillutla & Murnighan, 1999).

In research in the organizational sciences, justice is considered to be socially constructed. That is, an act is defined as just if most individuals perceive it to be so on the basis of empirical research (Cropanzano & Greenberg, 1997). Thus, “what is fair” is derived from past research linking objective facets of decision making to subjective perceptions of fairness. In particular, justice in organizational settings can be described as focusing on the antecedents and consequences of two types of subjective perceptions: (a) the fairness of outcome distributions or allocations and (b) the fairness of the procedures used to determine outcome distributions or allocations. These forms of justice are typically referred to as

distributive justice (Adams, 1965; Deutsch, 1975; Homans, 1961; Leventhal, 1976) and procedural justice (Leventhal, 1980; Leventhal, Karuza, & Fry, 1980; Thibaut & Walker, 1975).

Efforts to explain the impact of justice on effective organizational functioning have come under the rubric of organizational justice research (Greenberg, 1987b, 1990b). Greenberg (1990b) described organizational justice as a literature “grown around attempts to describe and explain the role of fairness as a consideration in the workplace” (p. 400). This literature includes both field and laboratory research, and organizational justice has been among the most frequently researched topics in industrial-organizational psychology, human resource management, and organizational behavior over the last decade (Cropanzano & Greenberg, 1997).

As interest in organizational justice has proliferated, so too have the theoretical approaches used to study it, particularly in relation to procedural justice. These approaches each propose a different way of conceptualizing justice, from the provision of process control (Thibaut & Walker, 1975) to a focus on consistency (Leventhal, 1980; Leventhal et al., 1980) and an examination of interpersonal treatment (Bies & Moag, 1986). In addition, a large number of studies have sought to link justice perceptions to a variety of organizational outcomes, including job satisfaction, organizational commitment, withdrawal, and organizational citizenship behavior.

Because of this diversity in theoretical approach and construct focus, organizational justice is a field in need of integration. There have been a number of narrative reviews that have sought to achieve such integration (e.g., Cropanzano & Greenberg, 1997; Folger & Cropanzano, 1998; Lind & Tyler, 1988; Greenberg, 1987b, 1990b). However, important questions remain, including the following: How highly related are the different dimensions of organizational justice, and can they be empirically distinguished

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from one another? Have the different ways of conceptualizing justice improved our ability to create perceptions of fairness? and What are the relationships between different organizational justice dimensions and important outcomes relevant to organizations? The first question deals with issues of construct discrimination (i.e., to what extent are constructs distinct from one another?). The second question deals with what Greenberg (1987b) called proactive research (i.e., research devoted to creating perceptions of fairness). The last question deals with what Greenberg (1987b) called reactive research (i.e., research devoted to understanding how individuals react to fair or unfair treatment).

The purpose of this study was to conduct a comprehensive, meta-analytic review of the existing literature on organizational justice. To our knowledge, a meta-analysis has never been conducted in the organizational justice literature, even though meta-analysis has several important strengths relative to traditional narrative reviews (Hunter & Schmidt, 1990). First, meta-analysis is a more powerful summarizing tool because it yields a quantitative population value for a relationship of interest. Second, meta-analysis typically includes more studies than narrative reviews and is therefore less susceptible to biases based on study inclusion. Third, meta-analysis allows the reviewer to understand why relationships in the literature vary as a function of sampling error, measurement error, and moderator variables. These strengths make meta-analysis an effective way of examining the three types of questions just listed.

We conducted meta-analyses on all articles in the organizational justice literature published since 1975. We chose 1975 as our starting date because this is when Thibaut and Walker introduced the procedural justice construct, which allowed for the comparative study of the influence of multiple dimensions of justice. That year also marks, approximately, the time when justice researchers began integrating fairness concerns with outcomes relevant to organizations (e.g., job satisfaction and organizational commitment). Thus, as we reach the millennium, this review covers a quarter century of academic research. Our analyses dealt with all three types of questions raised earlier: construct discrimination issues, proactive research issues, and reactive research issues. In total, we relied on 120 separate meta-analyses, along with the emerging technique of meta-analytic regression analysis (Viswesvaran & Ones, 1995), to explore the three types of questions. We provide a brief review of the organizational justice literature before reviewing the specific research questions explored in this article.

## A Brief Review of the Organizational Justice Literature

### *Introduction of Distributive Justice*

Before 1975, the study of justice was primarily concerned with distributive justice. Much of this research was derived from initial work conducted by Adams (1965), who used a social exchange theory framework to evaluate fairness. According to Adams, what people were concerned about was not the absolute level of outcomes per se but whether those outcomes were fair. Adams suggested that one way to determine whether an outcome was fair was to calculate the ratio of one's contributions or "inputs" (e.g., education, intelligence, and experience) to one's outcome and then compare that ratio with that of a comparison other. Although the comparison of the two input–outcome ratios gives Adams's equity

theory an "objective" component, he was clear that this process was completely subjective.

Whereas Adams's theory advocated the use of an equity rule to determine fairness, several other allocation rules have also been identified, such as equality and need (e.g., Leventhal, 1976). Studies have shown that different contexts (e.g., work vs. family), different organizational goals (e.g., group harmony vs. productivity), and different personal motives (e.g., self-interest motives vs. altruistic motives) can activate the use or primacy of certain allocation rules (Deutsch, 1975). Nevertheless, all of the allocation standards have as their goal the achievement of distributive justice; they merely attempt to create it through the use of different rules.

### *Introduction of Procedural Justice*

With the publication of their book summarizing disputant reactions to legal procedures, Thibaut and Walker (1975) introduced the study of process to the literature on justice. Thibaut and Walker (1975) viewed third-party dispute resolution procedures such as mediation and arbitration as having both a process stage and a decision stage. They referred to the amount of influence disputants had in each stage as evidence of process control and decision control, respectively. Their research suggested that disputants were willing to give up control in the decision stage as long as they retained control in the process stage. Stated differently, disputants viewed the procedure as fair if they perceived that they had process control (i.e., control over the presentation of their arguments and sufficient time to present their case). This process control effect is often referred to as the "fair process effect" or "voice" effect (e.g., Folger, 1977; Lind & Tyler, 1988), and it is one of the most replicated findings in the justice literature. Indeed, Thibaut and Walker (1975) virtually equated process control with procedural justice (Folger & Cropanzano, 1998).

Although Thibaut and Walker (1975) introduced the concept of procedural justice, their work focused primarily on disputant reactions to legal procedures. Although a focus on justice and law continues to be of interest to scholars (e.g., Tyler, 1990), Leventhal and colleagues can be credited for extending the notion of procedural justice into nonlegal contexts such as organizational settings (Leventhal, 1980; Leventhal et al., 1980). In doing so, Leventhal and colleagues also broadened the list of determinants of procedural justice far beyond the concept of process control. Leventhal's theory of procedural justice judgments focused on six criteria that a procedure should meet if it is to be perceived as fair. Procedures should (a) be applied consistently across people and across time, (b) be free from bias (e.g., ensuring that a third party has no vested interest in a particular settlement), (c) ensure that accurate information is collected and used in making decisions, (d) have some mechanism to correct flawed or inaccurate decisions, (e) conform to personal or prevailing standards of ethics or morality, and (f) ensure that the opinions of various groups affected by the decision have been taken into account.

### *Introduction of Interactional Justice*

Bies and Moag (1986) introduced the most recent advance in the justice literature by focusing attention on the importance of the quality of the interpersonal treatment people receive when procedures are implemented. Bies and Moag (1986) referred to these

aspects of justice as “interactional justice.” More recently, interactional justice has come to be seen as consisting of two specific types of interpersonal treatment (e.g., Greenberg, 1990a, 1993b). The first, labeled interpersonal justice, reflects the degree to which people are treated with politeness, dignity, and respect by authorities or third parties involved in executing procedures or determining outcomes. The second, labeled informational justice, focuses on the explanations provided to people that convey information about why procedures were used in a certain way or why outcomes were distributed in a certain fashion.

### Questions Permeating the Organizational Justice Literature

The proliferation of studies on organizational justice has certainly enhanced the visibility of fairness concerns, but the large number of studies and the differing theoretical perspectives raise the concern that justice scholars may be “losing the forest for the trees.” In other words, despite the large accumulation of findings, many central questions remain either unaddressed or unclear. Until such questions are addressed, theory development in the organizational justice literature will continue to be hindered. Our meta-analytic review examines some of these central questions, with specific areas of focus discussed in the sections to follow.

#### *Construct Discrimination Questions*

Perhaps the oldest debate in the justice literature concerns the independence of procedural and distributive justice. Some studies have revealed extremely high correlations between the two justice dimensions, suggesting that they may not be distinct in the minds of many people (Folger, 1987). For example, Sweeney and McFarlin (1997) found an uncorrected correlation of .72 between procedural and distributive justice in a study of attitudes among federal employees. Welbourne, Balkin, and Gomez-Mejia (1995) found an uncorrected correlation of .74 in a study of employees in two different companies, one a high-technology firm and the other a consumer products firm. Possibly as a result of such findings, Martocchio and Judge (1995) conducted a study of disciplinary decisions in which no effort was made to separate procedural and distributive justice. Rather, the authors examined the effects of “organizational justice.”

Such high correlations are congruent with theoretical arguments made by Cropanzano and Ambrose (2001). These authors have argued that the procedural justice–distributive justice distinction, although necessary and valuable, may sometimes be overemphasized. Their “monistic perspective” notes that procedural evaluations are based in large part on outcomes attained (Thibaut & Walker, 1975) and that the same event can be seen as a process in one context and an outcome in another. For example, reorganizing a performance evaluation system so that it provides employees more process control can be termed a fair outcome, even though process control is a procedural construct.

The construct discrimination concern applies to an even greater degree to procedural and interactional justice. Bies and Moag (1986) originally declared interactional justice to be a third type of justice. They argued that people draw on interactional justice perceptions when deciding how to react to authority figures (i.e., bosses and supervisors), whereas procedural justice perceptions

are used to decide how to react to the overall organization. However, Bies retracted the position that interactional justice was a third type of justice in a subsequent review (Tyler & Bies, 1990). The author’s retraction of his earlier stance has become widely held, as one recent narrative review treated interactional justice as a social form of procedural justice (Cropanzano & Greenberg, 1997). In keeping with this view, many researchers have operationalized procedural justice by measuring process control or Leventhal criteria, along with interactional justice, in one combined scale (e.g., Brockner, Siegel, Daly, & Martin, 1997; Brockner, Wiesenfeld, & Martin, 1995; Folger & Konovsky, 1989; Konovsky & Folger, 1991; Mansour-Cole & Scott, 1998; Skarlicki & Latham, 1997). This practice seems to suggest that the interpersonal implementation of procedures need not (or cannot) be separated from their structural aspects.

However, other research has renewed the debate surrounding the distinctiveness of procedural and interactional justice. Studies that have examined the two constructs separately have shown that they have different correlates or independent effects, or both (e.g., Barling & Phillips, 1993; Blader & Tyler, 2000; Cropanzano & Prehar, 1999; Masterson, Lewis, Goldman, & Taylor, 2000; Moye, Masterson, & Bartol, 1997; Skarlicki & Folger, 1997). Blader and Tyler (2000), in a survey of 404 U.S. workers, found that system-originating procedural factors and leader-originating procedural factors remained distinct in a confirmatory factor analysis. Masterson, Lewis, et al. (2000) drew on social exchange theory to show that procedural and interactional justice affected other variables through different intervening mechanisms. Specifically, procedural justice affected other variables by altering perceived organizational support perceptions; interactional justice affected other variables by altering leader–member exchange perceptions (Graen & Scandura, 1987).

Even assuming that interactional justice can and should be distinguished from procedural justice, another question is whether the interpersonal and informational facets of the construct merit conceptual separation. Greenberg (1993b) suggested that interpersonal and informational justice should be separated because they are logically distinct and have been shown to have independent effects (e.g., Greenberg, 1993c, 1994). Interpersonal justice acts primarily to alter reactions to decision outcomes, because sensitivity can make people feel better about an unfavorable outcome. Informational justice acts primarily to alter reactions to procedures, in that explanations provide the information needed to evaluate structural aspects of the process.

Some recent work has attempted to address the construct discrimination questions raised earlier. Colquitt (2001) developed measures of distributive, procedural, informational, and interpersonal justice based on the seminal introductions of each construct (Bies & Moag, 1986; Leventhal, 1976, 1980; Leventhal et al., 1980; Thibaut & Walker, 1975) and validated them in both a university and a field setting. Colquitt found that a four-factor confirmatory model provided the best fit to the data and further showed that the four justice dimensions predicted different outcomes. Thus, although some progress is being made, the literature on organizational justice is still marked by a debate over whether the domain includes one, two, three, or four dimensions of justice. This is the subject of the first research question addressed in our meta-analytic review.

*Research Question 1:* How highly related are the different dimensions of organizational justice, and can they be empirically distinguished from one another?

### *Proactive Research Questions*

The history of research devoted to understanding what promotes perceptions of fairness has been marked by increasing complexity in operationalization as new and different conceptualizations have been introduced over the years. Thibaut and Walker (1975) initially assumed that perceptions of procedural fairness were driven by process control. Leventhal and colleagues (Leventhal, 1980; Leventhal et al., 1980), on the other hand, eschewed the parsimonious approach offered by Thibaut and Walker and instead argued that fairness perceptions were created by adherence to six different criteria. Bies and Moag (1986) further suggested that fairness perceptions were created by the proper enactment of procedures in terms of interpersonal and informational justice.

Such additional complexity is warranted if new approaches contribute incrementally to our understanding of how to foster perceptions of procedural fairness. Unfortunately, at present we do not actually know whether such incremental contributions exist. This is because so many studies of procedural justice collapse process control, Leventhal criteria, and interpersonal and informational justice into a single variable (e.g., Brockner et al., 1995, 1997; Folger & Konovsky, 1989; Konovsky & Folger, 1991; Mansour-Cole & Scott, 1998; Skarlicki & Latham, 1997). This makes it impossible to gauge the relative influence of each element on procedural fairness perceptions. Still other studies assess only one conceptualization of procedural justice, again making it impossible to assess the merits of different approaches.

Moreover, it is well accepted that people judge procedures as more fair when they result in fair or favorable outcomes (Lind & Tyler, 1988; Thibaut & Walker, 1975). Despite this, many studies of procedural justice do not also examine distributive justice. Other studies do examine distributive justice but use it only in analyses separate from procedural justice. As a result, we cannot even be sure that process control, Leventhal criteria, and so forth explain variance in procedural fairness perceptions beyond distributive justice. If the operationalizations of procedural justice contribute little to procedural fairness perceptions beyond simple outcome fairness, then the focus on additional conceptualizations has been unwarranted.

Thus, in terms of creating procedural fairness perceptions, it is unclear to what extent new conceptualizations of procedural justice (including the relatively recent introductions of interpersonal and informational justice) have contributed to our understanding. Nor is it clear how important they are beyond the fairness of outcome distributions. This is the subject of our next two research questions.

*Research Question 2:* Have the additional conceptualizations of procedural justice developed over time (including interpersonal and informational justice) contributed incremental variance explained in procedural fairness perceptions?

*Research Question 3:* Do those conceptualizations contribute incremental variance explained in procedural fairness perceptions beyond the effects of distributive justice?

### *Reactive Research Questions*

Of course, one of the reasons scholars study justice is the belief that enhanced fairness perceptions can improve outcomes relevant to organizations (e.g., organizational commitment, job satisfaction, and performance). One goal of our meta-analytic review is to help develop some consensus regarding the relationships between dimensions of justice and key outcomes. In particular, we evaluate the predictive ability of three different models that attempt to explain relationships between justice dimensions and important outcomes. These three models are the *distributive dominance model* suggested by Leventhal (1980), the *two-factor model* suggested by Sweeney and McFarlin (1993), and the *agent-system model* suggested by Bies and Moag (1986).

The relative predictive power of procedural and distributive justice has been of long-standing concern in the justice literature. An interesting aspect of Leventhal's (1980) work is that he explicitly considered the impact of both procedural and distributive justice and argued that distributive justice is generally more salient than procedural justice. He further argued that distributive justice judgments are likely to be more influential than procedural justice judgments in determining "overall fairness judgments" (Leventhal, 1980, p. 133; Lind & Tyler, 1988). Consistent with this argument, Conlon (1993) found that distributive justice explained more variance in grievant evaluations of authorities (an appeal board) than did procedural justice. These works support a strong, parsimonious prediction that distributive justice will dominate (i.e., explain more variance than) other forms of justice.

However, some prior research and theory have questioned this thesis. In perhaps the first empirical study to explicitly link multiple dimensions of justice to organizational outcomes, Alexander and Ruderman (1987) surveyed more than 2,000 federal employees, measuring procedural and distributive justice along with six outcomes. Their regression analyses showed that justice measures affected five of six organizational outcomes and that, for four of these five outcomes, procedural justice had stronger relationships than distributive justice.

More recently, scholars have argued that distributive justice is likely to exert greater influence on more specific, person-referenced outcomes such as satisfaction with a pay raise or performance evaluation. In contrast, procedural justice is likely to exert greater influence on more general evaluations of systems and authorities (Greenberg, 1990b; Lind & Tyler, 1988). Consistent with this prediction, McFarlin and Sweeney (1992) found that distributive justice was a more important predictor of what they termed two "personal outcomes" (pay satisfaction and job satisfaction) and that procedural justice was a more important predictor of two "organizational outcomes" (organizational commitment and subordinate's evaluation of supervisor).

Sweeney and McFarlin (1993) conducted perhaps the most comprehensive test of this notion. They contrasted four models expressing the relationship between procedural and distributive justice and two outcomes (pay satisfaction and organizational commitment). The idea that procedural justice predicts more system-referenced outcomes and distributive justice predicts more person-referenced outcomes was termed in their article the "two-factor model." They found that the two-factor model fit their data better than three competing models. Thus, drawing on the results

of these studies, we examine the two-factor model's prediction of differing effects for procedural and distributive justice.

Finally, Bies and Moag's (1986) focus on interpersonal treatment suggests a third approach to explaining organizational outcomes, one that explicitly examines the role of interpersonal and informational justice in addition to procedural justice. Recall that Bies and Moag (1986) originally argued that individuals draw on interpersonal and informational justice perceptions when deciding how to react to authority figures (i.e., bosses and supervisors) and draw on procedural justice perceptions when deciding how to react to the overall organization. Building on this work, Masterson, Lewis, et al. (2000) drew on social exchange theory (Blau, 1964) and reasoned that individuals in organizations were involved in two types of exchange relationships: exchanges with their immediate supervisor and exchanges with the larger organization. In a field study, the authors showed that interactional justice predicted supervisor-referenced outcomes (e.g., citizenship behaviors directed at supervisor and supervisor rating of performance), whereas procedural justice predicted organization-referenced outcomes (e.g., citizenship behaviors directed at the organization and organizational commitment). Thus, our third reactive model, the agent-system model, reflects the assertion that interpersonal and informational justice will be more powerful predictors of agent-referenced outcomes than system-referenced outcomes.

The distributive dominance model, the two-factor model, and the agent-system model are explored in the following set of research questions.

*Research Question 4:* What are the relationships between distributive justice and important organizational outcomes?

*Research Question 5:* What are the relationships between procedural justice and important organizational outcomes?

*Research Question 6:* What are the relationships between interpersonal and informational justice and important organizational outcomes?

*Research Question 7:* If considered simultaneously, what are the unique effects of these justice dimensions on key outcomes, and which of the three reactive models receives the most support?

Our review focuses on several different outcomes representing those most commonly examined in the organizational justice literature. In the following sections, we briefly review each type of outcome.

*Outcome satisfaction.* Many justice studies have measured satisfaction with the outcomes of a decision-making process, such as pay, promotions, and performance evaluations. Given the logic presented earlier, we expect that distributive justice judgments will be a better predictor of outcome satisfaction than will procedural justice or interpersonal and informational justice. This pattern has been empirically supported through the use of pay satisfaction and satisfaction with job restructuring (e.g., Folger & Konovsky, 1989; Lowe & Vodanovich, 1995; Sweeney & McFarlin, 1993), and it is consistent with both the distributive dominance and two-factor models.

*Job satisfaction.* Many studies also ask about employees' satisfaction with their jobs in general. McFarlin and Sweeney (1992) showed that distributive justice was a more powerful predictor of job satisfaction than was procedural justice. However, this does not seem to fit the two-factor theory argument that procedural

justice predicts system-referenced outcomes, whereas distributive justice predicts person-referenced outcomes. Job satisfaction is a more general, multifaceted, and global response than is outcome satisfaction. Consistent with this reasoning, other studies have shown high correlations between procedural justice and job satisfaction (e.g., Mossholder, Bennett, & Martin, 1998; Wesolowski & Mossholder, 1997). In addition, Masterson, Lewis, et al. (2000) showed procedural justice to be a stronger predictor of job satisfaction than interactional justice, although both had significant independent effects. These results are consistent with the two-factor model and the agent-system model.

*Organizational commitment.* Organizational commitment represents a global, systemic reaction that people have to the company for which they work. Most measures of organizational commitment assess affective commitment, the degree to which employees identify with the company and make the company's goals their own (Allen & Meyer, 1990). Prior work by Tyler (e.g., Tyler, 1990) argues that procedural justice has stronger relationships with support for institutions than does distributive justice. This is also consistent with the two-factor model and has been supported in several studies (e.g., Folger & Konovsky, 1989; McFarlin & Sweeney, 1992; Sweeney & McFarlin, 1993). However, we should note that several studies have instead supported the distributive dominance model. For example, Lowe and Vodanovich (1995) found a stronger relationship for distributive justice and organizational commitment than for procedural justice, as did Greenberg (1994). Other results support the agent-system model, in which procedural justice is a stronger predictor of organizational commitment than interactional justice (Masterson, Lewis, et al., 2000).

*Trust.* Trust has recently emerged as a popular topic in organizational research (as evidenced by the 1998 *Academy of Management Review* special issue devoted to the topic). Tyler (1989) argued that trust in decision makers or authorities is important because these people typically have considerable discretion in terms of allocating rewards and resources. Whereas Tyler (1989) initially conceptualized trust in relation to a third party or an authority, Folger and Cropanzano (1998) made the point that trust reactions are relevant to any person with whom one is interdependent. Given the centrality of trust in theorizing on procedural justice, we would expect to find stronger relationships between trust and procedural justice than between trust and distributive justice, consistent with past research (e.g., Alexander & Ruderman, 1987; Konovsky & Pugh, 1994). However, given that trust is usually referenced to a particular person, the agent-system model would predict that interpersonal and informational justice are even better predictors of this outcome than procedural justice.

*Evaluation of authority.* A number of studies of third-party dispute resolution procedures have asked disputants to make evaluations of the third party (Lind & Tyler, 1988). Still other work in organizations asks respondents to rate the acceptability of their supervisors or management in more general terms. Much of the research on evaluation of authorities comes from work merging psychology and political science (e.g., Tyler, 1990). Tyler's (1990) work, along with the two-factor model, would suggest that we should find stronger relationships between procedural justice and evaluation of authorities than between distributive justice and evaluation of authorities. However, as with organizational commitment, this prediction has been supported in multiple studies (e.g., Ball, Trevino, & Sims, 1993; McFarlin & Sweeney, 1992)

and refuted in multiple studies (e.g., Conlon, 1993; Taylor, Tracy, Renard, Harrison, & Carroll, 1995). In addition, the agent–system model would predict that interpersonal and informational justice are better predictors of evaluation of authority in cases in which the authority in question is one’s leader as opposed to management in general. For this reason, our examination of the reactive models distinguishes between agent-referenced evaluations of authority (e.g., focusing on one’s supervisor) and system-referenced evaluations of authority (e.g., focusing on management in general).

*Organizational citizenship behaviors (OCBs).* Organ (1990) defined OCBs as behaviors that are discretionary and not explicitly rewarded but that can help improve organizational functioning. Organ (1990) posited that OCBs are driven largely by fairness perceptions. He suggested that people in organizations assume, at the outset, a social exchange relationship. This expectation continues until unfairness is evidenced, at which time the relationship is reinterpreted as economic rather than social. Research on OCBs has repeatedly demonstrated stronger linkages between procedural justice and OCBs than between distributive justice and OCBs (Ball, Trevino, & Sims, 1994; Moorman, 1991). For example, Moorman (1991) reported that procedural justice influenced four of five OCB dimensions, whereas distributive justice failed to influence any dimensions. Skarlicki and Latham (1996) even showed that training supervisors on procedural justice principles was capable of improving OCB levels. To the extent that OCBs were measured in relation to supervisors rather than the organization as a whole, we would expect interpersonal and informational justice to be stronger predictors, consistent with the agent–system model and the results of Masterson, Lewis, et al. (2000). Thus, our examination of the reactive models distinguishes between agent-referenced OCBs and system-referenced OCBs. Following Williams and Anderson (1991), we refer to the former as individual OCBs (OCBIs) and the latter as organization OCBs (OCBOs).

*Withdrawal.* Behaviors and behavioral intentions such as absenteeism, turnover, and neglect are often subsumed under the heading of job withdrawal. Although withdrawal is a relatively common outcome in the justice literature, it has not been examined in the context of the two-factor model. Withdrawal can occur as a result of a thorough, reasoned evaluation of the organization as a system or on a more “spur of the moment” basis in reaction to an unsatisfactory outcome or poor interpersonal treatment by an authority. However, because employees who withdraw are typically leaving the overall organization, we would argue that withdrawal is system referenced in nature, similar to organizational commitment. Unfortunately, the literature linking different justice dimensions to withdrawal is somewhat muddled, with some studies showing that distributive justice influences job withdrawal (e.g., Hom, Griffeth, & Sellaro, 1984) and other studies revealing effects for procedural justice (e.g., Dailey & Kirk, 1992). Moreover, Masterson, Lewis, et al. (2000) showed that procedural justice had more of an impact on withdrawal than interactional justice. Thus, past research has, at various times, supported the distributive dominance model, the two-factor model, and the agent–system model.

*Negative reactions.* Some recent justice research has looked at the relationship between perceived unfairness and a variety of negative reactions, such as employee theft (e.g., Greenberg, 1990a, 1993c) and organizational retaliatory behaviors (ORBs; Skarlicki & Folger, 1997; Skarlicki, Folger, & Tesluk, 1999). As with

withdrawal, negative reactions have not been examined from the standpoint of the two-factor model. Whereas negative reactions can occur because of purely cognitive evaluations of the merits of the organization as a whole or as strong emotional reactions to one’s own treatment, reactions such as theft and ORBs clearly damage the larger organizational system. However, Skarlicki and Folger (1997) found that ORBs had approximately equal correlations with distributive, procedural, and interactional justice, with interactional justice having the strongest unique effect. To the extent that ORBs are system-referenced outcomes, this provides little support for any of the three reactive models.

*Performance.* Perhaps the most unclear of all relationships in the justice literature is the relationship between procedural justice and performance. For example, Earley and Lind (1987) found a relationship between procedural fairness judgments and performance in a laboratory study but not in a field study. Kanfer, Sawyer, Earley, and Lind (1987) found a negative correlation between procedural justice and performance. Keller and Dansereau (1995) found a moderately strong relationship between procedural justice and performance as measured by performance appraisal records. Other studies have linked distributive justice to performance, consistent with equity theory’s predictions (e.g., Ball et al., 1994; Griffeth, Vecchio, & Logan, 1989). It is difficult to apply the logic of the agent–system and two-factor models to the prediction of performance. On the one hand, performance supports, and is often measured by, agents such as one’s supervisor. For this reason, Masterson, Lewis, et al. (2000) predicted, and found, stronger interactional justice effects on performance, consistent with the agent–system model. On the other hand, performance reflects members’ contributions to organizational goals (Borman, 1991), giving it a system-referenced character and suggesting that procedural justice should be its primary predictor.

### *Different Operationalizations of Procedural Justice*

Of course, the relative strength of the correlations between the justice dimensions and the outcomes just described may depend on how procedural justice is operationalized. For example, some studies assess only process control but label it procedural justice (e.g., Joy & Witt, 1992). Others use a variable that is composed only of Leventhal criteria, labeling that procedural justice (e.g., Konovsky & Folger, 1991). Still others measure informational or interpersonal justice as the process variable (e.g., Greenberg, 1990a). Another common operationalization is measuring procedural fairness perceptions (e.g., Bies, Martin, & Brockner, 1993; Colquitt & Chertkoff, 1996; Gilliland, 1994), which is what Lind and Tyler (1988) labeled a direct measure (i.e., a measure that directly asks respondents “how fair” a procedure is). Finally, another common operationalization is an *indirect combination measure* (Lind & Tyler, 1988). Such a measure asks respondents about some combination of process control, Leventhal criteria, and interpersonal or informational justice, labeling that procedural justice (e.g., Brockner et al., 1995, 1997; Folger & Konovsky, 1989; Konovsky & Folger, 1991; Mansour-Cole & Scott, 1998; Skarlicki & Latham, 1997). Presumably, those who use such measures subscribe to the view that interpersonal and informational justice are facets of procedural justice, as with process control or Leventhal criteria.

Our examination of the relative strength of the correlations between the different dimensions of justice and the outcomes described uses the broadest conceptualization of procedural justice by combining all of its potential operationalizations. However, our review also presents analyses broken down by operationalization. One strength of meta-analysis is that it allows a researcher to examine the degree to which a relationship varies across a particular moderator variable. Our review examines operationalization as a moderator variable, allowing us to see to what extent relationships vary by how procedural justice is conceptualized. For instance, one might expect that procedural fairness perceptions will yield the highest relationships with organizational outcomes, in that fairness perceptions could be construed as the intervening mechanism linking process control, Leventhal criteria, and so forth to outcomes. Conversely, one might expect indirect combination measures to yield the highest relationships, because they capture more of the conceptual domain of organizational justice.

### Method

We conducted a meta-analytic review of the literature on organizational justice to examine the questions discussed earlier. In the following sections, we review the methods for this review.

#### Literature Search

We first performed a literature search of the PsycINFO database for the years 1975 to 1999. Our starting date coincided with the year in which Thibaut and Walker (1975) introduced the procedural justice construct. Given that a major goal of this review was to examine the relative impact of multiple dimensions of justice, articles published before 1975 would be less useful. Such articles were typically proactive distributive justice articles that examined how individuals allocate rewards across different situations and did not normally assess any of the outcomes examined in this review. Moreover, from a practical perspective, articles published before 1975 rarely reported the types of statistics included in a meta-analysis. We conducted our literature search using the following keywords: procedural fairness, procedural justice, distributive fairness, distributive justice, interactional justice, interpersonal treatment, and equity. In addition to the PsycINFO search, we conducted an author search of 10 of the most published authors in the organizational justice literature. Any article that included a relationship in the meta-analysis, whether it was a single justice–outcome relationship or a relationship between two dimensions of justice, was relevant.

The search yielded 300 articles. Of these 300 articles, 76 did not include a relationship in the meta-analysis and were deemed not relevant. For example, Tyler, Lind, Ohbuchi, Sugawara, and Huo (1998) examined the effects of “relational judgments” (an aggregate measure of procedural, interpersonal, and informational justice judgments) on the willingness of disputants to accept a third-party solution in a conflict resolution setting. Bazerman, Schroth, Shah, Diekmann, and Tenbrunsel (1994) examined the effects of justice on job search decisions. Such studies did not focus on one of the nine outcome variables included in our review or did not include a relationship between different dimensions of justice.

Another 41 studies included a relationship in the meta-analysis but could not be coded because of the way in which the results were presented. Meta-analysis requires zero-order effect size information, whether in the form of correlations,  $F$  statistics,  $t$  statistics, or even means and standard deviations of a dependent variable across multiple experimental conditions. Articles that present only partial or semipartial unique, independent effects cannot be coded unless the independent variables are uncorrelated, as in most experiments in which conditions are manipulated orthogonal to one another. Several articles uncovered in our literature review could not be

coded because they presented only multiple regression or structural equation modeling results. Examples included several of Tyler’s investigations of the “relational” or “group-value” model of justice (e.g., Tyler, 1989, 1994; Tyler, DeGoey, & Smith, 1996). Other articles could not be coded because they presented incomplete results (e.g., only labeling  $F$  statistics in an analysis of variance as significant or not significant) or combined procedural and distributive justice into a larger justice variable (e.g., Martocchio & Judge, 1995).

The final number of studies included in the review was 183. These studies are marked with an asterisk in the References section. We should note that this number included both laboratory studies and field studies; the term *organizational justice* in no way implies that the research must occur in a field setting but indicates only that the research must be relevant to the role of fairness in the workplace (Greenberg, 1990b).

#### Meta-Analysis Strategy

Meta-analysis is a technique that allows individual study results to be aggregated while correcting for various artifacts that can bias relationship estimates. Our meta-analyses were conducted with Hunter and Schmidt’s (1990) procedures. Inputs into the meta-analyses included zero-order effect sizes in the form of correlations, along with sample sizes and reliability information. In instances in which articles reported statistics other than correlations (e.g.,  $F$  statistics,  $t$  statistics, or means and standard deviations), results were transformed into correlations through the formulas provided by Hunter and Schmidt (1990). Because of the subjectivity and judgment calls inherent in meta-analytic efforts, all coding of meta-analytic data was performed by author dyads formed from the study’s five authors.

In cases in which a variable was assessed with multiple measures, we acted in accordance with Hunter and Schmidt’s (1990) recommendations for conceptual replication (see pp. 451–463). Specifically, when multiple measures were highly correlated and seemed to each be construct valid, the correlations were averaged together (see Hunter & Schmidt, 1990, p. 457). Thus, one composite correlation was formed in lieu of multiple correlations, preventing a study that involved multiple measures from being “double counted.” This technique improves both reliability and construct validity. We should also note that, when an article reported results from multiple independent samples, each correlation was included in the meta-analysis (see Hunter & Schmidt, 1990, pp. 463–466, for a discussion of these issues).

Meta-analysis requires that each observed correlation from a given study be weighted by that study’s sample size to provide a weighted mean estimate of the population correlation. The standard deviation of this estimate across the multiple studies is also computed. This variation is composed of true variation in the population value as well as variation due to artifacts such as sampling error and measurement error. To provide a more accurate estimate of each population correlation and its variability, our analyses corrected for both sampling error and unreliability. However, because reliability information was not always available, the method of artifact-distribution meta-analysis was used (Hunter & Schmidt, 1990). For those studies that did not report reliability information for any given variable, that variable’s weighted mean reliability based on all other studies was used to correct for measurement error.

Meta-analysis results typically include both uncorrected ( $r$ ) and corrected ( $r_c$ ) estimates of the population correlation. The latter are corrected for unreliability in both variables. Also reported are the 95% confidence intervals for each population correlation. Confidence intervals are generated with the standard error of the weighted mean correlation. They reflect the “extent to which sampling error remains in the estimate of a mean effect size” and are applied to estimates that have not been corrected for artifacts (Whitener, 1990, p. 316). If a confidence interval does not include the value of zero, that population correlation is judged to be “statistically significant.”

Also presented is the standard deviation of the population correlation ( $SDr_c$ ). This provides an index of the variation in the corrected population



values across the studies in our sample. One indication that moderators may be present in a given relationship is the case in which artifacts such as unreliability fail to account for a substantial portion of the variance in correlations. Thus, the percentage of variance explained by artifacts ( $V_{art}$ ) is also presented. Hunter and Schmidt (1990) have suggested that, if artifacts fail to account for 75% of the variance in the correlations, moderators probably exist. Mathieu and Zajac (1990) and Hom, Caranikas-Walker, Prussia, and Griffeth (1992) amended the 75% criterion to 60% in cases in which range restriction is not one of the artifacts that is corrected for. We should note that the 60% rule only implies the existence of a moderator; it does not indicate what variable is acting as the moderator. Identifying the actual moderator variable requires coding potential moderators and then performing subgroup analyses to determine whether the population correlations vary across the subgroup boundaries. In our review, this entailed determining whether the population correlations varied across different operationalizations of procedural justice.

### Meta-Analytic Regression Strategy

Many questions cannot be answered by a matrix of meta-analyzed correlations. For example, do Leventhal's (1980) justice criteria explain variance in procedural fairness perceptions beyond the effects of Thibaut and Walker's (1975) process control construct? Do procedural, distributive, interpersonal, and informational justice each have independent effects on organizational commitment? Such questions require multiple regression to assess independent, semipartial effects. Fortunately, recent advances in meta-analytic regression have allowed researchers to combine the benefits of meta-analysis with the strengths of regression procedures (see Viswesvaran & Ones, 1995). Meta-analytic regression has been used in contexts such as training motivation (Colquitt, LePine, & Noe, 2000), leadership (Podsakoff, MacKenzie, & Bommer, 1996), turnover (Hom et al., 1992), and job performance (Schmidt, Hunter, & Outerbridge, 1986).

In practice, there are some decision points that researchers using meta-analytic regression will encounter (Viswesvaran & Ones, 1995). First, many researchers will conduct regressions on correlation matrices that vary in sample size. This raises the question of what sample size to use when computing the standard errors associated with the regression weights. Potential solutions include using the smallest cell sample size or using the mean sample size. We chose to use the harmonic mean of the correlation matrix sample sizes, as opposed to the arithmetic mean (consistent with Viswesvaran & Ones, 1995). The formula for the harmonic mean is  $k/(1/N_1 + 1/N_2 + \dots + 1/N_k)$ , where  $k$  refers to the number of study correlations and  $N$  refers to the sample sizes of the studies. An inspection of the formula shows that the harmonic mean gives much less weight to substantially large individual study sample sizes, so it is always more conservative than the arithmetic mean (Viswesvaran & Ones, 1995). Note, however, that the sample size issue is not very critical to the current meta-analytic review. This is because the sample sizes for almost all of the cells of the correlation matrices are in the thousands, making even small effect sizes statistically significant, no matter what sample size option is used.

Second, researchers must choose whether to use maximum-likelihood estimation (the choice of Hom et al., 1992), ordinary least squares (the choice of Colquitt et al., 2000, Podsakoff et al., 1996, and Schmidt et al., 1986), or some other method. We elected to use ordinary least squares estimation, consistent with Colquitt et al. (2000), Podsakoff et al. (1996), and Schmidt et al. (1986). Ordinary least squares assumptions are less restrictive than maximum likelihood, which assumes multivariate normality. Maximum-likelihood estimation is also less optimal in instances in which the data are in the form of correlations rather than covariances (Cudeck, 1989). Given that meta-analysis results in correlational data, we believed that ordinary least squares would be more appropriate.

## Results

### Construct Discrimination Questions

Research Question 1 concerned the magnitude of the relationships among the various organizational justice conceptualizations. Table 1 shows the correlations among process control, Leventhal criteria, interpersonal justice, informational justice, distributive justice, and procedural fairness perceptions. Cohen and Cohen (1983) classified correlations as high, moderate, or weak according to uncorrected  $r$  values of .50, .30, and .10, respectively. Thus, Table 1 shows high correlations among the justice conceptualizations, but not so high that they seem to be multiple indicators of one underlying construct. Process control and Leventhal criteria, the two original operationalizations of procedural justice, were highly correlated with each other ( $r = .50$ ,  $r_c = .67$ ) and with procedural fairness perceptions ( $r = .41$ ,  $r_c = .51$  and  $r = .53$ ,  $r_c = .68$ , respectively). However, the relationship between Leventhal criteria and procedural fairness perceptions was significantly stronger than the relationship between process control and procedural fairness perceptions, as evidenced by the fact that the two correlations' confidence intervals did not overlap.

Table 1 also shows the correlations among the interactional justice dimensions. Interpersonal justice was highly related to informational justice ( $r = .57$ ,  $r_c = .66$ ), although again not so highly that the two necessarily seem to be indicators of the same underlying construct. Interpersonal justice and informational justice were also highly correlated with procedural fairness perceptions ( $r = .56$ ,  $r_c = .63$  and  $r = .51$ ,  $r_c = .58$ , respectively). These relationships were similar in magnitude to the process control and Leventhal relationships, although the interpersonal justice-procedural fairness relationship was significantly stronger than the process control-procedural fairness relationship.

Interestingly, the relationships between interpersonal and informational justice and procedural fairness perceptions were not significantly stronger than the relationship between distributive justice and procedural fairness perceptions ( $r = .48$ ,  $r_c = .57$ ). This suggests that interpersonal and informational justice should be considered to be distinct from procedural justice, just as the case with distributive justice. The uncorrected correlation of .48 for distributive justice and procedural fairness perceptions may seem surprisingly low, given the many empirical articles that have reported uncorrected relationships in the .60s and .70s. To take a closer look at this relationship, Table 2 shows relationships between distributive justice and every possible conceptualization of procedural justice, including interpersonal and informational justice, to explore whether operationalization moderates the procedural justice-distributive justice relationship. The top row of Table 2, labeled "Broadly defined procedural justice," shows the procedural justice-distributive relationship in which all potential operationalizations, shown in the remaining rows, are considered together. The final row contains the "indirect combination measure" operationalization discussed previously. Recall that indirect combination measures are those that assess some combination of process control, interpersonal or informational justice, and Leventhal variables. They are labeled indirect because they do not directly ask "how fair" something is (see Lind & Tyler, 1988).

Combining all operationalizations, broadly defined procedural justice was strongly related to distributive justice ( $r = .56$ ,  $r_c = .67$ ). The high standard deviation of the population correlation



Table 1  
Relationships Among Different Conceptualizations of Organizational Justice

Conceptualization	1		2		3		4		5	
	<i>r</i> (95% CI) <i>k</i> (N)	<i>r<sub>c</sub></i> (SD <i>r<sub>c</sub></i> ) <i>V<sub>art</sub></i> (%)	<i>r</i> (95% CI) <i>k</i> (N)	<i>r<sub>c</sub></i> (SD <i>r<sub>c</sub></i> ) <i>V<sub>art</sub></i> (%)	<i>r</i> (95% CI) <i>k</i> (N)	<i>r<sub>c</sub></i> (SD <i>r<sub>c</sub></i> ) <i>V<sub>art</sub></i> (%)	<i>r</i> (95% CI) <i>k</i> (N)	<i>r<sub>c</sub></i> (SD <i>r<sub>c</sub></i> ) <i>V<sub>art</sub></i> (%)	<i>r</i> (95% CI) <i>k</i> (N)	<i>r<sub>c</sub></i> (SD <i>r<sub>c</sub></i> ) <i>V<sub>art</sub></i> (%)
1. Process control	.50 (.38, .61) 16 (5,398)	.67 (.31) 2.99								
2. Leventhal criteria	.47 (.35, .59) 6 (2,538)	.60 (.18) 6.60	.52 (.42, .62) 7 (3,184)	.66 (.16) 5.98						
3. Interpersonal justice	.43 (.31, .54) 12 (4,143)	.51 (.23) 4.66	.59 (.46, .73) 7 (3,353)	.68 (.20) 2.73	.57 (.48, .66) 11 (3,089)	.66 (.16) 7.54				
4. Informational justice	.27 (.22, .33) 23 (5,137)	.34 (.13) 24.15	.46 (.38, .54) 15 (4,743)	.55 (.17) 8.27	.38 (.26, .50) 9 (3,496)	.42 (.20) 5.62	.39 (.32, .47) 14 (3,807)	.46 (.15) 13.19		
5. Distributive justice	.41 (.36, .46) 46 (8,736)	.51 (.18) 13.57	.53 (.47, .59) 21 (5,460)	.68 (.15) 10.27	.56 (.46, .67) 6 (2,978)	.63 (.13) 5.68	.51 (.44, .58) 21 (5,470)	.58 (.17) 8.21	.48 (.41, .55) 45 (13,418)	.57 (.28) 3.41
6. Procedural fairness perceptions										

Note. *r* = uncorrected population correlation; CI = confidence interval around uncorrected population correlation; *r<sub>c</sub>* = corrected population correlation; SD*r<sub>c</sub>* = standard deviation of corrected population correlation; *k* = number of studies; *V<sub>art</sub>* = percentage of variance in *r<sub>c</sub>* explained by study artifacts.

(SD*r<sub>c</sub>* = .23) and the low variance explained from artifacts (*V<sub>art</sub>* = 2.74%) show that moderators exist in the broadly defined procedural justice–distributive justice relationship. Operationalization explains some of that variation, in that the highest relationship was evident when an indirect combination measure was used (*r* = .63, *r<sub>c</sub>* = .77). Moreover, because their confidence intervals do not overlap, Table 2 shows that the indirect combination measure relationship is significantly stronger than the more unidimensional justice measures: procedural fairness perceptions (*r* = .48, *r<sub>c</sub>* = .57), process control (*r* = .27, *r<sub>c</sub>* = .34), Leventhal criteria (*r* = .46, *r<sub>c</sub>* = .55), interpersonal justice (*r* = .38, *r<sub>c</sub>* = .42), and informational justice (*r* = .39, *r<sub>c</sub>* = .46).

Proactive Research Questions

Research Question 2 explored whether the additional conceptualizations of justice over the course of its history have contributed incremental variance explained in regard to promoting procedural fairness perceptions. This was tested by regressing procedural fairness perceptions onto the various justice operationalizations using hierarchical regression. Order of entry was based on historical introduction, so the following steps were used: (a) Thibaut and Walker’s (1975) process control operationalization, (b) Leventhal’s (1980) justice criteria operationalization, and (c) Bies and Moag’s (1986) interactional justice construct, broken down into interpersonal and informational justice (as in Greenberg, 1993b).

The meta-analytic regression results are shown in Table 3. The original operationalization of procedural justice, process control, explained 26% of the variance in procedural fairness perceptions, with higher levels of process control producing more favorable fairness perceptions (*β* = .51). Leventhal criteria explained an additional 21% of the variance, with higher levels of his criteria also producing more favorable perceptions (*β* = .61). Interpersonal and informational justice explained an additional 6% of the variance in fairness perceptions. That effect was due primarily to interpersonal justice (*β* = .29), although informational justice also had a significant effect (*β* = .11).

Research Question 3 asked how much variance the justice operationalizations explained in procedural fairness perceptions beyond the effects of distributive justice. This was tested by regressing procedural fairness perceptions onto the various justice operationalizations after controlling for distributive justice. These regression results are shown in Table 4. Distributive justice explained 33% of the variance in procedural fairness perceptions, with higher levels of distributive justice being associated with more favorable fairness perceptions (*β* = .57). The remaining justice operationalizations explained an incremental 24% of the variance. However, only two operationalizations had strong unique effects: Leventhal criteria (*β* = .30) and interpersonal justice (*β* = .26). Although statistically significant, the unique effects of process control (*β* = .03) and informational justice (*β* = .07) were not practically significant.

Reactive Research Questions

Research Questions 4–6 explored the relationships between the organizational justice dimensions and several key outcome variables. Table 5 presents the results for these research questions. Research Question 4 explored the relationships between distribu-

Table 2  
*Relationship Between Distributive and Procedural Justice Conceptualizations  
 (Including Interpersonal and Informational Justice)*

Conceptualization	Distributive justice			
	$r$ (95% CI)	$r_c$ ( $SDr_c$ )	$k$ ( $N$ )	$V_{art}$ (%)
Broadly defined procedural justice	.56 (.52, .60)	.67 (.23)	92 (42,576)	2.74
Procedural fairness perceptions	.48 (.41, .55)	.57 (.28)	45 (13,418)	3.41
Process control	.27 (.22, .33)	.34 (.13)	23 (5,137)	24.15
Leventhal criteria	.46 (.38, .54)	.55 (.17)	15 (4,743)	8.27
Interpersonal justice	.38 (.26, .50)	.42 (.20)	9 (3,496)	5.62
Informational justice	.39 (.32, .47)	.46 (.15)	14 (3,807)	13.19
Indirect combination measure	.63 (.59, .66)	.77 (.14)	54 (51,446)	2.32

Note.  $r$  = uncorrected population correlation; CI = confidence interval around uncorrected population correlation;  $r_c$  = corrected population correlation;  $SDr_c$  = standard deviation of corrected population correlation;  $k$  = number of studies;  $V_{art}$  = percentage of variance in  $r_c$  explained by study artifacts.

tive justice and the outcomes. Distributive justice had high correlations with outcome satisfaction ( $r = .52$ ,  $r_c = .61$ ), job satisfaction ( $r = .46$ ,  $r_c = .56$ ), organizational commitment ( $r = .42$ ,  $r_c = .51$ ), trust ( $r = .48$ ,  $r_c = .57$ ), agent-referenced evaluation of authority ( $r = .53$ ,  $r_c = .59$ ), and withdrawal ( $r = -.41$ ,  $r_c = -.50$ ). Distributive justice had moderate correlations with system-referenced evaluation of authority ( $r = .30$ ,  $r_c = .37$ ), OCBs ( $r = .20$ ,  $r_c = .25$ ), and negative reactions ( $r = -.26$ ,  $r_c = -.30$ ) and was weakly related to OCBIs ( $r = .13$ ,  $r_c = .15$ ) and performance ( $r = .13$ ,  $r_c = .15$ ).

Research Question 5 explored relationships between procedural justice and the same set of outcomes. Combining all conceivable procedural justice conceptualizations, again labeled broadly defined procedural justice, we see that procedural justice had high correlations with outcome satisfaction ( $r = .40$ ,  $r_c = .48$ ), job satisfaction ( $r = .51$ ,  $r_c = .62$ ), organizational commitment ( $r = .48$ ,  $r_c = .57$ ), trust ( $r = .52$ ,  $r_c = .61$ ), and agent-referenced evaluation of authority ( $r = .56$ ,  $r_c = .64$ ). Procedural justice had moderate correlations with system-referenced evaluation of authority ( $r = .35$ ,  $r_c = .42$ ), OCBs ( $r = .23$ ,  $r_c = .27$ ), withdrawal ( $r = -.36$ ,  $r_c = -.46$ ), negative reactions ( $r = -.27$ ,  $r_c = -.31$ ), and performance ( $r = .30$ ,  $r_c = .36$ ). Finally, procedural justice had weak correlations with OCBIs ( $r = .19$ ,  $r_c = .22$ ). Table 5 also shows that moderators were present in the procedural justice-outcome relationships, with the exception of the relationships with the OCB variables. Operationalization could be one potential moderator for several of the outcome variables, because the indirect

combination measure was significantly more related to job satisfaction, organizational commitment, and withdrawal than was any other operationalization.

Research Question 6 explored relationships between interpersonal and informational justice and the outcome variables. Interpersonal justice was strongly related to agent-referenced evaluation of authority ( $r = .57$ ,  $r_c = .62$ ) and moderately related to job satisfaction ( $r = .31$ ,  $r_c = .35$ ), system-referenced evaluation of authority ( $r = .20$ ,  $r_c = .23$ ), OCBs ( $r = .23$ ,  $r_c = .29$ ), and negative reactions ( $r = -.30$ ,  $r_c = -.35$ ). It was weakly related to outcome satisfaction ( $r = .19$ ), organizational commitment ( $r = .16$ ,  $r_c = .19$ ), withdrawal ( $r = -.02$ ,  $r_c = -.02$ ), and performance ( $r = .03$ ,  $r_c = .03$ ). Informational justice was strongly related to trust ( $r = .43$ ,  $r_c = .51$ ), agent-referenced evaluation of authority ( $r = .58$ ,  $r_c = .65$ ), and system-referenced evaluation of authority ( $r = .42$ ,  $r_c = .47$ ) and was moderately related to outcome satisfaction ( $r = .27$ ,  $r_c = .30$ ), job satisfaction ( $r = .38$ ,  $r_c = .43$ ), organizational commitment ( $r = .26$ ,  $r_c = .29$ ), OCBs ( $r = .21$ ,  $r_c = .26$ ), withdrawal ( $r = -.21$ ,  $r_c = -.24$ ), and negative reactions ( $r = -.29$ ,  $r_c = -.33$ ). It was weakly related to OCBs ( $r = .18$ ) and performance ( $r = .11$ ,  $r_c = .13$ ).

Research Question 7 examined the unique effects of the justice dimensions on the outcome variables considered simultaneously. Table 6 presents beta weights derived from regressing each of the outcomes on all four justice dimensions simultaneously. The table also presents unique  $R^2$  values derived from a "usefulness analysis" in which the effects of one justice dimension were examined after controlling for the others. The table also presents the total variance explained in each outcome by the justice dimensions. Note that, in some cases, the interpersonal justice beta weights were reversed in sign from that dimension's correlations. This was due to the multicollinearity in some of the regressions. If hierarchical regression had been used and interpersonal justice had been entered in a step before procedural and informational justice were entered, the signs of the beta weights would not have been reversed.

The regression results in Table 6 allowed us to examine the adequacy of the distributive dominance, two-factor, and agent-system reactive models. Leventhal's (1980) distributive dominance model would predict higher unique effects for distribu-

Table 3  
*Incremental Effects of Justice Operationalizations on  
 Procedural Fairness Perceptions*

Regression step	Total $R^2$	$\Delta R^2$	$\beta$
1. Process control	.26*	.26*	.51*
2. Leventhal criteria	.47*	.21*	.61*
3. Interpersonal justice	.53*	.06*	.28*
Informational justice			.11*

Note.  $N = 4,165$  (based on the harmonic mean sample size of the Table 1 cells used in this regression).

\*  $p < .05$ .

Table 4  
Incremental Effects of Justice Operationalizations on Procedural Fairness Perceptions Beyond Distributive Justice Effects

Regression step	Total $R^2$	$\Delta R^2$	$\beta$
1. Distributive justice	.33*	.33*	.57*
2. Process control	.57*	.24*	.03*
Leventhal criteria			.30*
Interpersonal justice			.26*
Informational justice			.07*

Note.  $N = 4,165$  (based on the harmonic mean sample size of the Table 1 cells used in this regression).

\*  $p < .05$ .

tive justice than for the other three justice forms. This prediction was supported for two outcomes (outcome satisfaction and withdrawal) and was refuted for the remaining nine outcomes.

Sweeney and McFarlin's (1993) two-factor model would predict higher unique effects of distributive justice for person-referenced outcomes and higher unique effects of procedural justice for system-referenced outcomes. This prediction was supported for five outcomes (outcome satisfaction, job satisfaction, organizational commitment, system-referenced evaluation of authority, and performance) and was refuted for three outcomes (OCBOs, withdrawal, and negative reactions). The two-factor model was not relevant to the three agent-referenced outcomes (agent-referenced evaluation of authority, trust, and OCBI).

Bies and Moag's (1986) agent-system model would predict higher unique effects of interpersonal or informational justice for agent-referenced outcomes and higher unique effects of procedural justice for system-referenced outcomes. This prediction was supported for five outcomes (job satisfaction, organizational commitment, agent-referenced evaluation of authority, OCBI, and performance) and refuted for five outcomes (system-referenced evaluation of authority, trust, OCBOs, withdrawal, and negative reactions). The agent-system model was not relevant to person-referenced outcomes such as outcome satisfaction.

## Discussion

This meta-analytic review, consisting of 120 separate meta-analyses of 183 empirical studies, explored three types of research questions to aid further theory development in the organizational justice literature. The first type of question was related to construct discrimination (i.e., how highly related are the various facets of organizational justice?). Process control and Leventhal criteria, the two original procedural justice operationalizations, were highly correlated, although perhaps not as highly as one would think given that they are used interchangeably to express the same construct. Similarly, interpersonal and informational justice were highly correlated, but again not so highly that it seems prudent to lump them together under the "interactional justice" label. Indeed, their correlation was not significantly higher than the correlation between procedural justice and distributive justice, two constructs whose separation has become canon. Further analyses showed that the procedural justice-distributive justice relationship varies to some degree by how the researcher operationalizes the former. The

relationship is strongest when an indirect combination measure is used and weaker when procedural fairness perceptions, Leventhal criteria, and especially process control are used.

The second type of research question dealt with proactive research, which is concerned with creating procedural fairness perceptions by adhering to certain rules, such as providing process control, being consistent, treating people with sensitivity, or explaining things adequately. Our results showed that the historical progression of proactive research on procedural justice has in fact contributed to our ability to promote procedural fairness perceptions. The original conceptualization, Thibaut and Walker's (1975) process control, predicted procedural fairness perceptions, but Leventhal's (1980) criteria contributed significant incremental variance. Indeed, it is worth noting that the Leventhal criteria had a significantly stronger relationship to procedural fairness perceptions than did process control. In fact, the Leventhal criteria are even more impressive when we consider that they predicted almost as much variance in procedural fairness perceptions as process control, even when entered in a later step in the regression analysis.

The concepts of interpersonal and informational justice, drawn from the field's recent interest in interactional justice, show a more mixed pattern of results. Their correlations with procedural fairness perceptions were just as strong as the correlations for Leventhal criteria. However, although they explained significant incremental variance in fairness perceptions, their contribution was small in comparison with the contributions of the other justice facets. Thus, interpersonal and informational justice, when considered alone, were powerful predictors of procedural fairness perceptions. When considered in conjunction with structural facets of procedural justice, their contribution was less important, particularly in the case of informational justice. Perhaps this is not surprising considering that informational justice often provides the opportunity to judge structural qualities of procedural justice (Greenberg, 1993b).

Because it is well known that the fairness of decision-making procedures is often judged according to the kinds of outcomes one receives (Lind & Tyler, 1988), it is also important to show that the various conceptualizations of procedural justice are important even after control for distributive justice. If this had not been the case, then the procedural justice literature would have contributed little over earlier work by Homans (1961), Adams (1965), Leventhal (1976), and Deutsch (1975). Our results showed that, when distributive justice was controlled, only Leventhal criteria and interpersonal justice retained their explanatory power. Because process control added little, it is tempting to conclude that measuring it is unnecessary if distributive justice and Leventhal criteria are also being considered. Perhaps this is not surprising given Lind and Tyler's (1988) assertion that Leventhal's "representativeness" criterion includes the process control concept.

Turning to our third type of research question, reactive research, we tested three separate reactive models: Leventhal's (1980) distributive dominance model, Sweeney and McFarlin's (1993) two-factor model, and Bies and Moag's (1986) agent-system model. Support for these models can be evaluated by examining the relative effects of distributive, procedural, interpersonal, and informational justice on the basis of the size of their meta-analytic correlations, as well as their unique effects in the meta-analytic regressions. We find little support for the distributive dominance

Table 5  
Relationships Between Organizational Justice Dimensions and Outcome Variables

Dimension	<i>r</i> (95% CI)	<i>r<sub>c</sub></i> ( <i>SDr<sub>c</sub></i> )	<i>k</i> ( <i>N</i> )	<i>V<sub>art</sub></i> (%)	<i>r</i> (95% CI)	<i>r<sub>c</sub></i> ( <i>SDr<sub>c</sub></i> )	<i>k</i> ( <i>N</i> )	<i>V<sub>art</sub></i> (%)
	Outcome satisfaction				Job satisfaction			
Broadly defined procedural justice	.40 (.35, .46)	.48 (.18)	30 (8,073)	10.02	.51 (.46, .56)	.62 (.18)	40 (31,774)	2.88
Procedural fairness perceptions	.45 (.36, .54)	.53 (.17)	11 (4,420)	6.59	.33 (.28, .38)	.40 (.09)	11 (4,958)	24.00
Process control	.38 (.27, .48)	.45 (.16)	8 (1,774)	14.74	.30 (.25, .35)	.37 (.05)	5 (2,577)	50.39
Leventhal criteria	.25 (.13, .37)	.32 (.17)	6 (1,796)	13.03	.36 (.33, .40)	.42 (.00)	4 (2,315)	100.00
Interpersonal justice	.19		1 (301)		.31 (.26, .36)	.35 (.02)	2 (1,795)	65.96
Informational justice	.27 (.21, .33)	.30 (.04)	4 (1,404)	65.02	.38 (.34, .42)	.43 (.00)	2 (1,872)	100.00
Indirect combination measure	.47 (.39, .54)	.54 (.15)	14 (2,242)	18.87	.55 (.49, .61)	.68 (.17)	22 (25,221)	2.07
Distributive justice	.52 (.46, .59)	.61 (.20)	28 (9,321)	5.07	.46 (.42, .49)	.56 (.09)	24 (57,515)	8.31
	Organizational commitment				Trust			
Broadly defined procedural justice	.48 (.44, .52)	.57 (.18)	53 (33,455)	3.84	.52 (.44, .59)	.61 (.20)	24 (4,522)	8.42
Procedural fairness perceptions	.32 (.25, .39)	.37 (.16)	18 (6,767)	9.58	.56 (.49, .64)	.62 (.08)	7 (802)	39.78
Process control	.22 (.18, .27)	.27 (.05)	7 (2,898)	53.50	.40 (.30, .50)	.47 (.13)	7 (1,031)	26.54
Leventhal criteria	.26 (.22, .29)	.30 (.00)	5 (3,162)	100.00	.58 (.09, .99)	.65 (.38)	2 (628)	1.23
Interpersonal justice	.16 (.11, .20)	.19 (.00)	2 (1,824)	100.00				
Informational justice	.26 (.18, .34)	.29 (.14)	10 (3,968)	12.01	.43 (.30, .57)	.51 (.11)	3 (487)	30.21
Indirect combination measure	.55 (.51, .58)	.65 (.10)	26 (24,606)	6.10	.55 (.45, .66)	.64 (.18)	10 (2,169)	8.02
Distributive justice	.42 (.38, .47)	.51 (.13)	24 (27,805)	4.11	.48 (.40, .57)	.57 (.13)	8 (1,735)	17.24
	Evaluation of authority: Agent referenced				Evaluation of authority: System referenced			
Broadly defined procedural justice	.56 (.52, .59)	.64 (.11)	33 (20,034)	7.17	.35 (.31, .40)	.42 (.13)	25 (9,708)	13.09
Procedural fairness perceptions	.53 (.46, .60)	.60 (.13)	13 (4,753)	8.76	.45 (.42, .48)	.51 (.12)	14 (5,637)	11.63
Process control	.42 (.35, .50)	.50 (.14)	10 (3,436)	12.56	.12 (.05, .20)	.16 (.00)	3 (663)	100.00
Leventhal criteria	.53 (.41, .64)	.63 (.17)	7 (3,104)	4.86	.19 (.02, .36)	.22 (.15)	3 (427)	29.27
Interpersonal justice	.57 (.43, .71)	.62 (.17)	5 (2,534)	3.44	.20 (.01, .38)	.23 (.16)	3 (469)	22.95
Informational justice	.58 (.46, .71)	.65 (.21)	9 (3,210)	3.21	.42 (.29, .55)	.47 (.15)	5 (1,035)	14.94
Indirect combination measure	.58 (.54, .62)	.67 (.05)	9 (13,850)	6.65	.31 (.24, .38)	.37 (.12)	11 (3,790)	17.96
Distributive justice	.53 (.46, .61)	.59 (.15)	13 (16,963)	1.96	.30 (.24, .36)	.37 (.12)	13 (4,103)	20.64
	OCBs: Individual referenced				OCBs: Organization referenced			
Broadly defined procedural justice	.19 (.16, .22)	.22 (.00)	15 (4,414)	100.00	.23 (.19, .26)	.27 (.04)	15 (3,176)	78.62
Procedural fairness perceptions	.21 (.17, .25)	.25 (.00)	2 (1,872)	100.00	.21		1 (140)	
Process control	.16 (.12, .20)	.21 (.00)	3 (2,000)	100.00	.14		1 (206)	
Leventhal criteria	.18 (.14, .23)	.22 (.01)	3 (2,108)	85.39	.15 (.06, .24)	.18 (.00)	2 (431)	100.00
Interpersonal justice	.23 (.18, .27)	.29 (.00)	2 (1,794)	100.00				
Informational justice	.21 (.17, .26)	.26 (.00)	2 (1,883)	100.00	.18		1 (206)	
Indirect combination measure	.19 (.14, .23)	.22 (.02)	10 (1,994)	90.18	.25 (.20, .30)	.30 (.06)	9 (1,961)	63.06
Distributive justice	.13 (.09, .17)	.15 (.02)	6 (2,633)	86.57	.20 (.14, .26)	.25 (.00)	5 (903)	100.00
	Withdrawal				Negative reactions			
Broadly defined procedural justice	-.36 (-.42, -.31)	-.46 (.20)	39 (24,273)	4.12	-.27 (-.33, -.21)	-.31 (.18)	27 (6,275)	13.37
Procedural fairness perceptions	-.27 (-.32, -.21)	-.34 (.14)	21 (7,344)	14.46	-.33 (-.39, -.26)	-.38 (.12)	13 (3,563)	22.15
Process control	-.19 (-.27, -.10)	-.24 (.14)	10 (1,190)	39.94	-.23 (-.27, -.19)	-.30 (.00)	3 (2,094)	100.00
Leventhal criteria	-.23 (-.30, -.16)	-.29 (.07)	6 (1,431)	50.87	-.28 (-.35, -.22)	-.35 (.06)	5 (2,308)	34.76
Interpersonal justice	-.02 (-.13, .09)	-.02 (.00)	2 (316)	100.00	-.30 (-.35, -.26)	-.35 (.04)	7 (2,707)	58.78
Informational justice	-.21 (-.34, -.07)	-.24 (.21)	8 (1,692)	11.42	-.29 (-.34, -.24)	-.33 (.06)	8 (2,731)	45.25
Indirect combination measure	-.44 (-.56, -.32)	-.55 (.19)	6 (14,392)	1.11	-.20 (-.35, -.05)	-.22 (.21)	7 (1,807)	9.28
Distributive justice	-.41 (-.46, -.37)	-.50 (.12)	18 (15,888)	7.45	-.26 (-.35, -.17)	-.30 (.17)	13 (3,782)	12.27
	Performance							
Broadly defined procedural justice	.30 (.21, .39)	.36 (.29)	30 (8,317)	4.83				
Procedural fairness perceptions	.30 (.17, .43)	.36 (.33)	18 (6,925)	2.71				
Process control	.14 (-.01, .29)	.17 (.25)	8 (1,002)	16.17				
Leventhal criteria	.08 (-.05, .21)	.10 (.11)	3 (501)	44.34				
Interpersonal justice	.03 (-.14, .20)	.03 (.11)	2 (389)	34.78				
Informational justice	.11 (.00, .22)	.13 (.11)	4 (1,036)	29.79				
Indirect combination measure	.23 (.12, .35)	.27 (.00)	7 (1,084)	23.83				
Distributive justice	.13 (.03, .22)	.15 (.18)	13 (2,294)	18.43				

Note. *r* = uncorrected population correlation; CI = confidence interval around uncorrected population correlation; *r<sub>c</sub>* = corrected population correlation; *SDr<sub>c</sub>* = standard deviation of corrected population correlation; *k* = number of studies; *V<sub>art</sub>* = percentage of variance in *r<sub>c</sub>* explained by study artifacts; OCBs = organizational citizenship behaviors.

Table 6  
*Unique Effects of Procedural, Interpersonal, Informational, and Distributive Justice on Outcome Variables*

Outcome variable	Justice dimension				Total R <sup>2</sup>
	Procedural	Interpersonal	Informational	Distributive	
Outcome satisfaction (N = 1,792)					
β	.17*	-.08*	.02	.54*	
Unique R <sup>2</sup>	.02*	.00*	.00	.18*	.39*
Job satisfaction (N = 4,039)					
β	.48*	-.09*	.13*	.26*	
Unique R <sup>2</sup>	.11*	.01*	.01*	.04*	.45*
Organizational commitment (N = 4,582)					
β	.42*	-.18*	.07*	.31*	
Unique R <sup>2</sup>	.09*	.02*	.00*	.06*	.35*
Evaluation of authority: Agent-referenced (N = 4,517)					
β	.01	.27*	.32*	.32*	
Unique R <sup>2</sup>	.00	.04*	.05*	.06*	.57*
Evaluation of authority: System-referenced (N = 2,114)					
β	.30*	-.19*	.44*	.11*	
Unique R <sup>2</sup>	.04*	.02*	.10*	.01*	.31*
Trust (N = 1,711)					
β	.31*		.21*	.30*	
Unique R <sup>2</sup>	.05*		.03*	.05*	.45*
OCBs: Individual referenced (N = 3,192)					
β	.06*	.19*	.11*	-.01*	
Unique R <sup>2</sup>	.00*	.02*	.01*	.00	.09*
OCBs: Organization referenced (N = 782)					
β	.12*		.11*	.12*	
Unique R <sup>2</sup>	.01*		.01*	.01*	.08*
Performance (N = 1,855)					
β	.56*	-.20*	.07*	-.07	
Unique R <sup>2</sup>	.15*	.02*	.00*	.00*	.19*
Withdrawal (N = 1,919)					
β	-.10*	.23*	-.21*	-.51*	
Unique R <sup>2</sup>	.01*	.02*	.02*	.16*	.33*
Negative reactions (N = 4,039)					
β	-.06*	-.18*	-.12*	-.14*	
Unique R <sup>2</sup>	.00*	.02*	.01*	.01*	.16*

Note. Sample sizes are based on the harmonic mean of the sample sizes for the correlations among the justice and outcome variables. The procedural justice variable includes process control, Leventhal criteria, and procedural fairness perceptions. OCBs = organizational citizenship behaviors.  
 \* p < .05.

model, which predicts that distributive justice will have stronger effects than the other justice dimensions. This model was supported for outcome satisfaction and withdrawal but not for any of the other nine outcomes.

The two-factor model predicts that procedural justice will have stronger effects than distributive justice on system-referenced variables but weaker effects than distributive justice on person-referenced variables. This model seemed to receive support only for person-referenced and system-referenced attitudes such as outcome satisfaction, job satisfaction, organizational commitment, and system-referenced evaluation of authority. The two-factor model's predictions were not supported for more behavioral variables such as OCBs, withdrawal, and negative reactions. The only exception to this observation involved performance. Procedural justice was more capable of predicting performance than distributive justice, which supports the two-factor model if performance is assumed to be a system-referenced outcome.

The agent-system model predicts that interpersonal or informational justice will have stronger effects than procedural justice on agent-referenced variables but weaker effects than procedural justice on system-referenced variables. This model was supported for

agent-referenced outcomes, including agent-referenced evaluation of authority and OCBI, but not for trust, which was more related to procedural and distributive justice. The agent-system model was also supported for job satisfaction, organizational commitment, and performance. The model actually seems to underestimate the importance of interpersonal or informational justice for behavioral variables. Interpersonal or informational justice was a strong predictor of OCBOs, withdrawal, and negative reactions, which would not have been predicted on the basis of the agent-system model.

*Implications for the Organizational Justice Literature*

The conceptualization, measurement, and analysis of organizational justice depend in large part on a given study's research question, as well as the sample or setting used to examine it. Nonetheless, the results of our review have some broad, general implications for the justice literature as a whole.

*Distinctiveness of justice dimensions.* The construct discrimination results suggest that procedural, interpersonal, and informational justice are distinct constructs that can be empirically distin-

guished from one another. We would therefore call for a moratorium on indirect combination measures that combine the three justice dimensions into a single variable. Thirty-five of the studies included in our review used such measures (e.g., Brockner et al., 1995, 1997; Folger & Konovsky, 1989; Konovsky & Folger, 1991; Mansour-Cole & Scott, 1998; Skarlicki & Latham, 1997). Our review showed that procedural, interpersonal, and informational justice have different correlates, and measuring the three separately allows for further differences among the dimensions to be examined.

*Measurement of justice dimensions.* It is also critical that researchers devote more care and effort to the measurement of justice dimensions. Some of the articles we reviewed used measures that assessed, among supervisors, granting subordinates voice, treating subordinates consistently, suppressing biases, being respectful, and providing explanations. Such measures were labeled "interactional justice" (e.g., Moorman, 1991; Skarlicki & Latham, 1997), even though only the latter two are included in Bies and Moag's (1986) construct. Authors may have included such items on the basis of Folger and Bies's (1989) article on "managerial responsibilities" for procedural justice, which listed seven principles (process control, bias suppression, consistency, feedback, justification, truthfulness, and courtesy) managers should use to promote procedural justice. Not surprisingly, researchers using such measures have been forced to collapse the interactional justice measure with their procedural justice measure as a result of high intercorrelations (Mansour-Cole & Scott, 1998; Skarlicki & Latham, 1997). Thus, more attention should be paid to content validity, as in a recent study by Colquitt (2001), who developed scales for the justice dimensions based on the seminal works introducing them and validated the scales in two independent studies.

*Distinguishing justice content from justice source.* Relatedly, future research should seek to separate the effects of justice content from the effects of justice source. Procedural justice can be a function of an organization, as when a formalized decision-making system provides process control or consistency as a result of the way in which it is structured (e.g., Adams-Roy & Barling, 1998; Ehlen, Magner, & Welker, 1999; Skarlicki et al., 1999). Procedural justice can also be a function of a decision-making agent, as when a manager takes steps to involve subordinates in decisions or treat subordinates consistently (e.g., Folger & Konovsky, 1989; Konovsky, Folger, & Cropanzano, 1987; Korsgaard, Schweiger, & Sapienza, 1995). Likewise, informational and interpersonal justice can be fostered through organizational policies and initiatives (e.g., Konovsky & Folger, 1991; Mansour-Cole & Scott, 1998; Tansky, 1993) or through the actions of a decision-making agent (e.g., Bies, Shapiro, & Cummings, 1988; Greenberg, 1994; Moorman, 1991). It is difficult to draw conclusions from studies comparing the effects of organization-originating procedural justice with agent-originating interpersonal or informational justice because source and content are confounded. Fortunately, recent research is beginning to examine this important issue by crossing justice source with justice content to assess their joint effects (Blader & Tyler, 2000; Byrne & Cropanzano, 2000; Masterson, Bartol, & Moya, 2000).

*Including multiple justice dimensions in single studies.* Our results also clearly show that researchers can explain more outcome variance by including multiple justice dimensions within single studies, although there are some diminishing returns associated with this strategy. Our proactive research results showed that distributive justice, procedural justice (in terms of Leventhal criteria), interpersonal justice, and, to a lesser extent, informational justice each contribute uniquely to the creation of fairness perceptions. Our reactive research results showed that procedural and distributive justice are sufficient to adequately predict several outcomes, and procedural and distributive justice were either the strongest or second strongest predictors of 15 outcomes. However, interpersonal and informational justice clearly contributed to the prediction of other outcomes. For example, one or both of these variables were strong independent predictors of behavioral outcomes such as OCBI, OCBO, withdrawal, and negative reactions. Informational justice was the strongest predictor of both agent-referenced and system-referenced evaluation of authority. These results suggest that researchers interested in most evaluation or behavioral outcomes should assess both structural and interactional facets of justice.

*Examining interactions among justice dimensions.* In addition to explaining more outcome variance, including multiple dimensions will also allow for the testing of interaction effects. The interaction between procedural and distributive justice has been perhaps the most robust finding in the justice literature (Brockner & Wiesenfeld, 1996). Skarlicki and Folger (1997) further showed that procedural and interactional justice interact in predicting ORBs. These authors also found support for three-way interactions among procedural, interactional, and distributive justice. Such complex relationships do not map neatly onto reactive models such as the two-factor or agent-system model. However, the fact that moderators were present in almost all of the justice-outcome relationships suggests that more complex relationships may be the key to improving outcome prediction.

*Gaps in the existing literature.* A final implication of our results resides in the gaps revealed by this review. A scan of Table 5 highlights areas where more research ought to be done. In terms of sheer number of studies, we note that procedural justice is much better represented in studies of satisfaction, commitment, evaluation of authorities, withdrawal, and negative reactions and relatively underrepresented in studies of performance, OCBI, and trust. We also note that interpersonal and informational justice have received less attention than distributive and procedural justice, probably as a result of their more recent appearance in the justice literature. This is particularly evident for interpersonal justice, which has been assessed in 16 studies, as opposed to 31 studies for informational justice. As more researchers consider multiple justice dimensions in their work, these gaps should begin to be filled.

### Limitations

This review has some limitations that should be noted. First, as in the primary studies on which our review is based, many of the variables were assessed with self-report measures. Thus, many of the relationships may be inflated because of same source bias. Second, any meta-analysis is subject to a variety of judgment calls

(Wanous, Sullivan, & Malinak, 1989). Although we performed all coding in author dyads, it is possible that some of these judgment calls affected our results. Finally, the fact that meta-analysis requires the reporting of zero-order results meant that several important justice articles could not be included in our review. In particular, many of Tyler's examinations of the relational model of justice had to be omitted (e.g., Tyler, 1989, 1994; Tyler et al., 1996).

### Conclusion

In a review of the organizational justice literature, Greenberg (1993a) suggested that the field was in a state of "intellectual adolescence." This adolescence, though marked by many advancements, is also characterized by "stumbling awkwardness" due to underdeveloped research agendas and the absence of underlying theory (Greenberg, 1993a, p. 139). In an earlier review, Greenberg (1990b) echoed these sentiments, noting that the field was years away from the final stage of Reichers and Schneider's (1990) construct life cycle. That final stage, termed "consolidation and accommodation," is characterized by a reduction in controversies and an increase in agreement about definitions, antecedents, and consequences. Meta-analytic reviews, according to Greenberg (1990b), can help create such consolidation. Thus, we hope that the review presented in this article can help the field enter a more mature stage, as research on justice enters the new millennium.

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