A Four-Component Model of Procedural Justice: Defining the Meaning of a "Fair" Process

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Two studies test the prediction of the four-component model of procedural justice that people evaluate the fairness of group procedures using four distinct types of judgment. The model hypothesizes that people are influenced by two aspects of the formal procedures of the group: those aspects that relate to decision making and those that relate to the quality of treatment that group members are entitled to receive under the rules. In addition, people are hypothesized to be separately influenced by two aspects of the authorities with whom they personally deal: the quality of decision making by those authorities and the quality of the treatment that they receive from them. The results of two studies support the hypothesis of the four-component model by finding that all four of the procedural judgments identified by the model contribute to overall evaluations of the fairness of group procedures.

Keywords: *procedural justice; judgment; decision making; treatment; groups*

More than 25 years ago, in their pioneering research on procedural justice, Thibaut and Walker (1975) put forward the then-counterintuitive proposition that disputants care as much about how their disputes are resolved as they do about the outcomes they receive. Subsequent research in a variety of contexts provides strong and widespread support for this procedural justice hypothesis (see Folger & Cropanzano, 1998; Lind & Tyler, 1988; Tyler & Blader, 2000; Tyler, Boeckmann, Smith, & Huo, 1997, for reviews), with procedural justice judgments typically outpacing the influence of outcomes in shaping a wide variety of reactions to authorities and groups.

But what do people mean when they say a process is fair or unfair? What concerns are incorporated in these evaluations? Despite many impressive demonstrations that people's procedural justice judgments matter, the meaning of procedural fairness is less clear. Relatively little research has examined what comprises these potent fairness judgments, and significant inconsistencies between researchers and studies have emerged. Such inconsistencies hamper an understanding of the psychology of procedural justice and limit the ability to apply the insights of justice research in actual group settings.

In this article, we address this shortcoming by elaborating and empirically testing the four-component model of procedural justice (Blader & Tyler, in press; Tyler & Blader, 2000), a theoretical model specifying the concerns people focus on when evaluating procedural justice. The model identifies two dimensions, procedural function and the source of the procedure, which combine to develop the components that give procedural justice judgments their meaning. These components result in an innovative organization of the elements of procedural justice, one that is directly linked to the broader groups literature. We argue that the four-component model is more complete and conceptually rigorous than previous approaches to understanding what people consider when evaluating process fairness.

Early Research on the Meaning of Procedural Justice

Early efforts to understand the concerns people have when evaluating procedural justice were focused on stipulating specific standards of process fairness. For instance, Leventhal (1980) specified six criteria of fair

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procedures: consistency, bias suppression, accuracy, correctability, representativeness, and ethicality. These characteristics of fair procedures, however, did not grow out of a strong theoretical tradition (Lind & Tyler, 1988, p. 131), have been subject to little empirical scrutiny (for a recent exception, see Colquitt, 2001), and are regarded as not representing the breadth of procedural concerns (Cropanzano & Greenberg, 1997; Lind & Tyler, 1988). Consequently, Leventhal's criteria were not a primary influence on subsequent procedural justice research (Tyler et al., 1997).

Conversely, Thibaut and Walker's (1975) control model of procedural justice has had a dominant influence on procedural justice work. Their approach links people's concern with procedures to their desire to influence their outcomes, and thus defines procedural fairness as the level of input or participation that procedures allow (often referred to as voice). Lind and Tyler (1988) proposed an alternative model of procedural justice that links procedural justice reactions to relational concerns. This model suggests that procedural justice is defined by criteria that are relational in nature, such as status recognition, trust in the benevolence of authorities, and neutrality (Tyler, Degoey, & Smith, 1996).

Although each of these early efforts suggest different ways in which procedural justice may be defined, the primary goal of these models is to explain why procedural justice matters, not the range of concerns that it encompasses or its definition. More generally, there has been a paucity of empirical research investigating the range of process fairness concerns and how people naturally group procedural justice's constituent elements. This has led to considerable debate regarding how to best conceptualize the scope and content of procedural justice evaluations (see Bies, 2001; Colquitt, 2001), leading to disagreement about issues such as whether procedural justice can and should be distinguished from "interactional" justice (Bobocel & Holmvall, 2001). Leaving such controversies unresolved stifles the progress of justice research and leaves unanswered the theoretical question of what people consider when making procedural justice judgments. We argue that a theoretical framework that organizes people's procedural justice considerations represents the most appropriate approach to resolving these issues. The four-component model represents just such a theoretical framework.

Procedural Function

One dimension along which procedural concerns are grouped by the four-component model focuses on the different functions or roles served by procedures. This dimension addresses the roles that procedural justice information plays in people's attempt to make sense of various aspects of their group membership. Two key functions of procedural justice information are identified. First, people focus on procedural characteristics related to the fairness of decision-making procedures; that is, they focus on those aspects of procedures that enable them to evaluate decision-making processes. One key reason they focus on this type of procedural information is due to the functional value of this information for evaluating the outcomes they receive from the group; information about decision-making processes facilitates attributions regarding outcomes (Brockner, 2002; Gilliland, 1994; Schroth & Shah, 2000) and thus indicates whether those outcomes are deserved. The importance of this type of information was highlighted by Leventhal (1980), who identified the use of objective criteria in decision making as central to fair procedures. The same point was highlighted by the control and relational models of procedural justice, which focus on issues such as voice and neutrality, respectively. We refer to such concerns as issues of quality of decision making.

A key finding of procedural justice research is that procedural concerns extend beyond attention to how decisions are made. A second function of procedural information is to help people evaluate the social atmosphere of the group or situation (Lind & Tyler, 1988). The relational model of procedural justice directly embodies this function of procedures in the concept of status recognition. These social issues are most directly represented by the quality of the treatment people experience as a group member or as a party to an interaction, dispute, and so forth. As such, we refer to procedural concerns that are related to the social aspects of groups as issues of quality of treatment.

The quality of decision making and quality of treatment distinction incorporates and organizes the breadth of process fairness elements examined in previous justice research. It does so by identifying two major classes of inferences that flow from procedural justice information and by linking each of those inferences to different aspects of procedures. Justice researchers have previously noted similar dichotomies. For instance, Brockner and Wiesenfeld (1996) outlined a distinction between aspects of procedures that directly cause outcomes and aspects of procedures that are linked to the climate of the procedure's implementation. Those drawing a separation between interactional and procedural justice often discuss that division in terms comparable to our decision-making and treatment distinction (e.g., Bies & Moag, 1986).

Importantly, the distinction between decision-making and treatment procedural elements directly links to research on the dual issues faced by groups (Bales, 1958). Specifically, the groups literature distinguishes two key issues faced by groups: task issues and socioemotional issues (Forsyth, 1999), also conceptual-

ized as production and relational functions (McGrath, 1991). Because groups achieve production via the decisions made by group authorities, the importance of these issues directs group members' attention to procedural elements that relate to decision-making processes. On the other hand, the socioemotional and relational function of groups directs attention to procedural elements that relate to the social atmosphere of the group.

Procedural Source

The four-component model argues that the procedural function distinction provides an incomplete model of the underlying components of procedural justice. This is because it neglects the role of different sources of experience. Although procedural justice research typically focuses on the influence of formal rules and policies on fairness perceptions, this approach ignores the role of particular group authorities, who typically implement procedures, create rules when there are no formal prescriptions to guide them, and who have idiosyncratic interpersonal treatment styles. These particular authorities are also likely to play a pivotal role in the overall perception of fairness.

The four-component model therefore differentiates between two basic sources of fairness information in groups: the actions of particular representatives of the group and the policies, rules, and prevailing norms of the group as a whole. For instance, both individual policemen and the law mutually determine the fairness experienced by citizens. Consistent with this suggestion, emerging evidence suggests that source of justice may be an important factor to consider (Cobb, Vest, & Hills, 1997; Greenberg, in press; Masterson, Lewis, Goldman, & Taylor, 2000; Rupp & Cropanzano, in press). We refer to the structural aspects of groups, such group rules, and other group-level phenomena as "formal" influences on justice, whereas particular individuals are referred to as "informal" influences on overall process fairness perceptions.

The distinction between different sources of justice information is also corroborated by a core distinction in the social psychological literature. The literature on sources of authority distinguishes between authority that is linked to a person (personal legitimacy) and authority linked to an institution (institutional legitimacy) (see French & Raven, 1959; Rasinski, Tyler, & Fridkin, 1985). Researchers examining individuals in group settings similarly separate the various levels of influence on individuals' experiences in their groups (Arrow & McGrath, 1995), whereas others distinguish between different sources of power and influence (Cialdini & Trost, 1998; Tedeschi, Schlenker, & Lindskold, 1972). These literatures all suggest that people in groups likely view both specific authorities and institutions as distinct influences.

The Four-Component Model

The two dimensions outlined—procedural function and source—are theoretically orthogonal to one another and can be crossed to establish a model that stipulates four types of concerns that people have when judging process fairness. These four types of concerns or judgments are (a) evaluations of formal rules and policies related to how decisions are made in the group (formal decision making), (b) evaluations of formal rules and policies that influence how group members are treated (formal quality of treatment), (c) evaluations of how particular group authorities make decisions (informal decision making), and (d) evaluations of how particular group authorities treat group members (informal quality of treatment). Each of these concerns is hypothesized to exert an influence on overall assessments of procedural justice.

One of the components, formal decision making, closely resembles the way that procedural fairness has most typically been conceived of in previous research. A second component, informal quality of treatment, embodies those aspects of procedures that have been recognized by interactional researchers (Bies, 2001; Bies & Moag, 1986) and has already been argued to be an important part of procedural justice evaluations (e.g., Moorman, 1991; Tyler & Bies, 1990).

Importantly, the other two components of the model have not been explicitly recognized in the literature. One is the formal quality of treatment, or the influence of structural factors on the quality of treatment experienced in the context of one's group membership. Often, formal influences, such as rules, stipulate the rights of group members and protocols to follow regarding their treatment. For instance, the U.S. Bill of Rights provides a set of rights (which are unrelated to the decision-making function) that are guaranteed to all U.S. citizens. A fourth component of the model, informal quality of decision making, recognizes that although group rules prescribe decision-making procedures, it is up to particular individuals to implement those procedures. Furthermore, formal procedures cannot specify decision-making processes for all situations, and so particular authorities often exercise discretionary decision making without formal rules to guide them.

Overview of the Present Research

The research presented here formally tests initial theorizing on the four-component model (Blader & Tyler, in press; Tyler & Blader, 2000) by examining (a) whether the model describes the way in which people actually group their procedural concerns and (b) whether each

TABLE 1: Study 1 Means, Coefficient Alphas, and Intercorrelations Between Scales

Scale	M(SD)	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1. Procedural justice	3.33 (1.17)	.95						
2. Formal quality of decision making	3.30 (1.15)	.61	.87					
3. Formal quality of treatment	3.06 (1.04)	.68	.84	.95				
4. Informal quality of decision making	3.71 (1.42)	.60	.46	.50	.96			
5. Informal quality of treatment	4.08 (1.26)	.61	.42	.50	.87	.98		
6. Distributive justice	2.88 (1.20)	.71	.51	.59	.49	.51	.83	
7. Outcome favorability	3.35 (0.99)	.62	.47	.58	.45	.48	.68	.83

NOTE: $n = 540$. Diagonal entries are the coefficient alphas for each scale. Scales range from 1 to 6, with higher numbers indicating more positive fairness or outcomes. All correlations are significant at $p < .01$.

of the components is significantly related to overall evaluations of procedural fairness, thereby combining to give procedural justice evaluations their meaning. These tests are conducted in two studies. Study 1 is based on a sample of employees at a financial services organization who completed a questionnaire about the procedural fairness they experience at work. In Study 2, we investigate the validity of the four-component model in a laboratory study where we independently manipulated each of the components.

STUDY 1

Method

Participants and procedure. Five hundred and forty (540) employees from around the United States working for a financial services firm responded to a survey regarding their work organization. A total of 1,400 surveys were distributed, resulting in a response rate of approximately 39%. The sample was divided somewhat evenly by gender (45% male, 50% female, and 5% not reporting gender). The mean age in the sample was 42 years old, and the average tenure with the organization was 13 years. The demographics of the respondent sample closely resembled that of all those receiving surveys, with the overall group containing 41% men, having an average tenure of 13 years and an average age of 43 years. Thus, no systematic differences in those responding to the survey were detected.

Surveys were distributed to employees via interoffice mail and returned directly to the experimenters using pre-addressed, postage-paid envelopes. Respondents were permitted to complete the survey while at work. All responses were completely confidential.

Measures. Scales assessing each of the variables were included in the survey. The independent variables included each of the four components as well as measures of outcome fairness and outcome favorability. The dependent variable was overall evaluations of procedural justice. A complete list of the items is presented in the appendix; all of these items were responded to using 6-point rating scales. All scales demonstrated satisfactory reliability (scale means and coefficient alphas are shown in Table 1, as is the interscale correlation matrix).

Results

Confirmatory factor analysis. Confirmatory factor analysis tests the structure of theoretically based conceptual models (Byrne, 1994) and therefore was used to examine whether the four hypothesized components represent how people actually cluster their fairness concerns. The validity of the proposed model is tested both by the overall fit of a four-factor model and by comparing the fit of this model with that of alternative models to determine whether other specifications provide equivalent or superior descriptions of how people organize their procedural concerns.

EQS (Bentler, 1995) was used to conduct these analyses. The procedural items were each loaded onto their respective latent factors and, because the four-component model indicates four distinct—but not necessarily independent—components, the four latent factors were permitted to covary with one another. In addition, error terms of some items within each latent factor that were either semantically related or that were in close proximity to one another in the survey instrument were permitted to covary to capture nontheoretical associations between the items. Correlating errors on the basis of such extraneous methodological factors is recommended (Anderson & Gerbing, 1988) and because this covariation was only permitted between error terms for items loading onto the same factor (i.e., onto the same component), this adjustment is unrelated to the theoretical argument being tested.

The correlations between the latent factors indicate some strong associations among them. Specifically, high correlations emerged between the two formal latent factors ($r = .92$) and the two informal latent factors ($r = .91$). Less strong associations were found between the two decision-making latent factors ($r = .52$) and the two quality of treatment latent factors ($r = .53$), and similar associations emerged between the formal decision-making and informal quality of treatment factors ($r = .47$) and

the formal quality of treatment and informal quality of decision-making factors ($r = 0.53$). These results suggest stronger support for distinguishing between sources of justice than between different procedural functions.

The four-component model demonstrated excellent fit to the data ($\chi^2 = 1235$, $df = 435$, comparative fit index [CFI] = .96, normed fit index [NFI] = .94, 90% confidence interval of the root mean-square error of approximation [C.I. RMSEA] = .058 – .066). Because it is advisable to examine multiple measures of practical fit when judging a model (Reise, Widaman, & Pugh, 1993), results for several fit indices are presented. All meet or exceed commonly accepted standards of model fit (greater than .90 for the CFI and the NFI, less than .08 for the C.I. RMSEA) (see Bentler, 1990; Browne & Cudeck, 1993; Kline, 1998, for discussions of these indices and standards), thereby providing robust indication that the four-component model is well fitting.

The fit of the four-component model also was compared to three alternative specifications of the meaning of procedural justice. The first model, a single factor model that examines whether the elements of justice actually have a unitary factor structure, had poor fit to the data ($\chi^2 = 4164$, $df = 441$, CFI = .81, NFI = .79, C.I. RMSEA = .129 – .136). The second model, which was based solely on the procedural function dimension, was a two-factor model distinguishing between quality of decision making and quality of treatment. This model did not demonstrate good fit to the data ($\chi^2 = 3832$, $df = 440$, CFI = .83, NFI = .81, C.I. RMSEA = .123 – .130). The third model was a two-factor model distinguishing between formal and informal sources of procedural experiences and did fit the data fairly well ($\chi^2 = 1703$, $df = 440$, CFI = .94, NFI = .92, C.I. RMSEA = .073 – .081).

Formal comparisons between models are possible using a χ^2 difference test and by comparing the C.I. RMSEA indices. Differences in χ^2 between the four-component model and the single factor ($\Delta\chi^2(6) = 2929$, $p < .001$), procedural function ($\Delta\chi^2(5) = 2597$, $p < .001$), and source ($\Delta\chi^2(5) = 468$, $p < .001$) models all indicate superior fit for the four-component model. Consistent with those tests, the confidence intervals of the RMSEA indices are non-overlapping, also suggesting that the four-component model provides the relatively best fit to the data. Thus, although the source model is also a relatively well-fitting model (as would be expected given the strong correlations within each source of justice), the four-component model nevertheless provides a relatively better description of how people conceive of the elements of procedural justice.

Regression analyses. While the confirmatory factor analyses indicated that the four components provide a good representation of how respondents conceive of their procedural concerns, regression analysis was used to test whether each component uniquely contributes to overall procedural justice judgments. Such a test of the predictive validity of each of the four components is central to any construct validation process (Nunnally, 1978). To conduct this test, evaluations of the four components were regressed on overall procedural justice evaluations.

TABLE 2: Study 1 Regression Analysis Predicting Overall Procedural Justice Perceptions

Variable	*Equation 1* β	*Equation 2* β
Process judgments		
Quality of decision making		
Formal	.11*	.12*
Informal	.13*	.10*
Quality of treatment		
Formal	.41***	.21***
Informal	.24***	.14**
Outcome favorability	—	.10**
Distributive justice	—	.33***
Total adjusted R^2	57%	66%
Unique ΔR^2 for:		
Quality of decision making	1%**	—
Quality of treatment	7%***	—
Formal	19%***	—
Informal	10%***	

*$p < .05$. **$p < .01$. ***$p < .001$.

The results of this analysis are presented in Table 2 (eq. 1). They indicate significant effects for each of the four components. Each component had a significant association with overall procedural justice evaluations, and together they provided good prediction of overall procedural justice assessments (total adjusted $R^2 = 57\%$). This critical finding persists even when controlling for judgments of outcome favorability and distributive justice (Table 2, eq. 2), both of which have a significant impact on procedural justice judgments in this highly instrumental context. The results indicate a relatively greater impact on procedural justice for quality of treatment (unique ($\Delta R^2 = 7\%$) and for formal sources of justice (unique $\Delta R^2 = 19\%$), as compared to quality of decision making and informal sources of justice, respectively.

Analyses also were conducted to determine whether interactive effects emerge among the four components. Although the four-component model's central prediction concerns main effects for each of the four components, it is possible that interactions may emerge between the components in how they relate to overall procedural justice judgments. To test this, interaction terms were created for all combinations of the four components and regression analysis was used to test for interactive effects. No significant interactions were found, indicating that in this data the effects of each of the four

components on overall procedural justice do not vary as a function of the level of any of the other components.

Discussion

The results of Study 1 are suggestive of the validity of the four-component model. They suggest that the four components outlined by the model represent how people cluster their procedural concerns and that they do so better than any of the alternative models considered. Furthermore, even in the current study's highly instrumental context, the four-component model was a valid description of how people define procedural justice. All four components exerted a unique influence on the meaning of overall process fairness.

Both analytic approaches used in Study 1 verify the utility of distinguishing each of the four components. Although there were especially strong correlations for within-source judgments, formal tests indicated that the four-component model is a better fitting model than the source model. Of interest, this pattern of results directly replicates similar efforts that distinguish different sources of justice (Rupp & Cropanzano, in press). The regression analyses complement these results by demonstrating the predictive validity of each component. Each of the four components made a unique contribution to overall assessments of procedural justice, again suggesting that there is value to distinguishing between both source of justice and procedural function. These empirical results, in coordination with the theoretical line of reasoning underlying the four-component model, indicate that differentiating among these four justice judgments may indeed be important for understanding how people define process fairness.

This study supports the four-component model of procedural justice among a sample of employees reporting their perceptions about a social entity central to their lives—their work organization. Although this study benefits from reflecting actual perceptions of a group of high relevance and importance to respondents, the analysis is correlational in nature, and thus definitive conclusions about the causal link between the components and overall procedural evaluations are difficult to verify. In Study 2, we conducted an experiment in which we directly examined the influence of the fairness or unfairness of each of the four components on overall procedural justice evaluations.

STUDY 2

Our goal in Study 2 was to demonstrate a causal relationship between each of the hypothesized four components and overall procedural justice evaluations. We did so by conducting a laboratory study where participants evaluated scenarios that contained information regarding each of the four components. In these scenarios, we orthogonally manipulated the fairness of each of the four components, with each component portrayed as either fair or unfair in a fully crossed factorial design. The effects of these manipulations on overall assessments of procedural justice and evaluations of the experience were examined. We anticipated that procedural justice assessments and evaluations of the experience would be affected by the fairness of each of the four components. Furthermore, we expected that manipulations with regard to the source of fairness would have effects on participants' evaluations of those particular sources.

Method

Participants and design. The study included 161 introductory psychology students who participated in the study in exchange for credit toward their research requirement. Participants completed the experiment in sessions that included two to seven individuals. The fairness of each of the four components was varied, with fair and unfair levels of each, leading to a 2 (formal quality of decision making: fair vs. unfair) × 2 (informal quality of decision making: fair vs. unfair) × 2 (formal quality of treatment: fair vs. unfair) × 2 (informal quality of treatment: fair vs. unfair) factorial design (i.e., 16 experimental conditions).

An additional feature of the design was the collection of multiple observations from each participant. Specifically, each participant received a packet containing three different scenarios. Each of the scenarios depicted a different procedure (described below), and there were versions of each scenario for all 16 experimental conditions. No significant differences were expected as a function of the scenarios; they were included to facilitate the collection of multiple (i.e., 3) observations from participants. Experimental packets were assembled so as to randomize the three experimental conditions contained within each one (i.e., subjects were randomly assigned to 3 of the 16 conditions), with the constraint that none of the scenarios within a packet were ever in the same condition. Our analytic approach for dealing with these multiple assessments from participants is discussed below.

Procedure. Participants volunteered to participate in an experiment titled University Life. The experimental packet was distributed to all participants at the beginning of each session. They were told that they would be evaluating three scenarios describing events drawn from real-life situations and were asked to imagine that they personally experienced the situations depicted. Participants were instructed to read each scenario and to answer the questionnaire that followed each. After the experimenter reviewed these instructions with participants, they worked through the experimental packet at their own pace.

Each of the scenarios described a procedure in the context of a situation relevant to college life. One scenario asked participants to imagine that they were having trouble with their roommate and had decided to request a room change. A second described a situation where they had received a course grade they disagreed with and were disputing the grade. A third asked them to imagine that they were the treasurer of a campus group and were applying to the University to receive funding for a particular event. Directly following each scenario was a questionnaire with the manipulation checks and the dependent variables.

The scenarios consisted of a brief introduction followed by manipulations of each of the independent variables. In each scenario, participants were informed of the University's rules pertinent to the scenario and also were informed of the actions of a particular individual that was responsible for handling the issue (their resident adviser, the professor, or the head of the University's activities funding department, respectively).

Independent variable manipulations. The fairness of each of the four independent variables (formal quality of decision making, informal quality of decision making, formal quality of treatment, informal quality of treatment) was manipulated by describing three relevant elements of the process to denote them as either fair or unfair. For instance, in one of the scenarios, the formal quality of decision-making manipulation consisted of telling participants that the rules either explicitly required (fair) or did not require (unfair) (a) impartiality, (b) consistency, and (c) mechanisms for appeals. The exact manipulations varied between the three scenarios so as to be appropriate to the paradigm. Variation between the three scenarios also made the experimental materials more realistic and promoted the generalizability of the results beyond just one particular operationalization of each component.

Dependent measures. All responses to the dependent variables were made using 10-point scales. We measured overall procedural justice using a three-item scale (α = .96) asking participants, "How would you rate the overall fairness of this experience?" (*not fair at all* to *very fair*), "How fairly would you say the issue (or problem) was resolved" (*not fairly at all* to *very fairly*), and "Do you think this situation was handled in a fair manner?" (*not at all* to *definitely*).

Participants also were asked several general questions about their reactions to the experience described in each scenario. Overall evaluations of the experience were assessed using a three-item scale asking respondents how they would feel about this experience if they actually encountered it (*negatively* to *positively*), whether they would want to see a similar procedure used in future situations (*not at all* to *definitely*), and how they would feel about being treated the same way in the future (*negatively* to *positively*) (α = .94). Participants' reactions to each of the sources in the scenarios were assessed by asking them to indicate (a) how they felt about the group involved as a result of the experience and (b) how the experience made them feel about the individual with whom they dealt (both on scale of *negatively* to *positively*).

Results

Manipulation checks. Manipulation checks were located, along with the dependent measures, after each scenario. For each independent variable, there were two manipulation checks asking respondents about the information given in the scenarios (e.g., "Was the professor required to meet with you about the grade appeal?"). The manipulation was considered successful only when both items for each independent variable were correctly marked yes or no. Participants correctly responded to the manipulation checks more than 90% of the time. There were no notable differences between the scenarios or the independent variables in the likelihood of participants incorrectly responding to the manipulation checks, and there was not any effect of the order of the scenario in the experimental packet on responses to the manipulation checks. Furthermore, there was no systematic effect of any of the independent variables on manipulation checks for other variables. Analyses excluding those few cases where manipulation checks were incorrect did not change the pattern of results presented below.

Analyses. As noted earlier, participants were randomly placed in 1 of 16 experimental conditions in each of the three scenarios they rated, resulting in their inclusion in 3 of the 16 experimental conditions by the time they completed the experiment. The ratings provided by participants for each of the three scenarios were analyzed as separate cases, resulting in a total of 483 data points across the three scenarios. To appropriately account for effects associated with multiple observations from the same participant, $n-1$ (i.e., 160) dummy codes were created and coded to indicate responses originating from the same participant. These dummy codes for participant were then included as covariates in all analyses presented below to correct for any effects in the data that may be due to multiple assessments from participants (Keppel, 1991). The subject dummy variables also decreased the degrees of freedom, thereby making the tests of the hypotheses more conservative. To further ensure that the statistical tests were as conservative as possible, the error degrees of freedom in the denominator of the F test for all statistics was divided by 3 (making the degrees of freedom consistent with the number of participants in the study).

TABLE 3: Study 2 Mean Ratings of Overall Procedural Fairness, by Experimental Condition

	Formal Decision Making			
	Fair		*Unfair*	
	Formal Treatment			
	Fair	*Unfair*	*Fair*	*Unfair*
Informal decision making				
Fair				
Fair informal treatment	8.87_{a} (1.47)	8.58_{a} (1.47)	8.52_{a} (1.55)	8.24_{a} (1.79)
Unfair informal treatment	6.48_{b} (2.08)	6.22_{b} (1.90)	6.19_{b} (1.97)	$5.46_{b,c}$ (2.48)
Unfair				
Fair informal treatment	$4.67_{c,d}$ (2.16)	$3.92_{d,e}$ (2.07)	$3.90_{d,e}$ (1.93)	$3.66_{d,e,f}$ (2.01)
Unfair informal treatment	$2.28_{f,g}$ (1.72)	$2.48_{e,g}$ (1.21)	$2.57_{e,g}$ (1.42)	1.93_{g} (0.98)

NOTE: $n = 30$ per cell. Numbers in parentheses indicate standard deviations. Higher scores indicate more positive perceptions of fairness. Means with common subscripts are not significantly different from one another at $p < .05$, based on Tukey's honestly significant difference (HSD) test.

Scenario and order of presentation also were included as covariates in all analyses. In none of the analyses presented below did either of these covariates approach significance, indicating that although any effects of particular scenarios or presentation order were controlled for in the analysis, these scenario and order effects were minor or nonexistent.

Multivariate analysis of variance was first conducted on all the dependent measures. This analysis found significant effects for formal quality of decision making, $F(4, 101) = 14.78$, $p < .001$, $\eta^2 = .16$; for formal quality of treatment, $F(4, 101) = 9.36$, $p < .001$, $\eta^2 = .11$; for informal quality of decision making, $F(4, 101) = 146.90$, $p < .001$, $\eta^2 = .66$; and for informal quality of treatment, $F(4, 101) = 75.24$, $p < .001$, $\eta^2 = .50$. The only two-way interaction to reach significance was that between informal decision making and informal quality of treatment, $F(4, 101) = 18.33$, $p < .001$, $\eta^2 = .20$, which is discussed further below. Having established these effects, we conducted univariate analyses of variance for each of the dependent variables.

Overall procedural fairness. Means for the primary dependent variable, perceptions of procedural fairness, are located in Table 3. Analysis of variance for the scale of overall procedural justice revealed significant main effects for all the independent variables. That is, main effects on overall procedural justice were found for formal quality of decision making, $F(1, 101) = 9.94$, $p < .01$, $\eta^2 = .03$; formal quality of treatment, $F(1, 101) = 7.26$, $p < .01$, $\eta^2 = .02$; informal quality of decision making, $F(1, 101) = 555.54$, $p < .001$, $\eta^2 = .65$; and informal quality of treatment, $F(1, 101) = 134.00$, $p < .001$, $\eta^2 = .31$.

Examination of the means indicates that the differences were in the predicted direction, with greater procedural fairness perceived when formal quality of decision making, formal quality of treatment, informal quality of decision making, or informal quality of treatment were fair rather than unfair. These main effects confirm the predicted influence of each of the four components on overall procedural fairness.

The only two-way interaction to reach significance was that between informal quality of decision making and informal quality of treatment, $F(1, 101) = 9.45$, $p < .01$, $\eta^2 = .03$. Examination of the means indicates that the nature of this interaction is a modest increase in the influence of informal quality of decision making when informal quality of treatment was high as compared to when it was low, suggesting that the fairness of quality of treatment from particular group authorities has a relatively more critical role on overall perceptions of fairness. Respondents were less reactive to (un)fair decision making by particular group authorities when they perceived those authorities as not meeting their standards of fair treatment.

Reactions to experience. Univariate analysis of variance also was conducted for both of the measures assessing reactions to the experience described in the scenarios. The scale of overall evaluation of the experience followed the same pattern as the effects for the overall procedural justice scale, with main effects for formal quality of decision making, $F(1, 101) = 13.74$, $p < .001$, $\eta^2 = .04$; formal quality of treatment, $F(1, 101) = 7.23$, $p < .01$, $\eta^2 = .02$; informal quality of decision making, $F(1, 101) = 441.44$, $p < .001$, $\eta^2 = .59$; and informal quality of treatment, $F(1, 101) = 231.00$, $p < .001$, $\eta^2 = .43$. As expected, these means were in the predicted direction, such that evaluations of the experience were more positive when the manipulations of the four components indicated greater fairness.

Once again, there was also a significant two-way interaction between informal quality of decision making and informal quality of treatment, $F(1, 101) = 31.43$, $p < .001$, $\eta^2 = .09$. As before, when informal quality of treatment was high, the quality of informal decision making had more influence than when informal quality of treatment was low.

In terms of the measure of feelings toward the group, main effects were found for all four components, that is, formal quality of decision making, $F(1, 101) = 43.47$, $p < .001$, $\eta^2 = .13$; formal quality of treatment, $F(1, 101) = 35.63$, $p < .001$, $\eta^2 = .11$; informal quality of decision making, $F(1, 101) = 142.50$, $p < .001$, $\eta^2 = .32$; and informal quality of treatment, $F(1, 101) = 46.33$, $p < .001$, $\eta^2 = .13$. There was also a two-way interaction between informal quality of decision making and informal quality of treatment of the same form as that found for the two previous dependent variables. These results were not as predicted because main effects on this variable had been anticipated only for the two formal-source related independent variables.

Lastly, main effects were found for informal quality of decision making, $F(1, 101) = 309.89$, $p < .001$, $\eta^2 = .50$, and informal quality of treatment, $F(1, 101) = 279.93$, $p < .001$, $\eta^2 = .48$, on views of the individual with whom the target supposedly interacted. No main effects were found for the other two independent variables, confirming the expectation that judgments of particular group authorities would be unaffected by variation in the fairness of formal policies regarding quality of decision making and quality of treatment. There were no significant interactions for this dependent variable.

Discussion

The results of this experiment are consistent with those of Study 1 in providing support for the four-component model of procedural justice. Rather than merely assessing the various components posited by the four-component model, we experimentally manipulated the fairness associated with each component and found evidence of a causal effect on overall procedural fairness judgments as a result of those manipulations. Furthermore, Study 2 extends these effects and shows that the four components also impact variables often linked to procedural justice. These findings demonstrate shifts in overall perceptions of procedural justice, in general evaluations of the experience, and in views of the group associated with the experience, all as a function of each of the four components. Shifts in views of group authorities as a function of the fairness of their decision making and treatment provide further support for the conceptualization of procedural justice advanced here.

These results validate the proposed model with a more rigorous causal methodology. Furthermore, they demonstrate that although the four components may be theoretically and empirically related to one another, the components are sufficiently distinct so as to show independent effects when manipulated orthogonally.

The influence of the fairness of particular group authorities on views of the group was an unexpected finding. This suggests a spillover effect from the fairness of informal sources to views of superordinate group structures, whereby groups may be evaluated through the actions of particular representatives of the group. Indeed, in a follow-up analysis in which ratings of the individual authority were included as a covariate in the analysis of variance on ratings of the group, no significant informal quality of treatment effect remained and the effect of informal quality of decision making was considerably reduced.

Another unexpected but consistent finding was the interaction between the two informal justice components. In all cases, that interaction indicated a stronger influence of informal quality of decision making when informal quality of treatment was fair. When informal treatment is unfair, fair informal decision making has less impact on overall procedural justice evaluations, suggesting that treatment from informal sources represented a primary and essential element of process fairness in this study. This is somewhat consistent with justice research suggesting that issues of interactional justice are especially potent predictors of individual's reactions (Colquitt, 2001; Folger & Cropanzano, 1998). Although the four-component model predicts and is primarily concerned about main effects, future research should examine this and other potential interactions among the four components.

Although all four components demonstrated significant main effects, the informal sources had considerably larger effect sizes associated with them, in direct contradiction to the results of Study 1. Participants in this study may have viewed the fairness of formal sources as bounded by the fairness of their implementation. Another possible explanation is that in this study, unfairness by formal sources was manipulated primarily by the absence of fairness, whereas unfairness by informal sources was represented by actual unfair behavior (e.g., rudeness). This may not just be an artifact of the specific experimental paradigm; rules often may be seen as unfair because of their exclusion of fairness and less frequently for actual prescriptions of unfairness.

GENERAL DISCUSSION

The results of these studies support the argument that the four-component model describes how people may define procedural justice. One dimension of the model, procedural function, suggests that when people evaluate the fairness of procedures, they consider those aspects of procedures that affect the way in which decisions are made and those that determine the type of treatment that they experience as individuals. These two sets of concerns are not only demonstrated in the current set of

studies but also are suggested in the broader procedural justice literature. Of importance, they also map onto traditional work on the core issues addressed by groups. The second dimension of the model, source of justice, shows that the two procedural function judgments are separately affected by group rules, policies, and norms as well as specific representatives of the group. Although source has received relatively little research attention in the justice literature, the results of these studies suggest that this distinction may be especially central to justice judgments and worthy of additional attention.

These two dimensions (procedural function and source) of fairness evaluations are crossed with one another to establish the four-component model of procedural justice. Together, they define four judgments that determine the overall perception of procedural justice. The studies presented here suggest that these components are consistent with the way that people naturally cluster their procedural concerns and that each can be a determinant of how procedural justice is perceived.

One of the most significant contributions of the four-component model is the explicit representation of two previously unrecognized categories of procedural concerns. Specifically, the research literature has not considered the important influences of formal quality of treatment and informal quality of decision making. Doing so acknowledges the important role of group factors on the treatment perceptions of group members as well as the notable influence of group authorities on evaluations of decision making. Prior approaches obscure these two ideas by only comparing formal decision making (procedural justice as studied by Thibaut & Walker, 1975) and informal treatment (interactional justice as discussed by Bies, 2001; Bies & Moag, 1986).

A model of the concerns underlying process fairness evaluations is important for resolving theoretical controversies in this research area. For instance, the issue of whether to distinguish procedural and interactional justice has been debated recently (Bobocel & Holmvall, 2001), with little resolution. By distinguishing between the function of a procedure and the sources of justice, the four-component model unconfounds two key differences between traditional conceptions of procedural and interactional justice and therefore highlights the conceptual questions underlying this debate.

It is important to link the four-component model to other efforts to identify underlying dimensions within the justice literature. For instance, Greenberg (1993) presents a theoretical, although not empirically validated, taxonomy of the classes of social justice. Because the goal of this taxonomy is to describe the different categories of social—and not just procedural—justice, two of the four classes of justice identified by Greenberg relate to outcomes, not processes. Furthermore, those portions of the Greenberg (1993) model that do relate to procedures maintain the confound between procedural function and source that pervades the justice literature. In some recent work, Rupp and Cropanzano (in press) conceptualize both organizations and supervisors as sources of procedural and interactional justice. However, their conceptualization of procedural justice does not distinguish between decision making and treatment, and as such, their four judgments are not comparable to those put forward by the four-component model. Furthermore, their work does not address the issue of how procedural justice is defined because they do not link those judgments to overall assessments of process fairness.

Although the emphasis in this initial test of the four-component model is to demonstrate that these four judgments may give overall assessments of procedural justice their meaning, future research should investigate the relative influence of each of these judgments as well as interactions that may exist among them. Interesting discrepancies with regard to each of these issues emerge in comparing Studies 1 and 2. For instance, formal sources of justice were the stronger influence on overall justice judgments in the field data, but the laboratory study showed a stronger influence of informal sources. Likewise, whereas no interaction effects emerged among the four components in Study 1, the informal decision making and informal quality of treatment variables did interact in Study 2. Significant differences in the context and methodology of these studies make establishing satisfactory explanations of these differences difficult. However, these discrepancies in the pattern of results do highlight the importance of addressing these issues in future research. In addition, factors such as group context also should be examined for their effects on the influence and interrelationship of the four components.

The need for future research notwithstanding, developing a model of the meaning of procedural justice is important for advancing the growth of procedural justice and group research. Such a model facilitates an understanding of how to assess, characterize, and ultimately promote fairness. It is therefore critical to understand not only that fairness matters to people but also what determines these important evaluations.

APPENDIX

MEASURES, STUDY 1

Procedural Justice

- How often do you feel that decisions are made in fair ways at your job?[a]
- Overall, how fair would you say decisions and processes are where you work?[b]
- How would you rate the overall fairness with which issues and decisions that come up at work are handled?[b]
- Is there a general sense among employees that things are handled in fair ways at work?[c]
- How much of an effort is made to be fair to employees when decisions are being made?[d]

Quality of Decision-Making Procedures

Formal[e]

- The rules dictate that decisions should be fair and unbiased.
- The rules and procedures are applied consistently across people and situations.
- The rules ensure that decisions are made based on facts, not personal biases and opinions.
- The rules and procedures are equally fair to everyone.

Informal[e]

- My supervisor's decisions are consistent across people and situations.
- My supervisors' decisions are made based on facts, not their personal biases and opinions.
- My supervisor's decisions are equally fair to everyone.

Quality of Treatment

Formal[e]

- The rules lead to fair treatment when decisions are being made.
- The rules lead to fair treatment when decisions are being implemented.
- The rules require that I get an honest explanation for how decisions are made.
- My views are considered when rules are being applied.
- The rules ensure that my needs will be taken into account.
- I trust _____[g] to do what is best for me.
- The rules respect my rights as an employee.
- The rules respect my rights as a person.
- I am treated with dignity by _____.[g]
- _____[g] follows through on the promises it makes.
- _____[g] really cares about my well-being.
- _____[g] cares about my satisfaction.

Informal[e]

- My supervisor treats me fairly when decisions are being made.
- My supervisor treats me fairly when decisions are being implemented.
- My supervisor listens to me when I express my views.
- My supervisor usually gives me an honest explanation for the decisions he/she makes.
- My supervisor considers my views when decisions are being made.
- My supervisor takes account of my needs when making decisions.
- I trust my supervisor to do what is best for me.
- My supervisor respects my rights as an employee.
- My supervisor respects my rights as a person.
- My supervisor treats me with dignity.
- My supervisor follows through on the decisions and promises he/she makes.
- My supervisor really cares about my well-being.
- My supervisor cares about my satisfaction.

Distributive Justice

- How fairly are resources (e.g., salary, bonuses, etc.) allocated among employees where you work?[b]
- Overall, how fair is the salary you receive at work?[b]
- Would you say that there is an emphasis where you work on distributing things fairly?[c]

Outcome Favorability

- How favorable are the resources and outcomes you receive at work?[f]
- Do the resources and outcomes where you work exceed your expectations?[c]
- Overall, how favorable are the outcomes you receive at work in each of the following areas:[f]
  a. Your salary?
  b. Your job responsibilities?
  c. Your work load?

a. 1 = *rarely*, 6 = *very often*
b. 1 = *not fair at all*, 6 = *very fair*
c. 1 = *not at all*, 6 = *definitely*
d. 1 = *none*, 6 = *a lot*
e. 1 = *strongly disagree*, 6 = *strongly agree*
f. 1 = *not at all*, 6 = *very*
g. The organization's name was placed in these slots but have been removed here for reasons of confidentiality.

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