

## On the Dimensionality of Organizational Justice: A Construct Validation of a Measure

Jason A. Colquitt  
University of Florida

This study explores the dimensionality of organizational justice and provides evidence of construct validity for a new justice measure. Items for this measure were generated by strictly following the seminal works in the justice literature. The measure was then validated in 2 separate studies. Study 1 occurred in a university setting, and Study 2 occurred in a field setting using employees in an automobile parts manufacturing company. Confirmatory factor analyses supported a 4-factor structure to the measure, with distributive, procedural, interpersonal, and informational justice as distinct dimensions. This solution fit the data significantly better than a 2- or 3-factor solution using larger interactional or procedural dimensions. Structural equation modeling also demonstrated predictive validity for the justice dimensions on important outcomes, including leader evaluation, rule compliance, commitment, and helping behavior.

Individuals are the subject of decisions virtually every day of their organizational lives. Some of these decisions deal with the salaries individuals make, some deal with the projects they perform, and some deal with the social settings in which they function. These decisions have both economic and socioemotional consequences, many of which form the foundation for why individuals work in organizations in the first place (Cropanzano & Schminke, 2001). The importance of those consequences causes individuals to judge the decision making they experience with a very critical eye. Thus, one of the first questions they ask in the wake of decisions is "Was that fair?"

The notion of fairness, or justice, has become an increasingly visible construct in the social sciences over the last 3 decades. Initially, researchers focused on the justice of decision outcomes, termed *distributive justice* (Adams, 1965; Deutsch, 1975; Homans, 1961; Leventhal, 1976). Distributive justice is fostered where outcomes are consistent with implicit norms for allocation, such as equity or equality. More recent work has focused on the justice of the processes that lead to decision outcomes, termed *procedural justice* (Leventhal, 1980; Leventhal, Karuza, & Fry, 1980; Thibaut & Walker, 1975). Procedural justice is fostered through voice during a decision-making process or influence over the outcome (Thibaut & Walker, 1975) or by adherence to fair process criteria, such as consistency, lack of bias, correctability, representation, accuracy, and ethicality (Leventhal, 1980; Leventhal et al., 1980).

Efforts to explain the impact of justice on effective organizational functioning have come under the rubric of *organizational justice* research (Greenberg, 1987, 1990b). Research integrating procedural and distributive justice has found consistent support for a two-factor conceptualization of organizational justice (Greenberg, 1990b). For example, Sweeney and McFarlin (1993) specified a structural equation model in which distributive justice

was related to personal-referenced outcomes, such as pay satisfaction, whereas procedural justice was related to organizational-referenced outcomes, such as organizational commitment. This model provided a better fit than models where the two types of justice overlapped in their effects. Similar findings have been reported elsewhere (e.g., Folger & Konovsky, 1989; McFarlin & Sweeney, 1992) and discussed in reviews of the literature (Greenberg, 1990b; Lind & Tyler, 1988).

The clarity of the two-factor model of organizational justice was clouded with the introduction of *interactional justice*, defined as the interpersonal treatment people receive as procedures are enacted (Bies & Moag, 1986). Interactional justice is fostered when decision makers treat people with respect and sensitivity and explain the rationale for decisions thoroughly. Although some researchers have treated interactional justice as a third type of justice (e.g., Aquino, 1995; Barling & Phillips, 1993; Bies & Shapiro, 1987; Skarlicki & Folger, 1997; Tata & Bowes-Sperry, 1996), others have considered it a subset of procedural justice (e.g., Moorman, 1991; Niehoff & Moorman, 1993; Tyler & Bies, 1990). Still others have used separate measures of procedural and interactional justice but have combined them because of high intercorrelations (e.g., Mansour-Cole & Scott, 1998; Skarlicki & Latham, 1997). Thus, it is currently unclear whether organizational justice is best depicted by two or three factors.

Greenberg (1993b) brought a new perspective to this debate by suggesting a four-factor structure for organizational justice. He suggested that the respect and sensitivity aspects of interactional justice might best be viewed as interpersonal facets of distributive justice because they alter reactions to decision outcomes (i.e., sensitivity can make people feel better about an unfavorable outcome). He further suggested that the explanation aspect of interactional justice might best be viewed as an interpersonal facet of procedural justice because explanations often provide the information needed to evaluate structural aspects of the procedure. To date, this conceptualization has not been empirically tested.

However, it should be noted that a four-factor view of justice seems inconsistent with some past research, which seems unable to even distinguish between procedural and distributive justice. Many

Correspondence concerning this article should be addressed to Jason A. Colquitt, Warrington College of Business Administration, Department of Management, University of Florida, P.O. Box 117165, Gainesville, Florida 32611-7165. Electronic mail may be sent to colquitt@ufl.edu.

articles find extremely high correlations between the two constructs, suggesting that some individuals may view justice from a one-factor perspective. For example, Welbourne, Balkin, and Gomez-Mejia (1995) found an uncorrected correlation of .74 between procedural justice and distributive justice. Sweeney and McFarlin (1997) reported an uncorrected correlation of .72. Martocchio and Judge (1995) conducted a study of absence disciplinary decisions in which distributive, procedural, and interactional justice items were all combined into one organizational justice variable. It was unclear whether the authors did this for conceptual reasons (i.e., they did not perceive important differences among the dimensions) or for empirical reasons (i.e., high correlations prompted them to sum across the dimensions).

A discussion of the procedural-distributive distinction by Cropanzano and Ambrose (2001) casts these issues in a new light. The authors argued that procedural and distributive justice are, as constructs, more similar than most researchers believe because procedural evaluations are based in large part on outcomes attained and because 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 it provides employees more process control can be termed a fair outcome, even though process control is a procedural construct. Of course, this is not to say that Cropanzano and Ambrose (2001) subscribe to a one-factor view of justice or that they feel the distinctions among different justice dimensions are unimportant. Rather their monistic perspective is cited here to acknowledge that individuals may not always perceive a distinction between procedural and distributive justice. This article tests a one-factor view of justice, though the test is used more as a "straw model," which serves as a baseline for comparing the two-, three-, and four-factor models.

### The Measurement of Organizational Justice

Further complicating debates over the dimensionality of organizational justice has been inconsistent and poor measurement. Lind and Tyler (1988) noted that "there is too little attention devoted to constancy of measurement across studies" (p. 245). Greenberg (1990b) noted that many researchers have used one-item measures or ad hoc measures for which no construct validity evidence was provided. He further suggested that "the state of current procedural justice findings is such that the basis for a conceptually meaningful scale could be developed. Indeed, the time is ripe for such an endeavor to be undertaken" (Greenberg, 1990b, p. 423). He echoed these comments in a subsequent review, stating "A sure sign of the immaturity of the field of organizational justice is the lack of a standardized instrument with which to measure perceptions of distributive and procedural justice" (Greenberg, 1993a, p. 143).

In a related issue, Greenberg (1990b) noted that many measurement efforts are plagued by items that attempt to measure one type of justice but that seem more applicable to another. For example, Fryxell and Gordon (1989) used a measure of distributive justice that assessed the ability to express ideas during a grievance procedure (usually connected with procedural justice). Sweeney and McFarlin (1997) used measures of procedural justice that asked whether employees usually "lose out in the end" when changes occur and whether disciplinary actions are fair, both of which seem to tap outcome fairness. Joy and Witt (1992) assessed distributive

justice in part by asking about the treatment respondents had received, potentially evoking interactional justice issues.

Such problems are most common where interactional justice is the focus. For example, Moorman (1991) constructed perhaps the most comprehensive and most frequently used measure of procedural and interactional justice. Although the interactional justice measure contains items tapping the sincerity and explanation facets of interactional justice identified by Bies and Moag (1986), it also contains items asking whether a supervisor "considered your viewpoint" and "was able to suppress personal biases." Although these items inquire about interpersonal treatment during the enactment of a procedure, they also assess two of the most common procedural justice criteria: voice and bias suppression (Leventhal, 1980; Leventhal et al., 1980; Thibaut & Walker, 1975). This contamination may explain why Mansour-Cole and Scott (1998) ended up combining Moorman's (1991) procedural and interactional justice measures because of high correlations.

Similarly, Aquino (1995) used an interactional justice scale that assessed the extent to which supervisors give accurate performance ratings, thereby capturing a procedural justice concept (Leventhal's accuracy rule). The distinction between procedural and interactional justice was even more blurred in work by Skarlicki and Latham (1997). They combined Moorman's (1991) procedural and interactional justice scales into one scale labeled *interactional justice*. They later merged that scale with Folger and Konovsky's (1989) procedural justice measure because of high intercorrelations. Finally, Donovan, Drasgow, and Munson's (1998) recently introduced Perceptions of Fair Interpersonal Treatment Scale includes the degree to which employee suggestions are used (akin to process control) and the degree to which the supervisor plays favorites (potentially evoking distributive justice concerns), though the authors did not intend for their measure to follow Bies and Moag's (1986) conceptualization.

This cross-pollination of items may artificially inflate the relationships among the different types of justice. Moreover, these dimensionality and measurement issues create theoretical and practical problems. An inability to separate purportedly distinct constructs at a measurement level leads to confusion regarding the nomological network of those constructs. For example, the correlation between perceptions of fairness and organizational citizenship behaviors reported in Skarlicki and Latham (1997) could be driven by formal procedural criteria, respectfulness, or explanations—three concepts that are conceptually and practically distinct.

Moreover, the practice of merging interactional and procedural justice prevents researchers from uncovering important differences between the constructs. For example, Barling and Phillips (1993) showed that interactional justice influenced withdrawal behaviors but procedural justice did not. Tata and Bowes-Sperry (1996) showed that women were more likely than men to emphasize interactional justice in a pay raise context, but no gender effect was observed with procedural justice. More recently, Masterson, Lewis, Goldman, and Taylor (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. These results support Bies and Moag's (1986) assertion that people draw on interactional justice perceptions when

deciding how to react to decision-making agents (i.e., one's supervisor), whereas procedural justice perceptions are used to decide how to react to decision-making systems (i.e., the organization).

Research by Cropanzano and Prehar (1999) further supports this agent-system model. The authors found that interactional justice affected three agent variables (leader-member exchange perceptions, satisfaction with supervisor, and supervisor ratings of performance) more than procedural justice. In contrast, procedural justice had a greater effect on a system variable (trust in management). Similar effects were found by Moye, Masterson, and Bartol (1997). Merging the two forms of justice prevents the examination of such agent-system differences and creates practical problems as well. Should organizations devote more resources to improving structural aspects of procedures or training leaders to act in an interactionally fair manner? Such questions cannot be answered at present.

The purpose of this study is to investigate the theoretical dimensionality of organizational justice and to test the construct validity of a new justice measure. First, I generated items by strictly following the seminal works in the organizational justice domain, along with more recent examinations of these constructs. Second, I compared multiple a priori factor structures, including one-factor, two-factor, three-factor, and four-factor conceptualizations of organizational justice. Third, I examined outcomes associated with the justice constructs to place them in a larger nomological network and to demonstrate predictive validity.

I conducted two independent studies to test the construct validity of the justice measure. Study 1 examined justice in the context of a university classroom setting. Study 2 examined justice in the context of a field setting (i.e., employees in an automotive parts manufacturing company). The settings for these two studies were intentionally diverse. Greenberg (1993a) suggested that the possibility that justice concepts are context specific may be one factor that detracts from the utility of a standardized justice measure. Thus, demonstrating good construct validity in two diverse independent samples begins to establish some degree of generalizability for the justice measure. Moreover, establishing identical factor structures for organizational justice in both samples provides more evidence of its true dimensionality.

The measure developed in this study is, in Lind and Tyler's (1988) terms, an *indirect measure*. That is, it does not directly ask how fair something is; rather, it assesses fairness criteria, such as consistency, lack of bias, adequate explanation, and so forth. An indirect measure was chosen for two reasons. First, a recent meta-analysis of the organizational justice literature showed that indirect measures were more strongly correlated with outcomes than direct measures (Colquitt, Conlon, Wesson, Porter, & Ng, 2001). Despite the predictive superiority of indirect measures, 74 of the 114 studies using self-reports relied on direct measures. Second, indirect measures provide more information than direct measures in that they show exactly what fairness criteria are favorable or unfavorable.

### Measures Reflecting Each Component of Organizational Justice

I generated items assessing each component of organizational justice by attempting to tap the dimensions laid out in the seminal

works in the justice literature. In doing so, it was critical to separate ideas that were distinct from those that gave different terms to similar concepts. Greenberg (1990b) contended that the justice literature suffers from a need to unify similar phenomena. He offered criteria such as *courteous treatment, politeness, and respect* as cases where "the wheel may have been reinvented." It was also critical to ensure that a measure reflected all aspects of the construct, as the construct is discussed in the literature. This type of measure would build content validity while reducing the potential for measure deficiency (Schwab, 1980).

The items generated for the justice measure are listed in Table 1, which also provides the source on which each item is based. Note that the items in Table 1 can be tailored to specific contexts by altering the parenthetical parts of the items, as is seen in Studies 1 and 2. Greenberg (1993a) suggested that a justice measure would require such convertibility to remain useful across a wide variety of contexts.

### Procedural Justice Items

Thibaut and Walker's (1975) writings on procedural justice arose from observations of courtroom settings, where the fairness of the verdict and the process that led to the verdict are often independent. They advanced two criteria for procedural justice: process control (e.g., the ability to voice one's views and arguments during a procedure) and decision control (e.g., the ability to influence the actual outcome itself). These control-based procedural justice criteria have received robust support in the existing literature (Lind & Tyler, 1988). Items 1 and 2 in Table 1 reflect Thibaut and Walker's (1975) concepts.

Leventhal and colleagues applied the procedural justice concept to nonlegal settings (Leventhal, 1980; Leventhal et al., 1980). Procedural justice was thought to be assessed by comparing the process one experiences to several generalizable procedural rules. If the rules were upheld, the procedure was just. The rules included consistency (e.g., the process is applied consistently across persons and time), bias suppression (e.g., decision makers are neutral), accuracy of information (e.g., procedures are not based on inaccurate information), correctability (e.g., appeal procedures exist for correcting bad outcomes), representation (e.g., all subgroups in the population affected by the decision are heard from), and ethicality (e.g., the process upholds personal standards of ethics and morality). Lind and Tyler (1988) noted that the representation criteria subsumes process control and decision control, so it was not included in the measure. The other five Leventhal criteria can be seen in Items 3–7 in Table 1.

Other criteria for procedural justice were developed by Lind and Tyler (Lind, 1995; Lind & Tyler, 1988; Tyler, 1989; Tyler & Lind, 1992). Their articulation of the group-value, or relational, model of procedural justice posits that procedural justice is important because it signifies that people are valued by their authority figures and the collective to which they belong (Lind & Tyler, 1988; Tyler & Lind, 1992). This idea is in contrast to the self-interest, or instrumental, model, which posits that procedural justice is valued because it signifies that long-term outcomes are protected because of the existence of a level playing field. In the relational view, procedural justice is one of the key determinants of individuals' perceptions of authority legitimacy and their willingness to comply

Table 1  
*Justice Measure Items*

Measure item	Source on which item is based <sup>a</sup>
<i>Procedural justice</i>	
The following items refer to the procedures used to arrive at your (outcome). To what extent:	
1. Have you been able to express your views and feelings during those procedures?	Thibaut & Walker (1975)
2. Have you had influence over the (outcome) arrived at by those procedures?	Thibaut & Walker (1975)
3. Have those procedures been applied consistently?	Leventhal (1980)
4. Have those procedures been free of bias?	Leventhal (1980)
5. Have those procedures been based on accurate information?	Leventhal (1980)
6. Have you been able to appeal the (outcome) arrived at by those procedures?	Leventhal (1980)
7. Have those procedures upheld ethical and moral standards?	Leventhal (1980)
<i>Distributive justice</i>	
The following items refer to your (outcome). To what extent:	
1. Does your (outcome) reflect the effort you have put into your work?	Leventhal (1976)
2. Is your (outcome) appropriate for the work you have completed?	Leventhal (1976)
3. Does your (outcome) reflect what you have contributed to the organization?	Leventhal (1976)
4. Is your (outcome) justified, given your performance?	Leventhal (1976)
<i>Interpersonal justice</i>	
The following items refer to (the authority figure who enacted the procedure). To what extent:	
1. Has (he/she) treated you in a polite manner?	Bies & Moag (1986)
2. Has (he/she) treated you with dignity?	Bies & Moag (1986)
3. Has (he/she) treated you with respect?	Bies & Moag (1986)
4. Has (he/she) refrained from improper remarks or comments?	Bies & Moag (1986)
<i>Informational justice</i>	
The following items refer to (the authority figure who enacted the procedure). To what extent:	
1. Has (he/she) been candid in (his/her) communications with you?	Bies & Moag (1986)
2. Has (he/she) explained the procedures thoroughly?	Bies & Moag (1986)
3. Were (his/her) explanations regarding the procedures reasonable?	Shapiro et al. (1994)
4. Has (he/she) communicated details in a timely manner?	Shapiro et al. (1994)
5. Has (he/she) seemed to tailor (his/her) communications to individuals' specific needs?	Shapiro et al. (1994)

Note. All items use a 5-point scale with anchors of 1 = *to a small extent* and 5 = *to a large extent*.

<sup>a</sup> Citations reflect the source of the concepts measured by the scale items.

with the rules and decisions of the collective (Lind, 1995; Tyler, Degoe, & Smith, 1996; Tyler, 1999; Tyler & Lind, 1992).

Although the theory behind the relational model complements the theory behind Thibaut and Walker's and Leventhal's concepts, tests of the relational model typically use different justice criteria. For example, Tyler (1989) offered three additional criteria that are purportedly most applicable to the relational model: neutrality, trust, and standing (e.g., interpersonal treatment). Lind's (1995) model updated these criteria, listing them as neutrality, benevolence, and status recognition. However, one could argue that neutrality overlaps considerably with Leventhal's bias suppression criterion, and standing or status recognition overlaps considerably with the dignity and respect facets of interactional justice. Benevolence, as described by Lind (1995), seems to overlap with Thibaut and Walker's process control and Leventhal's ethicality criteria. Finally, trust is a construct with its own established literature (e.g., Rousseau, Sitkin, Burt, & Camerer, 1998) and might best be viewed as a correlate of procedural justice. Thus, Lind and Tyler's criteria are not reflected in the measure in Table 1 because they are subsumed under other items that measure procedural and interactional justice.

#### *Distributive Justice Items*

Distributive justice exists to the extent that the allocation of an outcome is consistent with the goals of a particular situation, such as maximizing productivity or improving cooperation (Deutsch,

1975; Leventhal, 1976). Because the most common goal during most distributive justice research has been maximizing productivity, most research has focused on the equity rule (e.g., Adams, 1965; Deutsch, 1975; Homans, 1961; Leventhal, 1976). Leventhal (1976) described the equity rule as "a single normative rule which dictates that rewards and resources be distributed in accordance with recipients' contributions" (p. 94). Deutsch (1975) described the equity rule as "a proportionality between the individual's outcome of rewards and costs (i.e., of things of intrinsic value) and his inputs or contributions of assets and liabilities" (p. 144).

Although other allocation rules, such as equality or need, are certainly important in many situations, the distributive justice measure in this study reflected Leventhal's (1976) conceptualization of the equity rule to maximize generalizability. The distributive justice items are listed in Table 1. Each item refers respondents to an outcome (e.g., pay or promotions in a field study, a reward in a lab study, a grade in a university setting) and asks them about the appropriateness of the outcome, given their contributions. These items are similar in format to other measures commonly used in the justice literature (e.g., McFarlin & Sweeney, 1992; Moorman, 1991; Price & Mueller, 1986; Sweeney & McFarlin, 1993).

#### *Interactional Justice Items*

The interactional justice construct was first introduced in Bies and Moag (1986). The authors identified four criteria for interac-

tional justice on the basis of a study of expectations for interpersonal treatment during recruitment. These included justification (e.g., explaining the basis for decisions), truthfulness (e.g., an authority figure being candid and not engaging in deception), respect (e.g., being polite rather than rude), and propriety (e.g., refraining from improper remarks or prejudicial statements). In practice these four criteria have been researched along two dimensions: explanations and sensitivity (e.g., Greenberg, 1990a). More importantly, these two dimensions have been shown to have effects independent of one another (e.g., Bies, Shapiro, & Cummings, 1988; Greenberg, 1993c, 1994; Shapiro, Buttner, & Barry, 1994).

Because the two dimensions of interactional justice have been shown to have independent effects, items assessing them are listed separately in Table 1, which uses Greenberg's (1993b) designations of interpersonal and informational justice. The former contains Bies and Moag's (1986) respect (Items 1–3) and propriety (Item 4) criteria; the latter contains their truthfulness (Item 1) and justification (Items 2–5) criteria. The informational justice items also tap ideas based on the work of Shapiro et al. (1994), who examined factors that improve the perceived adequacy of explanations. They showed that explanations were perceived to be more adequate when they were reasonable (Item 3), timely (Item 4), and specific (Item 5), though timeliness had interactive as opposed to direct effects.

Other work relevant to interactional justice is Folger and Bies (1989), which identified "managerial responsibilities associated with ensuring fairness in the implementation of decision-making procedures in organizations" (p. 79). Their managerial responsibilities included giving adequate consideration to employees' viewpoints, suppressing biases, applying decision-making criteria consistently across employees, giving timely feedback after a decision, providing a justification for the decision, being truthful in communication, and treating employees with courtesy and civility. Although the last four reflect many of the ideas outlined by Bies and Moag (1986), the first three overlap with the procedural justice criteria discussed above. Folger and Bies (1989) meant to show that these factors are as much a product of authority-figure behavior as they are structural aspects of any formalized procedure (see also discussions by Tyler & Bies, 1990). Unfortunately, attributing the same principles to procedural and interactional justice blurs the construct boundary between them, as mentioned previously. This practice may account for the high procedural–interactional justice correlations in measures that follow Folger and Bies's (1989) dimensions (see Mansour-Cole & Scott, 1998; Moorman, 1991; Skarlicki & Latham, 1997).

The two subsequent sections detail empirical tests of the construct validity of the justice measure shown in Table 1. As mentioned above, Study 1 examined organizational justice in the context of a university classroom setting. Distributive justice was referenced toward the fairness of the grades students had received, procedural justice was referenced toward the fairness of the decision-making processes used by the instructors, and interactional justice concerned the instructors' interpersonal treatment of students. Study 2 examined organizational justice in the context of a field setting (i.e., employees in an automotive parts manufacturing company). Here, distributive justice was referenced toward the outcomes employees received from their work (e.g., pay raises, promotions). Procedural justice was referenced toward the

decision-making procedures used by their supervisors in making such decisions, and interactional justice was referenced toward the way employees were treated interpersonally by their supervisor.

## Study 1

Generating the justice items using the seminal works in the literature helped ensure a degree of content validity. However, predictive validity is also a necessary part of any construct validation process (Nunnally, 1978). Besides illustrating practical utility, it places items in a larger nomological network, further supporting construct validity (Cronbach & Meehl, 1955). A critical choice in any construct validation effort is therefore the choice of outcome variables.

Three criteria guided the choice of outcome variables in this article. First, the outcomes had to be relevant to the study setting (i.e., the university setting of Study 1 and the field setting of Study 2). Second, the outcomes had to represent both heavily researched and recently introduced outcomes. It is impossible to adequately specify part of a construct's nomological network without using outcomes that have been researched with some frequency. However, the contribution of an article also rests in its ability to advance theory, show findings that have not already been shown, and fill gaps in existing knowledge. Thus, recently introduced outcomes were also included to provide a theoretical and substantive contribution in addition to the measurement contribution. Third, the outcomes had to be applicable to both the instrumental and relational models of justice. Lind and Tyler (1988) suggested that theoretical advancements in organizational justice could best be achieved by applying both models to a research question simultaneously.

The four outcomes included in Study 1 were outcome satisfaction, leader evaluation, rule compliance, and collective esteem. Specific predictions regarding the relationships between organizational justice and these four outcomes were tenable without first establishing the dimensionality of organizational justice. For example, making separate predictions for interpersonal and informational justice presupposes that the factor analysis results support keeping those two constructs separate, rather than grouping them into a larger interactional justice factor. It is therefore important to recognize that the predictions to follow could be qualified by the factor-analytic results.

The subsequent section predicts linkages between distributive, procedural, interpersonal, and informational justice and the four outcomes. I used several theoretical perspectives to derive predictions, including the instrumental and relational models, the agent-system model, and the longstanding view that distributive justice predicts person-centered outcomes, whereas procedural predicts organization-centered outcomes. However, given that this study is the first to make predictions for four different types of justice, applying past empirical findings from studies using larger, multidimensional measures is difficult. Thus, the hypotheses to follow make predictions only about the justice factor that should most significantly relate to the outcome.

## Study Hypotheses

Outcome satisfaction is one of the most commonly examined outcomes in organizational justice research and is relevant to the

instrumental model of justice. As previously noted, past research suggests that distributive justice is more related to person-centered evaluations like outcome satisfaction, whereas procedural justice is more related to evaluations of a system or organization (Folger & Konovsky, 1989; McFarlin & Sweeney, 1992; Sweeney & McFarlin, 1993). Thus, I expected that outcome satisfaction would be most highly related to distributive justice, consistent with past findings (Lind & Tyler, 1988).

*Hypothesis 1:* Distributive justice will be positively related to outcome satisfaction.

Rule compliance refers to an adherence to the guidelines that govern a system or collective and is a more recently introduced construct in the justice literature (e.g., Aquino, 1995; Tyler, 1999; Tyler et al., 1996). The recent focus on rule compliance is likely a generalization of past work examining compliance with, and acceptance of, decisions made by third parties or authority figures (e.g., Korsgaard, Schweiger, & Sapienza, 1995; Lind, Kulik, Ambrose, & de Vera Park, 1993). A significant relationship between procedural justice and rule compliance is consistent with both instrumental and relational models of procedural justice (Lind, 1995; Tyler, 1999; Tyler & Lind, 1992) and has been identified in past research (Aquino, 1995; Tyler et al., 1996). The existence of process fairness suggests that rule compliance results in long-term outcomes and also reaffirms that the authority or collective merits willing deference to norms. The agent-system model also supports such a linkage, as procedural justice is a stronger predictor of system variables than agent variables.

*Hypothesis 2:* Procedural justice will be positively related to rule compliance.

Leader evaluation is, like outcome satisfaction, a commonly examined outcome in the justice domain (Greenberg, 1990b). I expected leader evaluation to be most strongly related to interpersonal justice, a prediction that is based on the agent-system model. Masterson et al. (2000) showed interactional justice to be a stronger predictor of leader-member exchange than other forms of justice. Similarly, Cropanzano and Prehar (1999) showed interactional justice to be a stronger predictor of satisfaction with one's supervisor, as did Moye et al. (1997). Smith, Tyler, Huo, Ortiz, and Lind (1998) also linked quality of interpersonal treatment with leader evaluation.

*Hypothesis 3:* Interpersonal justice will be positively related to leader evaluation.

Finally, collective esteem is a recently introduced construct that refers in part to one's self-concept as referenced to the groups to which one belongs (Luhtanen & Crocker, 1992). Collective esteem is rooted in social identity theory (Tajfel & Turner, 1979) and differs from self-esteem in that it is based on group opinions of self-worth, as opposed to an analysis of personal attributes. Because it captures the extent to which a person feels he or she is valued by a collective, it is particularly relevant to the relational model of justice (Tyler, 1999). Luhtanen and Crocker (1992) argued that collective esteem is driven in part by how active individuals are in a group's activities. This argument suggests that collective esteem may be linked to informational justice, which conveys a sense of inclusion in key decisions (Tyler & Bies, 1990).

Tyler and Lind (1992) also noted that individuals judge their status in collectives in part by observing how trustworthy authorities are (see also Tyler & DeGoey, 1995; Tyler et al., 1996). By reducing secrecy and dishonesty, informational justice illustrates the kind of trustworthiness that can increase status judgments and collective esteem.

*Hypothesis 4:* Informational justice will be positively related to collective esteem.

## Method

### Sample

Participants were 301 students in a junior-level undergraduate management course. This sample included 137 men and 164 women. Average age of the participants was 21 years.

### Procedure

All justice items were tailored to an education context by altering the parenthetical parts of the measure. Specifically, the outcome in question was the grade the students were currently receiving in the course at the time the survey was given. The procedures in question were the grading procedures the instructors used to grade exams, group projects, and individual projects. Variance in perceptions of those procedures was likely due to inconsistency in strictness of grading over the course of the semester, experiences in trying to appeal scores, perceptions of bias against certain students, and so forth. The authority figures in question were the two instructors of the course's four sections. Variance in interactional items would be created by perceived differences in sincere and respectful treatment across students, differences in delivery of explanations, and variations in perceived candor.

The organizational justice and outcome variables were administered as part of a survey given to students the week before the final exam. This timing ensured that the outcome (i.e., the current grade) was meaningful, given that the majority of the course's points had already been allocated (the final exam was 25% of the grade). Surveys were administered in class, about 30 min before the class was to end. Students were assured that their instructor would receive only aggregated feedback regarding the survey and were told that feedback would not be delivered until the following semester.

### Outcome Measures

All outcome measures were assessed with 5-point Likert scales with anchors of 1 = *strongly disagree* and 5 = *strongly agree*.

*Outcome satisfaction.* Satisfaction with one's grade was assessed with two items: "The grade I am currently receiving in this course is acceptable," and "I am satisfied with my current grade in this course."

*Leader evaluation.* This was measured with three items: "I would probably recommend my instructor to my friends," "I thought my instructor was a good one," and "I really liked my instructor."

*Rule compliance.* This was assessed with three items based on Tyler et al. (1996): "I always try to follow the rules of my class," "I come to class on time," and "I follow the policies established by my teaching assistant."

*Collective esteem.* This was assessed with three respect worthiness items from Tyler et al. (1996), with each beginning with "If they knew me well:" "Most members of my class would respect my values," "Most members of my class would think highly of my accomplishments," and "Most members of my class would approve of how I live my life."

### Analysis

I first conducted a confirmatory factor analysis of the organizational justice and outcome variable items using EQS (Bentler, 1995). I used

maximum likelihood estimation with the raw data as input. I compared several a priori organizational justice factor models, including one-factor, two-factor, three-factor, and four-factor models. Once the best fitting structure was found, I combined the measurement model with a structural model containing the proposed relationships between the organizational justice dimensions and the outcome variables.

## Results and Discussion

### Confirmatory Factor Analysis

I compared the fit of four different factor structures. The first was a one-factor model, in which all items in Table 1 were indicative of one larger organizational justice factor. The second was a two-factor model, with distributive justice as one factor and procedural justice as the other, with procedural justice subsuming informational and interpersonal justice. This two-factor model is currently the most commonly used conceptualization in the justice literature. The third was a three-factor model, with distributive, procedural, and interactional justice (subsuming both informational and interpersonal justice). This three-factor model is currently the second-most commonly used conceptualization. The final model was a four-factor version using the structure in Table 1.

Fit statistics for these four models are shown in Table 2. Chi-square is an index of absolute model fit that assesses the degree to which the covariances implied by the model's structure match the observed covariances. The greater the departure from zero the worse the fit, making chi-square a "badness of fit" measure. A significant chi-square indicates a significant difference between the implied and observed covariances. However, because the chi-square formula contains sample size, its value is inflated at large sample sizes and is almost always statistically significant. For this reason, many researchers gauge chi-square relative to its degrees of freedom (i.e., relative chi-square), with a ratio of 2 usually used as an arbitrary indicator of good fit (Arbuckle, 1997).

Table 2 also reports the incremental fit index (IFI) and the comparative fit index (CFI), two fit indices that compare the fit of a given model to a baseline model, usually one in which there are no covariances among the variables (Bentler, 1990). The closer

to 1, the better the fit, and a value of .90 is usually used as an arbitrary indicator of good fit. The other index reported in Table 2 is the root-mean-square error of approximation (RMSEA). RMSEA asks the question "How well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available?" (Browne & Cudeck, 1993, pp. 137-138). It then measures that discrepancy and expresses it relative to the degrees of freedom. Although an RMSEA of zero indicates a perfect fit, Browne and Cudeck (1993) acknowledged that such a value is unrealistic to obtain. Thus, the authors have argued that values greater than .10 indicate poor fit, values between .08 and .10 indicate mediocre fit, values between .05 and .08 indicate reasonable fit, and values less than .05 indicate good fit. A key strength of the RMSEA is that it has a 90% confidence interval, which shows how precise the fit estimate is. This interval is interpreted such that over all possible randomly sampled RMSEA values, 90% would fall within the upper and lower bounds of the 90% confidence interval.

The results in Table 2 illustrate that the best fitting model is the four-factor model. The worst fitting model is the one-factor model. Assessing whether the fit of a model in Table 2 is significantly better than that of other models is traditionally done using a chi-square difference test. For example, the difference in chi-square between the three and four-factor models is 195.90, which is itself distributed as chi-square with  $(413 - 406 = 7)$  degrees of freedom. The fact that this value is statistically significant would suggest that the four-factor model is significantly better than the three-factor one. However, the chi-square difference test is only appropriate in comparing "nested" models. One model is nested within another if the model is a special case of the other (e.g., a more restricted version of it). There is some debate about whether a four-factor model is a more restricted version of a three-factor model because a new latent variable has been introduced. However, model comparisons can be made using the 90% confidence interval of the RMSEA. This comparison shows that the four-factor model is significantly better than the three-factor model because their confidence intervals do not overlap. Moreover, the three-factor model is significantly better than the two-factor

Table 2  
Comparison of A Priori Organizational Justice Factor Structures

Structure	$\chi^2$	df	$\chi^2/df$	IFI	CFI	RMSEA	RMSEA confidence interval
University sample (N = 301)							
1-factor	2,057.28	424	4.85	.65	.65	.113	(.108, .118)
2-factor	1,267.04	419	3.02	.82	.82	.082	(.077, .087)
3-factor	965.40	413	2.34	.88	.88	.067	(.061, .072)
4-factor	769.50	406	1.90	.92	.92	.055	(.049, .060)
Field sample (N = 337)							
1-factor	3,235.90	424	7.63	.61	.61	.140	(.136, .145)
2-factor	2,238.26	419	5.34	.75	.75	.114	(.109, .118)
3-factor	1,776.75	413	4.30	.81	.81	.099	(.094, .104)
4-factor	845.52	406	2.08	.94	.94	.057	(.051, .062)

Note. All  $\chi^2$  values are significant at  $p < .001$ . IFI = incremental fit index; CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

model, which is itself significantly better than the one-factor model.

Table 3 presents the correlations among the latent variables, derived from the four-factor model's standardized solution (item-level correlations are available from the author on request). The correlations among the latent variables, together with the structural model results reviewed below, provide a picture of nomological validity for the organizational justice dimensions. The upper diagonal of Table 3 provides the correlations among the dimensions where the items are averaged into scales (i.e., observed variables with error, as opposed to latent variables). These are the relationships that would have been observed with these items if some technique other than structural equation modeling had been used, such as ordinary least-squares regression. The final column of Table 3 provides reliability information for the scales. Table 3 illustrates that 15 of the 16 justice-outcome correlations were significant. Thus, on a zero-order basis, the justice measures possess a good degree of predictive validity.

### Structural Model

Anderson and Gerbing (1988) recommended specifying and testing the measurement model prior to introducing the elements of the structural model. Having found that the four-factor model fit the data best, it was possible to test the full (i.e., measurement plus structural) model. The full model provided a good fit to the data,  $\chi^2(424, N = 301) = 883.01$ ,  $\chi^2/df = 2.08$ , IFI = .90, CFI = .90, RMSEA = .060, RMSEA confidence interval (.054, .066). All predicted path coefficients were statistically significant, and all four hypotheses were supported.

Modifications to a structural model are suggested by EQS's La-Grange Multiplier (LM) test (similar to LISREL's Modification Indices). The LM test tells the researcher whether the fit of the model could be improved by adding one or more paths. However, Williams (1995) cautioned, "Specification searches, in which researchers sequentially revise their models in a post-hoc fashion based on statistical information from their model, have been known to be problematic for some time." (p. 227). Model modifications often take advantage of sampling error and are rarely cross-validated. To avoid such problems, I used the LM test in this study only to see whether additional paths were needed from one of the organizational justice factors to

one of the outcomes. Such modifications would suggest that other justice factors were linked to an outcome, over and above the effects of the justice factor named in the hypothesis. In fact, the LM test did suggest that the fit of the model could be improved via one such modification: a direct path from procedural justice to leader evaluation. This linkage makes sense theoretically, is consistent with past research (Korsgaard & Roberson, 1995; McFarlin & Sweeney, 1992), and suggests that procedural justice is related to leader evaluation, even independent of interpersonal justice. The only other modifications suggested by the LM test consisted of adding additional paths among the four dependent variables. Because relationships among the outcomes were outside the scope of this study, such modifications were not made.

The resulting model is shown in Figure 1. The latent organizational justice factors were given a scale by setting their variances to 1.00. The remaining latent variables were given a scale by setting the factor loadings of the first indicator to 1.00. The path with the dotted line illustrates that it was added via post hoc modification. The fit statistics again suggest a good fit to the data,  $\chi^2(423, N = 301) = 844.14$ ,  $\chi^2/df = 1.99$ , IFI = .91, CFI = .91, RMSEA = .048 (.052, .063). All coefficients, including path coefficients, freely estimated factor loadings, and covariances among the justice latent variables, were statistically significant.

Overall, the results of Study 1 support the construct validity of the justice measure, as it is shown in Table 1. The good fit of the four-factor structure, together with the patterns of intercorrelations in Table 3, suggests adequate discriminant validity. The good fit of the structural model, together with the statistical significance of its paths, suggests adequate predictive validity. Finally, the fact that the four organizational justice factors predicted four different outcomes (though leader evaluation was predicted by two dimensions) supports treating them as distinct constructs.

Although the Study 1 results were largely supportive of the measure in Table 1, two qualifications must be made. First, the university setting differs from many organizational settings in key respects. An organizational sample is therefore needed to provide further evidence of construct validity. Second, the clean results of the structural model may be a function of the specific set of outcome variables used in Study 1. To deal with these two concerns, Study 2 used a field setting and a different set of outcome variables.

Table 3  
*Correlations Among Latent Variables and Scale Composites in University Sample*

Construct	1	2	3	4	5	6	7	8	$\alpha$
1. Procedural justice	—	.35*	.46*	.34*	.24*	.15*	.25*	.36*	.78
2. Interpersonal justice	.43*	—	.57*	.17*	.10	.12*	.23*	.37*	.79
3. Informational justice	.60*	.64*	—	.29*	.21*	.19*	.22*	.37*	.79
4. Distributive justice	.45*	.22*	.41*	—	.69*	.08	.17*	.24*	.92
5. Outcome satisfaction	.35*	.19*	.35*	.85*	—	.08	.12*	.13*	.91
6. Collective esteem	.13*	.12*	.15*	.07	.07	—	.35*	.26*	.81
7. Rule compliance	.21*	.15*	.16*	.12*	.08*	.13*	—	.38*	.70
8. Leader evaluation	.27*	.23*	.24*	.17*	.10*	.09*	.14*	—	.88

Note.  $N = 301$ . Correlations below the diagonal are among latent variables. Correlations above the diagonal are among scales created from averaging items. Reliability information for those scales is shown in the last column.

\*  $p < .05$ .



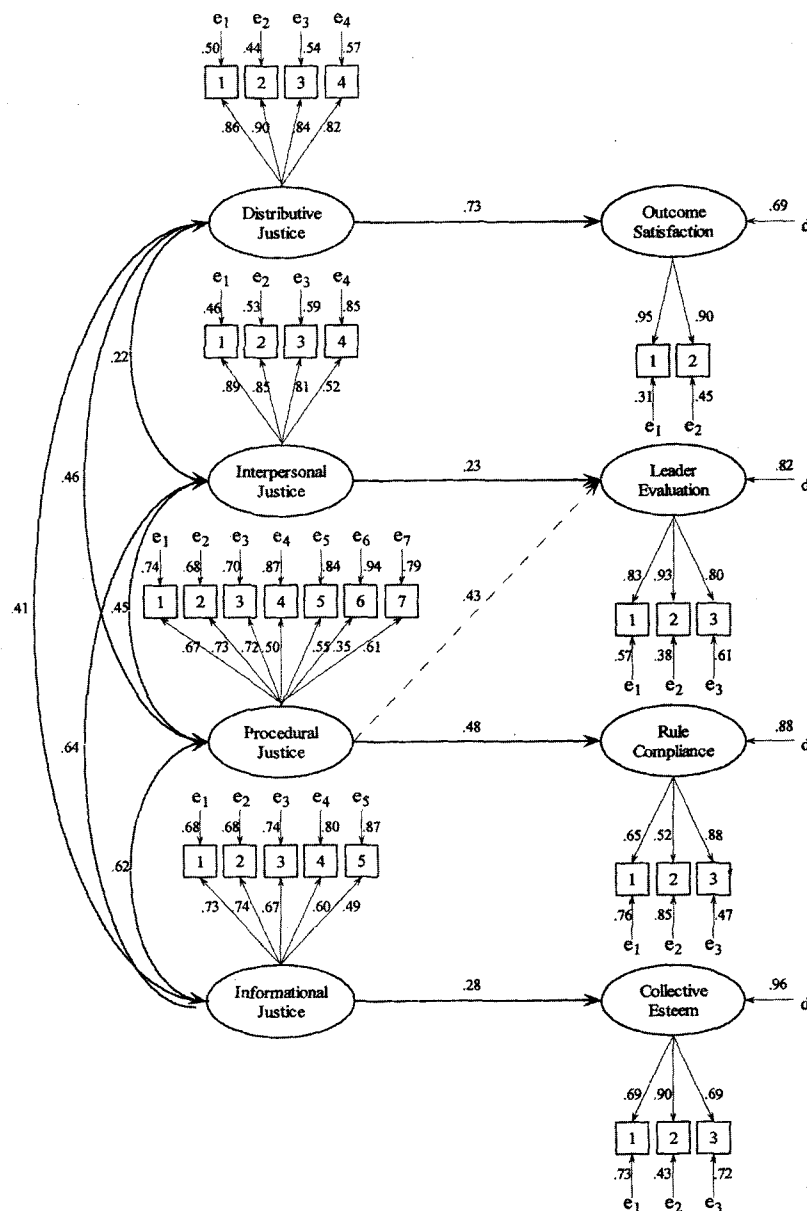


Figure 1. Structural equation modeling results for Study 1. e = error term; d = disturbance term.

## Study 2

As mentioned above, predictive or criterion-related validity is a necessary part of any construct validation process (Cronbach & Meehl, 1955; Nunnally, 1978). Whereas Study 1 examined four outcomes relevant to a university setting, Study 2 examined four outcomes relevant to a manufacturing setting where employees performed their tasks in work groups. As with Study 1, four diverse outcomes were chosen such that they (a) were relevant to the study setting, (b) represented both heavily researched and recently introduced outcomes, and (c) represented variables relevant to both the instrumental and relational models of justice. These outcomes were instrumentality, team commitment, helping behavior, and collective esteem.

## Study Hypotheses

As evidenced by its name, instrumentality is particularly relevant to the instrumental model of justice. Instrumentality refers to the perceived linkage between high task performance and valued outcomes and is a key component of models of motivation based on expectancy theory (Kanfer, 1991; Vroom, 1964). In talking about expectancy theory and distributive justice, Kanfer (1991) noted that "in an expectancy theory formulation, justice norms can be represented as proportional, monotonically increasing functions between performance and outcomes" (p. 108). This view supports a significant, positive relationship between distributive justice and instrumentality, which is also based on performance-outcome contingencies.

*Hypothesis 1:* Distributive justice will be positively related to instrumentality.

Group commitment refers to the extent to which a team member accepts team goals and identifies with the team. It is a key component of Hackman's (1987) conceptualization of group effectiveness and is most relevant to the relational model of justice. Although group commitment has rarely been examined in the justice domain, organizational commitment is among the most commonly researched outcomes (Greenberg, 1990b). The relationship between procedural justice and organizational commitment is robust and forms part of the foundation for the view that procedural justice is critical to evaluations of systems (Folger & Konovsky, 1989; Sweeney & McFarlin, 1993). A link between procedural justice and group commitment is also consistent with the agent-system model, as well as the results of Masterson et al. (2000).

*Hypothesis 2:* Procedural justice will be positively related to group commitment.

Helping behavior is a key dimension of extra-role behavior. Van Dyne and LePine (1998) defined helping behavior as proactive behavior that emphasizes acts of consideration, noting that it is particularly critical when roles are interdependent and cooperation is necessary. Explanations for extrarole behavior typically involve social exchange theory, whereby behaviors are exchanged for proper treatment by the organization (Organ, 1990). The agent-system model would predict that individual-referenced types of extra-role behavior (such as helping) would be driven primarily by interactional justice, whereas system-referenced types of extra-role behavior (e.g., civic virtue) would be driven by procedural justice. Aquino (1995) provided empirical evidence for such a prediction, linking interpersonal justice to helping behavior among both managerial and nonmanagerial employees in several organizations.

*Hypothesis 3:* Interpersonal justice will be positively related to helping behavior.

As discussed in Study 1, collective esteem refers in part to one's self-concept as referenced to the groups to which one belongs (Luhtanen & Crocker, 1992). Collective esteem is increased when an individual is included in key activities and when the collective is deemed trustworthy. Informational justice conveys both inclusion and trustworthiness by reducing secrecy and dishonesty (Tyler & Bies, 1990). It is therefore not surprising that informational justice predicted collective esteem in Study 1. Indeed, collective esteem is closely linked to the salience of in-group membership (Luhtanen & Crocker, 1992), and Tyler (1999) argued that providing important information signals acceptance by the in-group. Thus being "in the know" can, in fact, connote being "in the in-group." Study 2 seeks to replicate the positive relationship between informational justice and collective esteem.

*Hypothesis 4:* Informational justice will be positively related to collective esteem.

## Method

### Sample

Participants were 337 employees (222 men and 115 women) in two plants in a leading automobile parts manufacturing company. Employees in

the plants completed their work in groups of 10–15 people. In most cases, groups were created along functional lines. For example, some groups were responsible for using grinding equipment, others were responsible for painting, and so forth. Employees had been working in their group for an average of 10 months.

### Procedure

All justice items were tailored to apply to a field setting by altering the parenthetical parts of the measure. Specifically, the outcome in question was "outcomes you receive from your job (e.g., pay, promotions, etc.)." The procedures in question were the procedures used by employees' supervisors in making such decisions. Supervisors had three work groups directly reporting to them, so it was often difficult to provide all their subordinates with voice or treat all subordinates consistently. Variance in interpersonal or informational justice was a function of perceived differences in respectful treatment across subordinates or differences in frequency of explanations regarding key decisions.

The organizational justice and outcome variables were administered as part of a survey given to employees on company time, during their monthly group meetings. This process prevented any form of bias associated with response rates because all employees completed the survey. All employees were assured that their responses were strictly confidential. Group leaders received only aggregated feedback on the survey items about 3 weeks after the survey was given.

### Outcome Measures

All outcome measures were assessed with 5-point Likert scales with anchors of 1 = *strongly disagree* and 5 = *strongly agree*.

*Instrumentality.* This was assessed with three items: "If I perform well for my team, I am usually rewarded," "I see a clear linkage between my performance and the rewards I receive," "There is a definite relationship between the quality of my work and the rewards I receive."

*Group commitment.* This was measured with three items based on Allen and Meyer's (1990) affective organizational commitment dimension. Items were "I really feel this team's goals are my own," "I feel emotionally attached to this team," and "I feel a sense of belonging to this team."

*Helping behavior.* Helping behavior was assessed with two items: "I put more effort into helping my teammates than is generally expected of me," and "I frequently help my teammates when they have heavy work loads."

*Collective esteem.* This was assessed with three items based on the membership dimension of Luhtanen and Crocker's (1992) collective self-esteem scale. Items were "I feel I am an important member of this team," "I have high status in this team," and "My team values my role."

## Results and Discussion

### Confirmatory Factor Analysis

Fit statistics for the four organizational justice factor structures are shown in Table 2. The results illustrate that as with Study 1, the best fitting model is the four-factor model, whereas the worst fitting model is the one-factor model. Model comparisons using the 90% confidence interval of the RMSEA illustrate that the four-factor model is significantly better than the three-factor model, the three-factor model is significantly better than the two-factor model, and the two-factor model is significantly better than the one-factor model.

Table 4 presents the correlations among the latent variables on the basis of the four-factor model's standardized solution (item-level correlations are available from the author on request). The

Table 4  
Correlations Among Latent Variables and Scale Composites in Field Sample

Construct	1	2	3	4	5	6	7	8	$\alpha$
1. Procedural justice	—	.44*	.69*	.36*	.32*	.36*	.40*	.21*	.93
2. Interpersonal justice	.48*	—	.52*	.14*	.12*	.19*	.21*	.21*	.92
3. Informational justice	.74*	.52*	—	.36*	.30*	.32*	.33*	.22*	.90
4. Distributive justice	.37*	.14*	.37*	—	.31*	.08	.07	.05	.93
5. Instrumentality	.32*	.12*	.32*	.35*	—	.31*	.48*	.19*	.86
6. Collective esteem	.38*	.22*	.34*	.07	.33*	—	.49*	.43*	.83
7. Group commitment	.46*	.24*	.38*	.07	.52*	.63*	—	.31*	.70
8. Helping behavior	.26*	.23*	.24*	.05	.24*	.55*	.46*	—	.65

Note.  $N = 337$ . Correlations below the diagonal are among latent variables. Correlations above the diagonal are among scales created from averaging items. Reliability information for those scales is shown in the last column.

\*  $p < .05$ .

upper diagonal of Table 4 provides the correlations among the dimensions where the items are averaged into scales. Reliability information for the scales is shown in the final column. Thirteen of the 16 justice-outcome correlations were significant. Thus, as in Study 1, the justice measures possess a good degree of predictive validity on a zero-order basis.

### Structural Model

Having found that the four-factor model fit the data best, I was able to test the full (i.e., measurement and structural) model. This model provided a good fit to the data,  $\chi^2(424, N = 337) = 1062.88$ ,  $\chi^2/df = 2.50$ , IFI = .91, CFI = .91, RMSEA = .067 (.062, .072). All predicted path coefficients were significant, so all four hypotheses were supported. EQS's LM test suggested that the fit of the model could not be significantly improved by altering paths from the organizational justice factors to the outcome measures. Model fit could be improved by adding paths among the outcome variables, but such relationships were outside the scope of the study. The full model is shown in Figure 2, for which all path coefficients, freely estimated factor loadings, and covariances among the justice latent variables were statistically significant.

Overall, the results of Study Two again support the construct validity of the organizational justice measure, as it is shown in Table 1. The good fit of the four-factor structure, together with the patterns of intercorrelations in Table 4, suggests adequate discriminant validity. The good fit of the structural model, together with the statistical significance of its paths, suggests adequate predictive validity. In addition, the fact that the four organizational justice factors predicted four different outcomes supports treating them as distinct constructs.

### General Discussion

As mentioned at the outset, disagreements over the factor structure of organizational justice, along with inconsistent and poor measurement, have hindered theoretical and practical advancements in the literature. This article had two purposes: (a) to explore the theoretical dimensionality of organizational justice and (b) to perform a construct validation of a new justice measure, one that closely follows the original explications laid out in the seminal works in the area (e.g., Bies & Moag, 1986; Leventhal, 1976;

Leventhal, 1980; Thibaut & Walker, 1975). Two independent studies were used, one in a university setting, one in a field setting.

The results of both of the studies suggest that organizational justice is best conceptualized as four distinct dimensions: procedural justice, distributive justice, interpersonal justice, and informational justice. Many have debated whether interactional justice should be considered a subset of procedural justice (e.g., Tyler & Bies, 1990). These results suggest that collapsing procedural and interactional justice together would mask important differences. Moreover, the measurement model results further suggest that interactional justice should be broken down into its interpersonal and informational justice components, as they too had differential effects.

Apart from the theoretical implications of their results, both studies point to several strengths of the justice measure developed in this study versus others currently used in the literature. First, as mentioned above, the measure was able to discriminate among four different organizational justice factors. Thus, this measure provides the ability to statistically separate constructs that have always seemed to be distinct but have usually been combined because of high intercorrelations (e.g., Mansour-Cole & Scott, 1998; Skarlicki & Latham, 1997). Moreover, the correlations in Tables 3 and 4 suggest that it is possible to discriminate among the justice factors whether the researcher uses scale composites or latent variables. If scale composites are used, Tables 3 and 4 also indicate that those scales possess good internal consistency reliability.

The results of the two studies also show that the justice measure predicts an intentionally diverse set of outcomes taken from the existing literature. These outcomes include commonly researched variables such as outcome satisfaction, commitment, and leader evaluation and more recently introduced variables such as rule compliance and collective esteem. They also include outcomes relevant to both the instrumental and relational models of justice. Lind and Tyler (1988) have suggested that theoretical advancements in organizational justice can best be achieved by applying both models to a research question simultaneously. Unfortunately, such efforts have been very rare. Nonetheless, the results shown here demonstrate that the justice measure is capable of being used with either model. Moreover, the results of both studies provide support for the recent body of research on the agent-system model

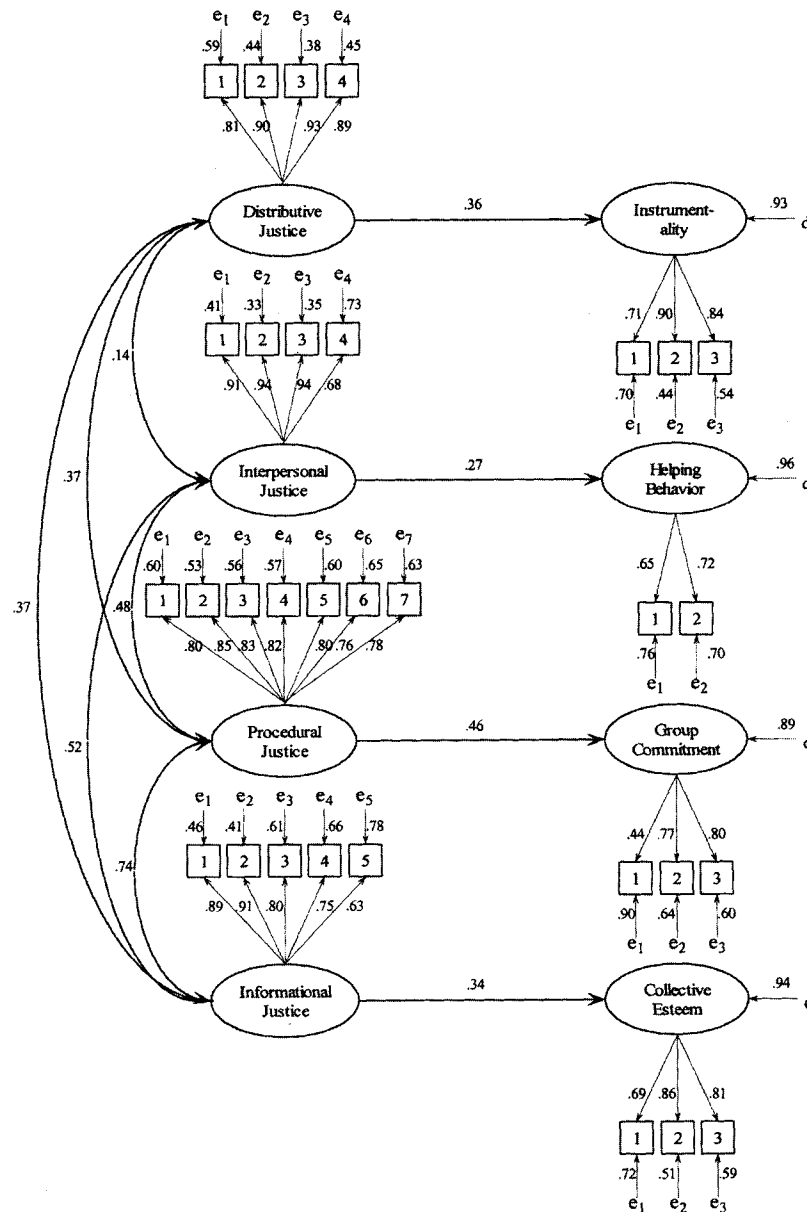


Figure 2. Structural equation modeling results for Study 2.  $e$  = error term;  $d$  = disturbance term.

(Cropanzano & Prehar, 1997; Masterson et al., 2000; Moye et al., 1997), in that interpersonal justice predicted agent-referenced outcomes (e.g., leader evaluation, helping), and procedural justice predicted system-referenced outcomes (e.g., rule compliance, group commitment).

### Limitations

As with any new measure, further research is needed to refine construct validity, as scale development is an iterative process. Although two samples were used here, it is possible that aspects of the samples or choices of outcome variables could have biased the results. For example, the leader evaluation items in Study 1 referred to a university instructor, who would only be serving as the

students' "leader" for a few more weeks. In addition, the relationship between a student and his or her classmates is likely different from an employee and his or her work team, which raises questions about the comparability of collective esteem in the two samples (though the results for that variable were similar across studies). Moreover, it is possible that the validity evidence presented here may be a function of the outcome variables chosen. Although both studies examined different outcome variables to address this concern, further research is needed to integrate this measure with other key justice outcomes (e.g., withdrawal, job satisfaction).

A further limitation of both studies was a reliance on self-report variables measured from the same source. This limitation raises the potential concern of effect size inflation due to same source bias.

Further research is needed to validate the measure in a manner less susceptible to same source bias. For example, the measure could be given to multiple samples that would be expected to differ along the justice dimensions because of observable, objective differences in process control, access to relevant information, pay, and so forth. Alternatively, the measure could be validated using a multitrait-multimethod matrix (Campbell & Fiske, 1959).

Finally, the distributive justice items in Table 1 do not specify a comparison other with whom the respondent can compare outcome-contribution relationships. Adams's (1965) equity theory states that distributive justice perceptions are created by comparing personal outcome-contribution ratios with those of a comparison other. However, Leventhal's (1976) and Deutsch's (1975) discussions of the equity rule deemphasized the role of the comparison other. Moreover, research in field settings has shown that individuals in organizations use a variety of comparison others, both internal and external to the organization, and that reactions to inequity vary across different comparison other choices (Scholl, Cooper, & McKenna, 1987). Possibly for this reason, one of the most common distributive justice measures used in past research also fails to specify a comparison other (Price & Mueller, 1986; Sweeney & McFarlin, 1993).

Relatedly, the correlation between the distributive justice and instrumentality latent variables in Study 2 was only .35—small given the similarity between the two constructs. Perhaps this relationship would have been higher if respondents had been referred to internal comparison others (e.g., members of their team, as opposed to individuals in other organizations within the industry) in the text of the opening statement of the measure (e.g., Sweeney, 1990). This process would have ensured that the distributive justice and instrumentality measures were grounded in the same context.

### Suggestions for Future Research

Aside from refinements of the measure, future research is needed that begins to separate the effects of the justice content from the effects of the justice source. As Folger and Bies (1989) and Tyler and Bies (1990) have noted, voice, consistency, bias suppression, and so forth can be facets of a decision-making system or facets of an authority figure's leadership style. Similarly, informational or interpersonal justice could be a formalized aspect of a decision-making system, rather than an authority figure. For example, a company's website could offer easily accessed explanations of key decisions and deliver that information in a friendly and respectful manner. What are the effects of system versus agent-originating procedural, informational, or interpersonal justice? It may be that system-originating justice can substitute for fair leader treatment the same way that intrinsic motivation, formalization, and training substitute for leadership in Kerr and Jermier's (1978) theory. Such questions cannot be answered unless items like those in Table 1 are used in reference to both decision-making systems and decision-making agents in a single study.

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