

Direct and Indirect Assessments of Organizational Justice: Homogeneity or Harmony?

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The importance of fairness to practitioners and scholars is evident as, within the past 40 years, fairness has become one of the most studied areas in the organizational sciences. Despite such proliferation, the construct clarity and measurement of fairness are far from settled, as researchers have assessed individuals' experiences of organizational justice in different ways. In this effort, we draw on measurement theory as we initiate an exploration of whether direct and indirect measures of justice are, indeed, fully interchangeable or if they provide useful, differential, and/or complimentary information when employed in addressing specific research questions.

INTRODUCTION

The concept of fairness is important to people. From childhood, our experiences and perceptions of fairness are quite salient and serve as significant distractions and/or catalysts with regard to our behaviors. Perhaps nowhere is this more evident than in the environment of work. Scholarship confirms the relevance of justice concerns as, within the past 40 years, organizational fairness has become one of the most studied areas in the organizational sciences. Substantial research has examined the antecedents and individual and organizational consequences of fairness perceptions (Colquitt & Greenberg, 2003). Despite such proliferation, our construct clarity and measurement of fairness are far from settled, as scholars have assessed individuals' experiences of organizational justice in different ways and, arguably, somewhat inconsistently. In so doing, researchers have, in a sense, treated these different kinds of measures as if they are fully interchangeable and homogeneous representations of the same constructs when, in fact, attention to construct validity may indicate that these measures are assessing different concepts. According to Lind and Tyler (1988), direct measures of fairness or justice ask, simply, how fair one perceives a certain outcome, procedure or experience to be. Alternatively, indirect measures of organizational justice are used to assess respondents' perceptions of the extent to which fairness criteria have been met in a particular situation. Grounded in classical measurement theory, we seek to explore whether direct and indirect measures of justice are, indeed, fully interchangeable or if they provide useful,

differential, and/or complimentary information when employed in addressing specific research questions. We assert that conceptual and empirical differences between direct and indirect measures of organizational justice deserve closer examination, and we draw on measurement theory (Edwards, 2010; Edwards, 2003; Edwards & Bagozzi, 2000; Bagozzi & Phillips, 1982; Schwab, 1980) as impetus for our review. In this effort, we propose a framework to describe important conceptual differences underlying two types of justice constructs and their measures, and we examine the empirical distinction between direct and indirect measures through an extension of a previous meta-analysis (Colquitt, Conlon, Wesson, Porter, & Ng, 2001).

A Framework for Construct Definitions of Organizational Justice Dimensions

We began this effort with a review of the construct definitions of organizational justice dimensions presented in the literature over the past four decades and found two broad and different ways in which organizational justice constructs are defined (see Table 1). The first we label *general justice assessment* because this approach to justice refers to an overall evaluation of the extent to which an employee was treated fairly according to the dimension of justice being studied (i.e., distributive justice, procedural justice, etc.). Given the general nature of this construct definition, we suggest that direct justice measures are consistent with this general justice assessment perspective. A second method of defining the justice constructs is to focus on the criteria individuals use to evaluate the fairness of outcomes, procedures, etc. We label this somewhat more formative approach *justice criteria assessment* because this construct definition focuses on the criteria used or methods by which an employee may judge the fairness of an outcome, procedure or treatment. We note that although indirect measures of organizational justice may offer specific information that adds to our understanding of broader justice judgments, this information may not be exhaustive or fully reflective of the focal constructs.

Regarding specific dimensions, distributive justice has been defined as “the fairness of outcome distributions or allocations” (Colquitt et al., 2001, p.425). We present this construct definition of distributive justice in the first column of Table 1, labeled “general justice assessment.” The second construct definition of distributive justice is associated with the criteria individuals use to evaluate the fairness of an outcome. Adams’ (1965) equity theory posited that this judgment is based on a comparison between one’s own inputs and outcomes and those of referent others. Equity theory has been shown to be the dominant approach for judging distributive justice, particularly in North America; however, other norms or rules for fair distribution have been suggested. We present this second construct definition of distributive justice as well as the criteria that have been developed for judging fair outcomes (Deutsch, 1975) in the second column of Table 1 labeled “justice criteria assessment.”

For procedural justice, the general justice assessment approach to the construct definition is similar to that of distributive justice, with emphasis on procedures rather than outcomes: “the fairness of procedures used to determine outcome distributions or allocations” (Colquitt et al., 2001, p.425). This construct definition of procedural justice clearly emphasizes perceptions of overall fairness. As before, we show this definition in the first column of Table 1. The construct definition for the justice criteria assessment approach to procedural justice is based on the work of Leventhal (1980) and Thibaut and Walker (1975), which yielded six procedural rules that are used to evaluate the fairness of allocation procedures. This definition and the criteria used to assess procedural justice from this perspective are shown in the second column of Table 1.

The third form of justice to be described in the literature is interactional justice, originally defined as concerns about the fairness of interpersonal interactions that connoted the degree to which an organization “values its members” (Bies, 2001, p.91; Bies & Moag, 1986). Subsequently, Bies (2001) clarified this construct, stating, “...interactional justice should include only items that focus on *interpersonal* treatment...” (p.99, [emphasis added]). Others (Lind & Tyler, 1988; Colquitt, 2001; Colquitt et al., 2001; Greenberg, 1993), however, supported the subdivision of interactional justice into two facets, interpersonal and informational, and coined the term “informational justice.” Because of such lingering disagreement with regard to the informational justice construct, we will first examine interactional/interpersonal justice and then turn our attention to informational.

Bies and Moag's (1986) original construct definition of interactional justice addressed concerns about the overall fairness of interpersonal treatment and social accounts "as an interpersonal strategy to manage perceptions of organizational justice" (Bies, 2001, p.92). We view this definition of interpersonal justice as consistent with direct assessment approaches and the general justice assessment perspective; we present this construct definition in the first column of Table 1. Alternatively, Colquitt et al.'s (2001) definition of interpersonal justice invokes justice rules or criteria: interpersonal justice is "the degree to which people are treated with politeness, dignity, and respect by authorities or third parties involved in executing procedures or determining outcomes" (p.427). Greenberg (1993) similarly states that "interpersonal justice may be sought by showing concern for individuals regarding the distributive outcomes they received" (p.85). The definitions for interpersonal justice adopted by Greenberg (1993) and Colquitt (2001) do not refer to an overall evaluation of fairness; instead, they refer to the extent to which certain standards are met regarding the treatment of individuals (e.g., being polite, showing concern). Thus, we can place their definition of interpersonal justice in the second column of Table 1 and view its assessment as expressly indirect.

Informational justice represents "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" (Colquitt et al., 2001, p.427, [emphasis added]). Greenberg (1993) adds that informational justice "may be sought by providing knowledge about *procedures* that demonstrates *regard* for people's concerns" (p.84) [emphasis added]. Colquitt (2001) suggested that both Bies and Moag (1986) and Shapiro, Buttner, and Barry (1994) provide criteria for judging the perceived adequacy of information provided (see Table 1). Greenberg (2006), based on work by Harlos and Pinder (2000), adds the notion of being accessible as a criterion for informational justice. Thus, the construct definition for informational justice used in the literature refers to the extent to which certain standards are met regarding the provision of information to individuals about decision outcomes and processes. These definitions of informational justice fit in the justice criteria, or indirect, assessment column of Table 1. We, however, find the construct of informational justice somewhat problematic, in that it has been entangled with other dimensions, especially procedural and interpersonal justice (Karraker, 2006). We infer that informational justice may serve to heighten or attenuate perceptions/feelings of fairness, but only in the context of distributive, procedural, or interpersonal justice. Further, in our extensive review of justice measures, we discovered in the literature no definitions, treatment, or discussion of informational justice from the general assessment, or direct, perspective associated with the first column in Table 1. These issues necessitate our proceeding with this study on possible distinctions between direct and indirect justice assessment by using in our empirical tests only the three undisputed types of justice: distributive, procedural, and interpersonal (Karraker & Williams, 2009; Bies, 2001; McGonigle & Hauenstein, 2000).

Justice Criterion Assessment and General Justice Assessment

The explanation for the distinction between direct and indirect measures of justice is the likelihood of a mismatch between the process by which an individual forms justice judgments and the justice rules or criteria reflected in the indirect measure. Specifically, differences in responses to direct and indirect measures of justice may occur based on the inherent, idiosyncratic weighting of criteria (e.g., Leventhal, Karuza, & Fry, 1980; Lind & Tyler's "weighting of procedural rules" [1988, p.132]): individuals rank or balance the criteria that are important to them to develop a hierarchical set of criteria that is unique to the individual and his or her values and goals. Thus, individuals are unlikely to endorse all justice criteria or rules equally, even when these items are weighted equally in the formation of justice scales. In addition, Leventhal et al.'s (1980) justice judgment model suggests that justice rules are applied selectively; that is, different rules are salient to different individuals at different times. For example, consider an employee who feels strongly that he or she should be allowed input into decisions that affect his/her work. In a specific situation where the opportunity for input is not provided, this employee might respond very negatively because his or her viewpoint was not taken into consideration in the decision making process and thus view that process as "unfair." This individual would likely give low ratings to direct items that assessed the general "fairness" of procedures. Responding to a set of indirect items, however, the

employee might indicate that the criteria of consistency, bias suppression, correctability, and ethicality were satisfied, even though the criterion of representativeness was not. In this case, application of both the idiosyncratic weights and the selective application of criteria based on the justice judgment model would predict that an indirect measure would indicate a higher level of fairness of procedures than would a direct measure. These same arguments apply to distributive and interpersonal justice as well. Thus, based on the weighting of rules (i.e., criteria) and the justice judgment model, we expect that significant systematic variance will remain in direct measures of the general assessment of procedural, distributive, and interpersonal justice after the variance associated with indirect measures reflecting specific justice criteria has been accounted for.

We found empirical support in the literature for the distinction between direct and indirect measures for procedural justice. In their meta-analysis, Colquitt et al. (2001) compared a direct measure of procedural justice, “procedural fairness perceptions,” with two indirect measures of procedural justice: “process control” (Thibaut & Walker, 1975) and “Leventhal criteria” (Leventhal, 1980). The corrected population correlation between procedural fairness perceptions and process control was .51, and between procedural fairness perceptions and Leventhal criteria was .68. These values are not particularly high for measures designed to measure the same or similar constructs (Colquitt et al., 2001). In an additional analysis, Colquitt et al. (2001) regressed the direct measure, procedural fairness perceptions, on the two indirect operationalizations of procedural justice. Process control accounted for 26% of the variance in procedural fairness perceptions, and, when added in the second step, the Leventhal criteria accounted for an additional 21%. Thus, only 47% of the variance in the direct measure was accounted for by these two indirect measures. These observations further support our proposition that direct and indirect measures of procedural justice can be distinguished empirically. Based on this evidence, along with the weighting of rules and the justice judgment model noted earlier, we expect similar results for distributive and interpersonal justice.

TABLE 1
ORGANIZATIONAL JUSTICE CONSTRUCT DEFINITIONS

Type of justice	[Reflective] General Justice Assessment <i>Direct Measures</i>	[Formative] Justice Criteria Assessment <i>Indirect Measures</i>
Distributive	The perception of the fairness of decision outcomes or outcome distributions.	The perception of the extent to which a particular rule or norm of fairness was followed in allocating organizational outcomes <ul style="list-style-type: none"> • Equity norm • Equality norm • Need-based norm
Procedural	The perception of the fairness of the processes that were used to allocate outcomes or determine outcome distributions.	The perception of the extent to which a set of weighted “justice rules” (the criteria of process fairness suggested by Thibaut & Walker [1975] and Leventhal [1980]) was followed in allocating organizational outcomes: <ul style="list-style-type: none"> • Consistency • Bias suppression • Accuracy of information • Correctability • Representativeness • Ethicality

Interpersonal	The perception of how fairly the recipient was treated personally by the people making the decision.	The perception of the degree to which the recipient was treated with respect and propriety (i.e., the criteria established by Bies & Moag [1986]) by those involved in executing procedures or determining outcomes: <ul style="list-style-type: none"> • Respect (being polite) • Propriety (refraining from improper remarks)
Informational	n/a	The perception of the degree to which the recipient received the necessary knowledge and information (i.e., according to the criteria established by Bies & Moag [1986] and Shapiro et al. [1994]) about procedures and outcomes: <ul style="list-style-type: none"> • Truthfulness • Justification • Reasonable, specific, and timely explanations

Relationships to Outcomes

In addition to our arguments presented above, we also believe that direct measures may explain additional variance in justice outcomes beyond that accounted for by indirect measures. As empirical evidence related only to procedural justice exists, our study will be the first to examine this issue for distributive and interpersonal justice. Based on Colquitt et al.'s (2001) meta-analysis, Colquitt (2001) and Colquitt and Shaw (2005) concluded that, in general, indirect measures are more strongly related to outcomes than are direct measures. A close examination of Colquitt et al. (2001), however, shows that there are limitations to the data Colquitt (2001) and Colquitt and Shaw (2005) used to reach this conclusion. Specifically, Colquitt et al. (2001) compared direct and indirect measures only for procedural justice; they provide no comparisons for distributive or interpersonal justice. In addition, their conclusion is based on a comparison between a direct measure of procedural justice ("procedural fairness perceptions") and what they labeled the "indirect combination measure" that included measures of interactional and informational justice as well as procedural justice, a broader construct than the conceptualization of procedural justice used in this study (see Table 1). Their comparison of this "contaminated" indirect measure (i.e., that included references to interactional and informational justice) with the direct measure of "procedural fairness perceptions" shows that the "indirect combination measure" is a stronger predictor than a direct measure for the narrow majority of six of the eleven outcomes. However, if one examines Colquitt et al.'s (2001) results and compares the direct measure of procedural justice with the indirect measure that does not include interactional and informational justice (i.e., the "Leventhal criteria" measure), the direct measure is more strongly related to outcomes than the indirect measure for eight of the 11 outcomes. In only three cases was the indirect measure using the Leventhal criteria more strongly related to the outcome than the direct measure: job satisfaction, trust, and agent-referenced evaluation of authority.

To continue our preliminary comparison of direct and indirect measures of justice and their relationships to outcomes, we computed partial regression coefficients using three sets of meta-analytically derived correlations provided in Colquitt et al. (2001). Across all outcome measures, the average partial regression coefficient for the direct measure (controlling for the indirect measure) was .37 and the direct measure accounted for an average increase in R^2 of .10 in the outcomes beyond that accounted for by the indirect measure. This evidence supports the notion that direct measures explain additional variance in outcomes beyond indirect measures. Although the evidence provided by Colquitt et al. (2001) is limited to procedural justice, we consider it likely that this situation will hold for distributive and interpersonal justice as well.

Even though the justice criteria assessment approach (indirect measures) and the general justice assessment approach (direct measures) both have long histories in the field of justice, the distinction

between the two approaches has not been examined in a single primary study. We present results that examine relationships among direct and indirect measures of justice and outcomes. Due to the influence Colquitt's (2001) indirect measure of justice has had on the field (e.g., Maier, Streicher, Jonas, & Woschee, 2007), we will use his indirect measures of distributive, procedural, and interpersonal justice as the baseline case.

Our first hypothesis addresses the ability to distinguish empirically direct and indirect measures of justice. Based on Lind and Tyler's (1988) notion of weighting of rules and Leventhal et al.'s (1980) justice judgment model, we hypothesize that the constructs associated with the general justice assessment model and the justice criteria assessment model will be distinct for specific dimensions of justice.

Hypothesis 1: Significant systematic variance will remain in direct measures of the general assessment of (a) procedural, (b) distributive, and (c) interpersonal justice after the variance associated with indirect measures reflecting specific justice criteria has been accounted for.

As noted above, we expect the direct measures of justice to account for variance in outcomes beyond that accounted for by the indirect measures. To be consistent, we build on Colquitt's (2001) tests of his indirect measure by adding direct measures of justice to the examination of relationships between indirect measures of justice and the outcomes Colquitt studied. For procedural justice, we examine the outcome of group commitment: the extent to which a group member accepts group goals and identifies with the group. Group commitment is relevant to the relational model of justice, which suggests that procedural justice, particularly that provided by an authority figure, is important to employees because it signals that they are valued and accepted members of the group (Lind, Kulik, Ambrose, & de Vera Park, 1993.) We believe that the direct measure of procedural justice will account for additional variance in group commitment beyond that accounted for by the indirect measure because the procedural justice rules or criteria included in the indirect measure may not accurately reflect the specific rules chosen by individual employees or the specific idiosyncratic system by which the employee may select or weight those rules. If the direct measure of procedural justice is able to assess the individual's emphasis on, or endorsement of, specific rules beyond those included in Colquitt's measure or capture the person's idiosyncratic weighting process, the direct measure will account for additional variance in the outcome beyond the indirect measure.

For distributive justice, we examine relationships between direct and indirect measures of distributive justice and the outcome of instrumentality, the extent to which employees believe that rewards are based on job performance. Instrumentality is related to the instrumental model of justice, and suggests that fairness is associated with the belief that an employee can obtain valued outcomes from his/her employer. Thus, we would expect positive relationships between distributive justice and instrumentality, as Colquitt (2001) found for his indirect measure. Because of the potential mismatch between the equity norm included in Colquitt's (2001) indirect measure of distributive justice and the alternative norms that might be endorsed by employees, we believe that the direct measure of distributive justice may capture justice perceptions not assessed by the indirect measure that will account for variance in instrumentality beyond that explained by the indirect measure.

We also examine the relationship between interpersonal justice and helping behaviors. Helping behavior is defined as a form of organizational citizenship behavior (OCB) characterized by an employee's voluntarily assisting others in preventing or dealing with work-related problems (Podsakoff, MacKenzie, Paine, & Bachrach, 2000). As noted by Colquitt (2001), social exchange theory typically is used to explain the relationship between employees' perceptions of fair treatment and helping behavior (Masterson, Lewis, Goldman, & Taylor, 2000), and he found a significant relationship between perceptions of interpersonal justice provided by the supervisor and the extent to which employees helped others in their work group. As before, because we believe that direct and indirect assessments of interpersonal justice may assess different aspects of justice, we expect that a direct assessment of interpersonal justice will account for variance in helping behavior beyond that of the indirect measure.

Hypothesis 2: The general justice assessment associated with the direct measure of a) procedural, b) distributive, and c) interpersonal justice will account for additional variance in the outcomes beyond that accounted for by the justice criteria assessment associated with the indirect measure.

METHOD

Sample and Procedure

Our sample consisted of 248 working adults who were enrolled as either undergraduate or graduate business students in a large public university. (Sample characteristics are shown in Table 2.) Participants completed the questionnaire anonymously.

TABLE 2
SAMPLE CHARACTERISTICS (N=248)

Age (%)	
< 26 years	33.1
26-40 years	59.2
>40 years	7.7
Gender (%)	
Male	62.5
Female	37.5
Ethnicity (%) ^a	
Caucasian	70.5
African-American	11.1
Asian	11.1
Hispanic	3.3
Other	4.0

^aThese categories may sum to more than 100 because respondents were allowed to endorse more than one ethnicity.

Measures

We use single items as indicators in our subsequent structural equation models; however, for comparison with existing research we created scales by taking the mean of the items associated with each measure. We provide zero-order correlations (below the diagonal) and reliabilities for the scales in Table 3. Responses were assessed with 5-point scales from 1 = *strongly disagree* to 5 = *strongly agree*. All items and their sources are shown in Appendix A.

TABLE 3
MEANS, STANDARD DEVIATIONS, RELIABILITIES AND CORRELATIONS

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Procedural justice (direct)	3.32	.88	(.90)	.82**	.55**	.87**	.79**	.47**	.37**	.71**	.19*
2. Distributive justice (direct)	3.47	.97	.75**	(.92)	.64**	.84**	.98**	.52**	.38**	.84**	.20**
3. Interpersonal justice (direct)	4.00	.86	.51**	.59**	(.90)	.74**	.57**	.90**	.46**	.45**	.35**
4. Procedural justice (indirect)	3.32	.72	.75**	.73**	.64**	(.83)	.82**	.61**	.45**	.72**	.26**
5. Distributive justice (indirect)	3.40	1.05	.72**	.91**	.53**	.73**	(.93)	.50**	.39**	.83**	.07
6. Interpersonal justice (indirect)	3.91	.85	.39**	.44**	.78**	.49**	.41**	(.84)	.46**	.42**	.25**
7. Group commitment	3.57	.89	.35**	.35**	.41**	.41**	.35**	.38**	(.82)	.50**	.60**
8. Instrumentality	3.24	1.05	.64**	.75**	.41**	.61**	.76**	.31**	.46**	(.89)	.23**
9. Helping behavior	3.99	.70	.14*	.16**	.27**	.19**	.05	.21**	.48**	.19**	(.68)

* $p < .05$, ** $p < .01$. Note. $N = 248$. Coefficient alphas are on the diagonals. Factor correlations (corrected for measurement error) are shown above the diagonal.

Indirect measures of justice

We used 15 items from Colquitt's (2001) 20-item scale to represent indirect measures of procedural (7 items), distributive (4 items), and interpersonal (4 items) justice. In order to be consistent with other scales on our questionnaire, items were changed from a question format (i.e., "to what extent...") to declarative sentences so that a 5-point scale of 1 = *strongly disagree* to 5 = *strongly agree* would be appropriate. Questions were also worded to reflect outcomes, procedures, and interpersonal treatment in general rather than being associated with a particular event context such as a pay raise or performance appraisal.

Direct measures of organizational justice

In our efforts to select appropriate direct and dimensional justice measures, we conducted a rather exhaustive exploration of justice measures and generated a list of items providing direct assessments of procedural, distributive, and interpersonal justice from previous organizational justice studies to match the dimensions of Colquitt's (2001) indirect measure we are using in this study. This collection of items necessitated further work to refine scales that ensured both parsimony and construct validity. To that end,

we conducted a content adequacy analysis on items measuring organizational justice (Schriesheim, Cogliser, Scandura, Lankau, & Powers, 1999; Schriesheim, Powers, Scandura, Gardiner & Lankau, 1993). In this process, a panel of judges rated the extent to which each item measured distributive, procedural, and interpersonal justice, or something else (“none of the above”). We sorted these results by eliminating duplicates and items with double loadings, avoiding potential weaknesses such as being “double-barreled” (Ford & Scandura, 2005) or negatively worded (Barnette, 2000). Two of the authors selected items from the list that we agreed assessed one of the construct definitions shown in the first column of Table 1, thus separating them (within category) as either direct or indirect. This process yielded 9 items for use as direct measures of organizational justice.

Outcome measures

For continuity with the literature, we used the outcome measures that Colquitt (2001) used in his employed sample: group commitment for procedural justice, instrumentality for distributive justice, and helping behavior for interpersonal justice.

RESULTS

We used confirmatory factor analysis (LISREL 8.80, Jöreskog & Sörbom, 2007) to examine the appropriateness of a 9-factor model to represent the indirect and direct measures of procedural, distributive, and interpersonal justice as well as the outcomes of group commitment, instrumentality, and helping behavior. The 9-factor model ($\chi^2 = 886.71$, $df = 428$) provided an adequate fit to the data (Comparative Fit Index [CFI; Bentler, 1990] = .98; Root Mean Square Error of Approximation [RMSEA; Steiger, 1990] = .066). All items loaded strongly and significantly on their respective factors (see Table 3).

Structural Equation Models

Figure 1 shows a relatively simple general model that will be used to explain the approach we used to test our hypotheses. The model allows us to partition the variance in a set of direct items representing general justice assessments (labeled Direct1–3 in Figure 1) into two orthogonal components with paths labeled A1-3 and B1-3. Significant factor loadings A1-3 indicate that there is “residual” systematic variance in the direct items representing general justice assessment that is not being accounted for by the corresponding latent variable representing justice criteria assessment and would support Hypothesis 1. Our second hypothesis is tested by examining the significance of the paths from the residualized general justice assessment latent variable associated with the direct indicators to the outcome variable (path D). Figure 1 shows how our hypotheses would be tested using a single type of justice for clarity of presentation; however, we tested our hypotheses by extending the model presented in Figure 1 to include the three justice dimensions and their outcomes in a single structural equation model. The results of the structural equation analyses, showing completely standardized estimates, are presented in Figure 2. The model yielded a χ^2 of 946.38 ($df = 449$). The CFI (Bentler, 1990) of .98 and RMSEA (Steiger, 1990) of .067 indicate a good fit of the model to the data. The results in Figure 2 show that Hypothesis 1 was supported. The factor loadings of the direct indicators of each form of justice (e.g., factor loadings of .51, .33, and .41 for PJD1R1 – PJD1R3 respectively in Figure 2) on the residualized general justice assessment latent variable were significant, indicating that, for each item, variance associated with the general justice assessment latent variable representing the direct measurement approach remains after accounting for the variance due to the justice criteria assessment latent variable (indirect measurement).

As expected, all of the justice criteria assessment latent variables (representing indirect measurement) associated with the three forms of justice were significantly related to their respective outcomes (see Figure 2). Although the general justice assessment latent variables for procedural and distributive justice were not significantly related to their respective outcomes (group commitment and instrumentality), the general justice assessment latent variable for interpersonal justice was significantly related to helping behavior ($\gamma = .30$, $p < .01$), thus supporting Hypothesis 2c.

We also examined the degree to which the same effect occurs at the scale level. To estimate this, we used procedures applied in method variance research to decompose the reliability of the direct measurement scales into orthogonal components (Williams, Hartman, & Cavozotte, 2010). These calculations revealed that of the overall composite reliability estimate (calculated based on factor loadings and error variances) of .86 for the direct procedural justice scale, 79% of the systematic variance was accounted for by justice criteria, and the remaining 21% was due to the general justice assessment latent variable. For the distributive justice direct measure scale (reliability estimate of .86) 74% was associated with justice criteria, and 26% general justice assessment. For interpersonal justice (reliability estimate of .90) the corresponding values were 73% and 27%.

FIGURE 1
SIMPLIFIED STRUCTURAL EQUATION MODEL USED TO TEST HYPOTHESES

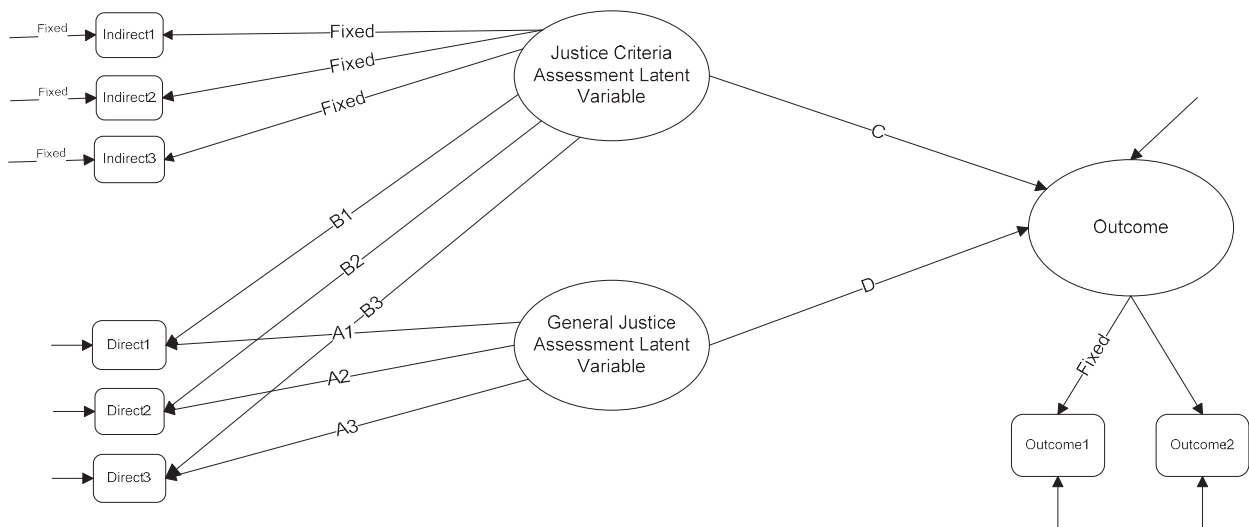


FIGURE 2
STRUCTURAL EQUATION MODEL RESULTS



*p<.05. **p<.01. ***p<.001. Note: Completely standardized estimates are reported.

^aFixed to values obtained from a confirmatory factor analysis.

Correlations among the three indirect justice latent variables and the three direct justice latent variables are omitted for clarity.

DISCUSSION

Our results provide support for a distinction between direct and indirect justice measures. Specifically, our structural equation results indicated that there is systematic variance in direct measures of all three types of justice that is not fully captured by the use of indirect measures and warrant more specific examination of the magnitude of this residual variance. This analysis shows that a meaningful amount of systematic variance in the direct indicators is not accounted for by the justice criteria latent variable, indicating that the general justice assessment approach captures something important that may be being missed by the indirect measurement approach.

Further, the key point of our scale-level calculations is that if only indirect items were used in scales to assess the three justice dimensions, 21 to 27 percent of the construct domain (as assessed with direct measures) would not be captured, an amount that could impact the magnitude and statistical significance of the measures' relationships with each other and with antecedents and consequences.

Our findings related to Hypothesis 1 as well as the supplemental analyses provided above suggest that direct and indirect measures are not fully interchangeable. Consistent with our initial conceptualizing, our results indicate that employees form general justice perceptions based on factors not limited to those explicitly assessed by existing indirect measures. We used indirect measures as our starting point in this research because of the widespread use of Colquitt's (2001) justice scale. It is possible that employees form global justice assessments and use those overall assessments to respond to indirect justice items. For example, I may indicate that "I am able to appeal the outcomes arrived at by the procedures" not because I know that an actual appeal mechanism exists, but solely because I have formed an overall impression of the fairness of procedures and that perception influences my responses to indirect items. In fact, the high internal consistency reliability estimates obtained for indirect measures of organizational justice support this argument. Our results related to Hypothesis 2 indicate that the residual general justice assessment latent variable associated with direct measures is important for explaining outcomes of procedural and interpersonal justice. The strongest evidence was obtained for interpersonal justice, as the direct measure of interpersonal justice was significantly related to self-reported helping behavior.

Despite the supportive findings described above, the general justice assessment latent variable associated with procedural justice was not related to all of the [Colquitt, 2001] outcomes we studied. These findings suggest that a key issue related to the predictive validity of direct versus indirect justice measures concerns the nature of the outcome variables being studied. As summarized above, residualized direct measures were significantly related to outcome variables that focused on relationships, including helping behaviors.

Bandwidth-fidelity theory (Ambrose and Schminke, 2009) suggests it is important to match the breadth or generality of a predictor variable to that of the criterion variable to be predicted. Applied to our study, this means that a direct measure would be expected to be more strongly related to general outcomes than to more narrow outcomes. Further, interpersonal relationship outcomes like OCB and LMX are broader in nature and based on a richer history than those based on performance and rewards (instrumentality, outcome satisfaction) or affective reactions to work group (group commitment) or one's organization (affective commitment). As discussed by Cropanzano and Mitchell (2005), organizational justice theory is based on a social exchange model, with economic and socioemotional outcomes having different exchange rules, and little is known about which exchange rules apply to different types of resources. Within such a complex interpersonal framework, the criteria assessment approach may not capture all of the criteria actually weighted and used by individuals as they engage in these interactions and develop fairness perceptions that are reflected in the more general assessment approach. Such perceptions, missing from indirect assessments based on specific criteria, result in predictive validity of direct measures based on general justice assessment with these kinds of outcomes, even after reactions based on specific criteria with the indirect approach are considered.

Our results for distributive justice also deserve comment because there may be an additional explanation for the lack of significant relationships between direct distributive justice and outcomes. The indirect items for distributive justice developed by Colquitt (2001) require respondents to rate the equity

norm of distribution: the extent to which their outcomes reflect their work effort, performance, and contributions. If the respondent endorses another norm (e.g., the equality norm) or has different allocation preferences in judging the fairness of his or her outcome (Deutsch, 1985), then responses to the indirect measure will differ from responses to a direct measure that includes items to assess whether or not the outcomes were allocated “fairly.” We conclude that the general justice assessment approach to distributive justice may not have had much chance to show itself within our U.S. sample. The equity norm is the criterion that is most widely endorsed in work contexts within the U.S. (Deutsch, 1975; Williams, McDaniel, & Nguyen, 2006); thus, our conceptual arguments for hypothesizing a difference between direct and indirect measures of distributive justice which are not borne out in these two studies might more profitably be examined in cultures that are less individualistic and where the equity norm is not as ingrained (Oyserman, Coon, & Kimmelmeier, 2002).

Study limitations and use of direct and indirect measures in future research

Improvements may be made to our direct measures. Two of the three items used to measure direct procedural justice included the word “outcome,” and this conceptual overlap with distributive justice may have contributed to the high (.75) correlation between distributive and procedural justice. In addition, the items used to measure interpersonal justice did not directly assess interpersonal treatment; and, with respect to outcomes, by replicating Colquitt’s (2001) study, we examined only one of a range of outcomes that have been shown to be related to organizational justice. Future research should overcome some of the limitations and expand the range of outcomes considered, relying on established theories of each form of justice to select outcomes traditionally included in justice research (e.g., the agent-system model and the instrumental model) (Tyler & Bies, 1990; McFarlin & Sweeney, 1992).

Based on our findings and the justice research classifications offered by Colquitt et al. (2001) and Colquitt and Shaw (2005), we conclude that direct measures of justice should be considered a preferable measurement approach for proactive (i.e., justice constructs as dependent variables) research and indirect measures used in reactive (i.e., justice constructs as independent variables) research. Correspondingly, we assert that routine use of both direct and indirect measures in justice research is not warranted. Consistent with bandwidth-fidelity theory, the nature of the causal mechanisms relating justice constructs to outcomes should be considered. For richer, relationship-oriented constructs and mechanisms, direct measures should be used. For contexts that involve more transactional processes, indirect measures may be more appropriate. Also, the number of dimensions of justice continues to be debated in the literature (Karriker & Williams, 2009; Bies, 2001; McGonigle & Hauenstein, 2000), and not all empirical analyses support the use of either a 4-factor or 3-factor model. Thus, in some research, a general, unidimensional assessment of justice is desirable for which we recommend the use of a direct justice scale, such as the one we present here (which we now refer to as the Direct Organizational Justice Dimensions [DOJD] scale). This measure allows the flexibility to assess overall justice or justice dimensions using the same set of items.

The comparison of direct and indirect justice measures is dependent on the specific measures being used. An indirect measure of justice incorporates the “rules” people use to form their perceptions of justice into the measure itself, thus adding items to Colquitt’s indirect justice measures might be useful. Additionally, both direct and indirect measures could be expanded to consider justice “source” or the object of the justice judgment, and then compared for their efficacy in predicting outcomes specifically chosen to reflect the justice source (e.g., Karriker & Williams, 2009). Researchers might also examine the potentially formative nature of indirect measures and choose to replicate this study with formative modeling of the indirect measures (Edwards, 2010; MacKenzie, Podsakoff, & Jarvis, 2005). Further, the direct and indirect measures used in our study could be revised to assess perceptions of third-party justice (Skarlicki & Kulik, 2005).

CONCLUSION

Organizational justice continues to be the focus of a great deal of research attention, and its antecedents and individual and organizational consequences are clearly important in the world of commerce. In this study, we present evidence founded in classical measurement theory to clarify further the uses and potential usefulness of direct and indirect justice measures in future research. This effort necessitated our application of content adequacy tools to synthesize a direct measure of organizational justice that may be further refined to serve in future assessments of specific dimensions of justice as well as overall justice, depending on the research context. Ultimately, through this effort, we note that currently accepted indirect measures of justice are not *fully* interchangeable with our direct measures; rather, like the vocal parts in a chorus, they may be invoked as needed to provide distinct and harmonious inputs to our understanding of fairness. We encourage continued exploration of relationships between direct and indirect measures and, especially, their relationships with critical outcomes to further refine our measurement and both scholarly and practical applications of these provocative constructs.

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APPENDIX A MEASURES

Indirect procedural justice items (adapted from Colquitt, 2001):

- PJIND1 I am able to express my views and feelings during the processes used to determine my outcomes.
- PJIND2 I have influence over the outcome arrived at by the procedures.
- PJIND3 The procedures for determining outcomes are applied consistently.
- PJIND4 The procedures for determining outcomes are free of bias.
- PJIND5 The procedures for determining outcomes are based on accurate information.
- PJIND6 I am able to appeal the outcomes arrived at by the procedures.
- PJIND7 The procedures for determining outcomes uphold ethical and moral standards.

Indirect distributive justice items (adapted from Colquitt, 2001):

- DJIND1 My outcomes reflect the effort I put into my work.
- DJIND2 My outcomes are appropriate for the work I complete.
- DJIND3 My current outcomes reflect what I contribute to the organization.
- DJIND4 My current outcomes are sufficient, given my performance.

Indirect interpersonal justice items (adapted from Colquitt, 2001):

- INTIND1 My supervisor treats me in a polite manner.
- INTIND2 My supervisor treats me with dignity.
- INTIND3 My supervisor treats me with respect.
- INTIND4 My supervisor refrains from improper remarks or comments.

Direct procedural justice items:

- PJDIR1 The rules for determining outcomes are fair.
- PJDIR2 The procedures used are applied fairly.
- PJDIR3 In general, procedures used to determine outcomes in this organization are fair.

Direct distributive justice items:

- DJDIR1 The outcomes that I am receiving at this time are fair.
- DJDIR2 Overall, the outcomes I am receiving are fair.
- DJDIR3 My current outcomes are fair.

Direct interpersonal justice items:

- INTDIR1 My supervisor treats me fairly.
- INTDIR2 The treatment that I have generally received from my supervisor is fair.
- INTDIR3 My supervisor tries to be fair to me.

Outcome variables:

Group commitment

- I really feel that my work group's goals are my own.
- I feel emotionally attached to my work group.
- I feel a sense of belonging to my work group.

Instrumentality (Colquitt, 2001)

- If I perform well, 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.

Helping behavior (Colquitt, 2001)

- I put more effort into helping my coworkers than is generally expected of me.
- I frequently help my coworkers when they have heavy workloads.