

Evaluating Outcomes by Means of the Fair Process Effect: Evidence for Different Processes in Fairness and Satisfaction Judgments

Kees van den Bos and Henk A. M. Wilke
Leiden University

E. Allan Lind
Duke University

Riël Vermunt
Leiden University

The authors refine and extend their explanation of the psychology of the *fair process effect* (the positive influence of procedural fairness on outcome evaluations). On the basis of fairness heuristic theory's substitutability proposition, the authors predicted and found that outcome evaluations show strong effects of procedural fairness when outcomes are better or worse than expected, whereas less strong fair process effects appear when outcomes are equal to or differ from the outcome of a comparison other. This finding suggests some important differences in how people use expectations versus social comparisons as reference points for evaluating outcomes. Findings also revealed that fairness judgments do not always show the same effects as do satisfaction judgments, indicating differences in the way people form judgments on these two dimensions of outcome evaluation.

How do people judge the outcomes they receive? A central tenet in the growing literature about judgment and choice (e.g., Boles & Messick, 1995; Loewenstein, Thompson, & Bazerman, 1989; Messick & Sentis, 1985) and in major theoretical treatments of classic social psychology (Adams, 1965; Blau, 1964; Messick & Sentis, 1983; Stouffer, Suchman, DeVinney, Star, & Williams, 1949; Thibaut & Kelley, 1959) emphasizes the importance of drawing a distinction between two different reference points in answering this question. One important reference point in the outcome evaluation process is based on social comparison information. Equity research, for example, has shown that outcomes frequently are evaluated in terms of where the outcome falls relative to the outcome of others (Adams, 1965; Messick & Sentis, 1983): Outcomes are judged as more fair and as more satisfying when outcomes are equal to, as opposed to different from, outcomes of comparison others. Another important reference point is based on people's expectations: Thibaut & Kelley's (1959) notion of comparison level, for instance, suggests that

outcomes that fall above expectations will lead to more positive outcome evaluations than outcomes that fall below expectations. In this article we explore how the outcome evaluation process is affected by social-comparison-based versus expectation-based reference points.

As suggested by Blau (1964) and as shown by the results of Austin, McGinn, and Susmilch (1980), social comparisons are related more directly to judged fairness than to expectations. Drawing a distinction between social-comparison-based versus expectation-based reference points may thus reveal that people's judgments of outcome fairness may differ from their evaluations of outcome satisfaction. This is an important issue, because although early social psychologists (e.g., Adams, 1965; Blau, 1964) made an explicit distinction between outcome fairness and satisfaction judgments, in recent years less and less attention has been paid to potential differences between these two types of judgments. Part of the reason for ignoring this distinction lies undoubtedly in the fact that research has shown that the two concepts often converge in people's heads (see, e.g., Adams, 1965; Liebrand, Messick, & Wolters, 1986; Messick, Bloom, Boldizar, & Samuelson, 1985; Messick & Sentis, 1979, 1983). The tendency to abandon the distinction between satisfaction judgments (or "favorability judgments," the term often found in the justice literature) and fairness judgments has progressed to the point where some commentators (e.g., Cropanzano & Greenberg, 1997) have noted a recent tendency among social justice researchers to equate outcome favorability with outcome fairness. For example, on the basis of the above-cited literature, Brockner and Wiesenfeld argued that although (what we call) outcome favorability and outcome fairness are different, the two constructs are closely related, and that it is more appropriate to focus on the convergence rather than the divergence between the concepts (Brockner & Wiesenfeld, 1996, pp. 190–191). As a result, in the article by Brockner and Wiesenfeld, as well as in other important studies on social justice (e.g., Brockner &

Kees van den Bos, Henk A. M. Wilke, and Riël Vermunt, Department of Social and Organizational Psychology, Leiden University, Leiden, the Netherlands; E. Allan Lind, Fuqua School of Business, Duke University.

Parts of this article were presented at the Sixth International Conference on Social Justice Research, Potsdam, Germany, July 1997. The research reported in this article was supported by the American Bar Foundation, National Science Foundation Grant SBR-96-96244, and a fellowship of the Royal Netherlands Academy of Arts and Sciences awarded to Kees van den Bos. We thank Russell Cropanzano and David M. Messick for their helpful comments on a previous version of this article, and Arieneke Groenenboom, Eric van Dijk, and Daan van Knippenberg for their assistance in collecting the data for Experiment 1.

Correspondence concerning this article should be addressed to Kees van den Bos, Department of Social and Organizational Psychology, Leiden University, P.O. Box 9555, 2300 RB Leiden, the Netherlands. Electronic mail may be sent to bosvd@rulfsw.leidenuniv.nl.

Siegel, 1996; Brockner, Wiesenfeld, & Martin, 1995; Cropanzano & Folger, 1991), these two terms are used more or less interchangeably.

Thus, it now seems that both laypeople and scientists find it difficult or impractical to disentangle the concepts of outcome fairness and favorability. But research showing that these two judgments frequently show similar effects does not mean that the two concepts are indistinguishable. In this article we explore whether people differentially form judgments on these two dimensions of outcome evaluation. Below we introduce the phenomenon known as the *fair process effect*, the mechanism we use to investigate the relationship between the two reference points (social comparison based and expectation based) and the two outcome judgments (fairness and satisfaction judgments) we have identified.

The Fair Process Effect

To account for people's concerns about justice, a number of social psychological theories have been proposed. An early conception of justice was provided by equity theory (e.g., Adams, 1965). Adams argued that people judge an outcome as fair when the ratio of their own inputs and outputs matches the input-output ratio of comparison others. Because they focus on the fairness of outcomes that people receive, equity theory and other notions about social justice (e.g., Blau, 1964; Crosby, 1976; Stouffer et al., 1949) are referred to as theories of distributive justice. Although issues of distributive justice are important, research since the 1970s has consistently shown that perceived social justice is also affected by the fairness of the procedures that are used to arrive at outcomes (Lind & Tyler, 1988; Tyler & Lind, 1992).

One of the most important discoveries in research on procedural and distributive justice has been the finding that perceived procedural fairness positively affects how people react to outcomes. This instance of the fair process effect is one of the most frequently replicated findings in social psychology (see Lind & Tyler, 1988, and Van den Bos, Lind, Vermunt, & Wilke, 1997, for overviews). An illustration of this effect can be found in Lind, Kanfer, and Earley (1990). In this experiment, the researchers manipulated whether participants were or were not allowed an opportunity to voice their opinion about an outcome they would receive. As expected, participants judged the voice procedure to be more fair than the no-voice procedure. More important for the present purposes, the Lind et al. study also revealed a fair process effect: Participants who were allowed voice reacted more positively to their outcome than participants who were not allowed voice.

The robustness of the fair process effect is one of the most important factors prompting some procedural justice researchers to propose that people's overall fairness judgments are influenced more strongly by procedures than by outcomes (see, e.g., Lind & Tyler, 1988, p. 1). This view has led many procedural justice researchers to disregard outcome information and to focus only on procedure information. Distributive justice researchers, on the other hand, also tend to focus on one factor affecting people's fairness judgments: outcomes. Some researchers have even suggested that compared with procedures, outcomes are more important for perceptions of fairness (e.g., Lerner &

Whitehead, 1980; Rutte & Messick, 1995). Thus, both procedural and distributive justice research has tended to focus on only one factor in the fairness judgments process, at the expense of other important concepts. It seems time now to integrate the procedural and distributive justice orientations (Brockner & Wiesenfeld, 1996; Cropanzano & Folger, 1991; Van den Bos, Lind, et al., 1997; Van den Bos, Vermunt, & Wilke, 1997). In this article we attempt to integrate the procedural and distributive justice domains by paying attention to the psychology of the fair process effect. To achieve this purpose, we tried to get a better insight into how people form outcome judgments.

How Do People Form Outcome Judgments?

The most generally accepted answer to the question of how outcome judgments are formed is given by distributive justice theories. Distributive theories, such as equity theory, emphasize the importance of social comparison information in the process of evaluating outcomes (Messick & Sentis, 1983). As noted by Messick and Sentis (1983), the comparison of a person's outcome with those of others influences the person's beliefs about the fairness of the person's outcome and affects how satisfied he or she is with his or her outcome. However, Van den Bos, Lind, et al. (1997) argued that the process of outcome evaluation is more complicated than is suggested by distributive justice theories.

On the basis of fairness heuristic theory (for overviews, see Lind, 1992, 1994, 1995, in press; Lind, Kulik, Ambrose, & De Vera Park, 1993; Van den Bos, 1996; Van den Bos, Lind, & Wilke, in press; Van den Bos, Vermunt, & Wilke, 1997), Van den Bos, Lind, et al. (1997) proposed that in order to know how people form outcome judgments, one must carefully assess what information is available to people in the process of forming outcome judgments. In that article, we made a distinction between four important conditions under which people form outcome judgments. In the first three conditions, a person knows that his or her outcome is equal to the outcome of another person who is comparable in the amount of input he or she has provided (equal-to-other condition), is better than the outcome of the comparison other (better-than-other condition), or is worse than the outcome of the comparison other (worse-than-other condition). The fourth condition that we specified was one in which people have no information about the outcomes that others have received (outcome-other-unknown condition). Following distributive justice theories, we argued that knowing what outcomes comparison others have received provides people with unambiguous information and a solid social reference point with respect to whether their outcome is fair or unfair and satisfying or dissatisfying. However, we also reasoned that knowing nothing about what outcomes others have received leaves a person uncertain of the extent to which their outcome is fair or unfair and satisfying or dissatisfying. On the basis of fairness heuristic theory, we argued that in such a situation, people use procedure information—as a heuristic substitute—to assess how to respond to their outcome, and that, as a result, the outcome judgments of these people show strong fair process effects.

The study by Van den Bos, Lind, et al. (1997) supported the above-summarized line of reasoning. However, our manipulations in that study were extreme endpoints of an outcome infor-

mation continuum; that is, participants either did not have any outcome reference point or had a complete social-comparison-based equity reference point. Therefore, our findings provided some evidence for fairness heuristic theory's substitutability proposition, but one could argue—as we did in the Van den Bos, Lind, et al. article—that it is not clear whether these results suggest that fair process effects will attenuate in the presence of any solid outcome reference point. In the present article, we investigate whether people use procedural fairness information in the outcome evaluation process when a reference point other than social comparisons is present. Below we introduce people's intrapersonal expectations about outcomes as an important reference point for evaluating outcomes, after which we describe the design of our experiments and discuss our hypotheses.

The Present Research

People's expectations about the outcomes they receive have been an area for special attention in distributive justice research (Van den Bos, Vermunt, & Wilke, 1996). Research has shown expectations to be an important factor in the psychological process of forming outcome judgments. A significant study in the relative deprivation literature is that of deCarufel and Schopler (1979), who reasoned—among other things—that outcome improvement may be a source of rising expectations, and when these rising expectations are violated by improvements that fail to rise at the same rate, people may be dissatisfied with their improved outcomes. After reviewing the domain of social justice research, Furby (1986) concluded that “the notion that meeting expectations is central in the definition of justice” (p. 183). This suggests that outcome expectations may serve as a significant reference point in the process of evaluating the outcomes one receives.

In this article, we explore the psychology of expectation-based versus social-comparison-based outcome judgments by examining the strength of procedural fairness effects in the presence of each type of reference point: We contrast the strength of voice effects in the presence of expectation information with the strength of voice effects in the presence of the social-comparison-based information we examined in the Van den Bos, Lind, et al. (1997) article. In the experiments presented below, therefore, participants received an outcome that was better than expected, worse than expected, equal to the outcome of a comparison other, better than the outcome of the comparison other, or worse than the outcome of the comparison other. The second independent variable that we manipulated was whether or not participants were allowed an opportunity to voice their opinion (cf. Lind et al., 1990; Van den Bos, Lind, et al., 1997).

In the literature about the effects of reference points in judgment and choice (e.g., Boles & Messick, 1995; Loewenstein et al., 1989; Messick & Sentis, 1985), it has been argued, among other things, that an important difference between reference points is whether they are based on social comparisons or expectations. Furthermore, within the social justice domain there is evidence that expectation-based reference points may be sufficiently weak or ambiguous that fair process effects will occur: Walker, LaTour, Lind, and Thibaut (1974) found fair process effects even when their participants knew they did or did not deserve the outcome. However, in contrast with Van den Bos,

Lind, et al. (1997), the outcome manipulation by Walker et al. did not involve social comparisons but used an expectation-based reference point. That is, the Walker et al. participants had nonsocial expectations about what outcomes they should receive (by virtue of knowing that they deserved objectively a positive or a negative outcome), resulting in intrapersonal comparisons for these participants. As argued by Blau (1964) and demonstrated by the results of Austin et al. (1980), intrapersonal comparisons seem often to provide a weaker (or even an absent) basis for evaluations of outcome fairness than does social comparison equity information. This suggests that the Walker et al. findings provide interesting information for the present article: On the basis of Blau and Austin et al., we argue that although the Walker et al. participants had expectations about what outcomes they should receive, these intrapersonal, nonsocial expectations may not have provided them with enough information to form very strong judgments about the fairness of the outcome that they received. Therefore, we argue, the Walker et al. participants used procedure information to form outcome judgments, resulting in fair process effects on their judgments of outcome.

In this article, we argue that, viewed from this perspective, the distinction between social-comparison-based and expectation-based reference points gains in importance. That is, an (as yet untested) assumption of fairness heuristic theory proposes that people need not just any information (such as expectations) but specific fairness information (such as social-comparison-based equity information) to decide how to behave in the course of social interactions (Lind, 1992, 1998). On the basis of this assumption, the work by Blau (1964) and Austin et al. (1980), and our interpretation of the Walker et al. (1974) findings, we propose that knowing that one's outcome is equal to the outcome of a comparison other, is better than a comparison other person, or is worse than a comparison other provides one with more relevant information and a more diagnostic reference point with respect to how to respond to an outcome than when one knows only whether one's outcome is better or worse than expected. If one follows fairness heuristic theory's substitutability proposition, this line of reasoning implies that people who receive an outcome that is better or worse than expected will use other information, such as procedure information, more than people who receive an outcome that is equal to other, better than other, or worse than other. Therefore, we predict an interaction between procedure and outcome, such that outcome evaluations will show strong effects of procedural fairness when outcomes are better or worse than expected, whereas less strong fair process effects will appear when outcomes are equal to, better than, or worse than the outcome of a comparison other (Hypothesis 1).

Differential Effects on Outcome Fairness and Satisfaction Judgments

Following previous research (Austin et al., 1980; Van den Bos, Lind, et al., 1997), we also want to establish that a distinction can or should be made with respect to at least two types of reactions to outcomes: Within our equal-to-other, better-than-other, and worse-than-other conditions, we predict different effects on our two dependent variables, outcome fairness judgments and outcome satisfaction judgments.

Our predictions with respect to people's judgments of outcome *fairness* are based on research by Austin et al. (1980) and on the Van den Bos, Lind, et al. (1997) study. Following the line of reasoning of these authors, we argue that a person who receives an outcome equal to the outcome of another person who has provided a comparable amount of inputs receives an equitable outcome and hence receives a fair outcome. In contrast, a person who receives a better outcome than the comparison other and a person who receives a worse outcome than the comparison other both receive inequitable outcomes and hence both receive unfair outcomes. On the basis of this reasoning, we predict that a person who receives an outcome that is equal to the outcome of the comparison other will perceive his or her outcome as more fair than either a person who receives a better outcome than the comparison other or a person who receives a worse outcome than the comparison other, and that outcome fairness judgments in the better-than-other and worse-than-other conditions will not differ from each other.

However, on the basis of equity theory and research by Messick and Sentis (1985), Loewenstein et al. (1989), and Van den Bos, Lind, et al. (1997), we predict different effects on people's judgments of outcome *satisfaction*, again considering the equal-to-other, better-than-other, and worse-than-other conditions. Following equity theory, we propose that in the better-than-other and worse-than-other conditions, participants receive inequitable outcomes and hence will feel distressed and less satisfied than a person who receives an equal-to-other outcome (e.g., Adams, 1965; Austin et al., 1980; Buunk & Van Yperen, 1989). As stated by Adams (1965), "There can be little doubt that inequity results in dissatisfaction" (p. 283).

Following Adams (1965) and Van den Bos, Lind, et al. (1997), we further propose that in the better-than-other and worse-than-other conditions, some relative egoism will affect people's satisfaction judgments. That is, when people are made angry by an outcome that is worse than the outcome of a comparison other, there are two sources of negative affect: (a) inequity and (b) the relative deprivation of lacking what the other person has received. However, when one is made guilty by an outcome that is better than the outcome of a comparison other, there is one source of negative affect and one source of positive affect: (a) the negative source is the guilt about being inequitably advantaged, whereas (b) the positive source is the egoism-based pleasure in having a relatively good outcome. We propose that two sources of negative experience are bound to sum to less satisfaction than a source of a positive emotional experience and a negative emotional experience. Therefore, we expect that persons in the better-than-other condition will feel uncomfortable but will be more satisfied than persons in the worse-than-other condition. Thus, we expect that a person who receives an outcome that is equal to the outcome of the other person will be more satisfied than a person who receives an outcome that is better than the outcome of the other person, and we expect that the individual who receives an outcome that is better than the other individual will be more satisfied than an individual who receives an outcome that is worse than an outcome that the other individual receives. On the basis of this reasoning, we predict an interaction between outcome and dependent variable type, such that the difference between the equal-to-other condition and the mean of the better-than-other and worse-than-other

conditions will be greater for judged fairness than for judged satisfaction (Hypothesis 2).

Experiment 1

As a first test of our hypotheses, participants in Experiment 1 read and responded to stimulus information manipulated by means of scenarios. The procedure that was manipulated was whether participants were or were not allowed an opportunity to voice their opinion. The outcome that participants received was held constant across conditions, and we manipulated that the outcome that participants received was better than expected, worse than expected, equal to the outcome of another person, better than the other person, or worse than the other person. Participants' outcome fairness judgments and their outcome satisfaction judgments were the dependent variables.

Method

Participants and Design

Three hundred students (101 men and 199 women) at Leiden University participated in the experiment and were paid for their participation. Participants were randomly assigned to one of the conditions of the 2 (procedure: voice, no voice) \times 5 (outcome: better than expected, worse than expected, equal to other, better than other, worse than other) factorial design. The design was balanced, with 30 participants assigned to each of the 10 conditions.

Experimental Procedure

Participants read the scenario and answered the questions that constituted the dependent variables either before or after participating in other, unrelated experiments. The experiments lasted a total of 1.5 hr, and participants were paid 15 Dutch guilders (1 Dutch guilder \approx U.S. \$0.50). On arrival at the laboratory, participants were led to separate cubicles, each of which contained a computer with a monitor and a keyboard. The computers were used to present the stimulus information and to measure the dependent variables.

First, participants were asked to imagine the following situation:

In the near future, you are going to live in a new rented house. The rent of this house has yet to be determined. To decide on the rent, each individual tenant has to appear before a rent tribunal. The rent tribunal will decide on the monthly rent that you will have to pay. To determine his rent, your neighbor, who will rent a comparable house, also has to appear before the rent tribunal.

After this, participants in the better-than-expected condition read, "You know that a satisfactory rent for a house such as you will rent does not exceed 1000 Dutch guilders."¹ Participants in the worse-than-expected condition read, "You know that a satisfactory rent for a house such as you will rent does not exceed 500 Dutch guilders." This sentence was not presented to the participants in the equal-to-other, better-than-other, and worse-than-other conditions. Then, all participants read, "You appear before the rent tribunal."

Next came the manipulation of procedure. Participants read (manipulated information in brackets): "The tribunal gives you [voice/no

¹ Note that at this point, participants did not know what outcome they would receive, and as a result, the manipulation of outcome had not yet taken place.

Table 1
Mean Outcome Judgments as a Function of Procedure and Outcome (Experiment 1)

Dependent variable	Outcome				
	Better than expected	Worse than expected	Equal to other	Better than other	Worse than other
Outcome fairness					
Voice procedure	5.7 _a	2.9 _c	5.8 _a	2.3 _d	1.5 _e
No voice procedure	4.7 _b	2.1 _{d,e}	6.2 _a	2.3 _d	1.9 _{d,e}
Outcome satisfaction					
Voice procedure	6.3 _a	2.2 _d	5.2 _b	4.1 _c	1.5 _e
No voice procedure	5.5 _b	1.5 _e	5.7 _{a,b}	4.4 _c	1.8 _{d,e}

Note. Entries are means on 7-point scales; higher values indicate more positive ratings of the dependent variable in question. For each dependent variable, means with no subscript in common differ significantly, as indicated by a least-significant-difference test for multiple comparisons between means ($p < .05$).

voice]: The tribunal [asks you/does not ask you] to voice your opinion about the rent that you will have to pay.”

After this, all participants read, “A week after this you are informed that the rent that you will have to pay is 750 Dutch guilders.” Then, participants in the equal-to-other, better-than-other, and worse-than-other conditions read (manipulated information in brackets): “Your neighbor’s rent also has been determined: The rent he will have to pay is [750/1000/500] Dutch guilders.” This sentence was not presented to the participants in the better-than-expected and worse-than-expected conditions.²

After participants had read the scenario, they were asked questions pertaining to the dependent variables. Both ratings were made on 7-point scales. We solicited outcome fairness judgments by asking participants how fair they considered the rent that they had to pay (1 = *very unfair*, 7 = *very fair*). We assessed outcome satisfaction by asking participants how satisfied they were with the rent that they had to pay (1 = *very dissatisfied*, 7 = *very satisfied*).

Results

The means of the outcome judgments in Experiment 1 are presented in Table 1. To test whether the data provided supportive evidence for our hypotheses, we used orthogonal planned comparisons, focusing on two planned interaction contrasts (one for each hypothesis). The first planned interaction contrast was relevant to Hypothesis 1, the prediction that procedure would affect judged fairness and satisfaction more when outcomes varied relative to expectations than when they varied relative to a social comparison other. In other words, Hypothesis 1 led us to expect an interaction between procedure (voice vs. no voice) and a *reference-type contrast* between the better-than-expected and worse-than-expected conditions with the equal-to-other, better-than-other, and worse-than-other conditions.

The second planned interaction contrast provided a test of Hypothesis 2, the prediction that the difference between the equal-to-other and the mean of the better-than-other and worse-than-other conditions would be greater for judged fairness than for judged satisfaction. Thus, this hypothesis led us to expect an interaction between a *social equality contrast* (equal to other vs. better than other/worse than other) and response dimension (fairness judgments vs. satisfaction judgments). We tested Hypotheses 1 and 2 by analyzing the above-mentioned contrasts in a 2 (procedure) \times 5 (outcome) \times 2 (response dimension:

fairness judgments vs. satisfaction judgments) multivariate analysis of variance (MANOVA), with the first two independent variables as between-subjects variables and the last independent variable as a within-subject variable.

Before we conducted the contrast analyses we tested for overall effects in a 2 (procedure) \times 5 (outcome) \times 2 (response

² Thus, at this point, the manipulation of outcome had taken place: Participants realized that they had received an outcome that was better than expected, worse than expected, equal to other, better than other, or worse than other. Note that in all conditions of our design, the manipulation of outcome took place after procedure had been manipulated. We judged this fixed order of manipulations to be appropriate because Hypothesis 1 predicted weak effects for procedure in most outcome conditions, and because Van den Bos, Vermunt, and Wilke (1997) showed that information that is received first (either procedure or outcome information) affects people’s judgments more strongly than information that is received second. In the present research, we therefore decided to give procedure effects as much chance as possible by inducing the procedure manipulation before the outcome manipulation. In this way, we tried to argue against a rival explanation, which holds that we did not get effects of procedure because of a null effect problem. Furthermore, it should be noted that because all participants first were informed about their own rent, and then all participants in the equal-to-other, better-than-other, and worse-than-other conditions were informed about the neighbor’s rent, participants in the better-than-expected and worse-than-expected conditions knew somewhat earlier in time (approximately 10 s) that the outcome was better or worse than expected than that participants in the other conditions knew that the outcome was equal to other, or better or worse than other. Because between receiving their own rent and being informed about the neighbor’s rent no additional information was presented to the participants, we think that the insights of Van den Bos, Vermunt, and Wilke (1997) cannot be applied to this (small) difference in presentation time. However, should one judge the Van den Bos, Vermunt, and Wilke (1997) findings relevant to this issue, the difference in presentation time works against Hypothesis 1 (which predicted weaker effects of the expectation reference point than of the social comparison reference point and, hence, stronger effects of procedure information in the better- and worse-than-expected conditions than in the equal-to-other, better-than-other, and worse-than-other conditions). Thus, we believe that if anything, the way in which we have manipulated the independent variables in Experiment 1 works against Hypothesis 1 and hence that we have tested it in a conservative way. The same line of reasoning applies to Experiment 2.

dimension) MANOVA. After we presented the results of this overall analysis, we discuss the results of the contrast analysis that focused on Hypothesis 1, and then we consider the results of the contrast analysis that was pertinent to Hypothesis 2.

Overall Analysis

A $2 \times 5 \times 2$ MANOVA showed a main effect of outcome, $F(4, 290) = 179.55, p < .001$, and a main effect of response dimension (fairness vs. satisfaction judgments), $F(1, 290) = 14.84, p < .001$. These effects were qualified by a significant interaction between procedure and outcome, $F(4, 290) = 5.37, p < .001$, and an interaction between outcome and response dimension, $F(4, 290) = 43.34, p < .001$. Other effects were not significant ($ps > .25$).

Contrast Representing Hypothesis 1

The contrast analysis that focused on Hypothesis 1 showed a main effect of the reference type contrast (better than expected/worse than expected vs. equal to other/better than other/worse than other), $F(1, 290) = 5.01, p < .03$. More important, however, this effect was qualified by the predicted interaction between procedure and the reference type contrast, $F(1, 290) = 20.83, p < .001$, indicating that, as predicted by Hypothesis 1, procedure affected participants' fairness and satisfaction judgments more when outcomes varied relative to expectations than when they varied relative to the comparison other. In fact, results of least significant difference tests for multiple comparisons between means ($p < .05$; see Table 1 for results) revealed that significant procedure effects were found in the better-than-expected and worse-than-expected conditions and that no significant effects of procedure were found in the equal-to-other, better-than-other, and worse-than-other conditions.

The contrast analysis also yielded two other effects: (a) a main effect of response dimension (as noted above with the overall analysis) and (b) an interaction between response dimension and the reference type contrast, $F(1, 290) = 7.70, p < .01$, showing fairness judgments to be more sensitive to social comparison information than expectation-based information, and satisfaction judgments to be more affected by expectation-relevant information than social comparison-based information (see Table 1). This interaction effect supports the position advocated by Austin et al. (1980), Blau (1964), and our assumptions on the relationship between social-comparison-based versus expectation-based reference points and fairness versus satisfaction judgments. Other effects were not significant ($ps > .23$).

Contrast Representing Hypothesis 2

The contrast analysis that was pertinent to Hypothesis 2 yielded a main effect of the social equality contrast (equal to other vs. better than other/worse than other), $F(1, 290) = 357.39, p < .001$. There was also (as noted above) a significant main effect for response dimension. More interesting, however, these effects were qualified by the Social Equality Contrast \times Response Dimension interaction predicted by Hypothesis 2, $F(1, 290) = 55.47, p < .001$ (other effects were not significant, $ps > .23$). As predicted by Hypothesis 2, the difference between the equal-to-other condition and the mean of the better-than-

other and worse-than-other conditions was greater for fairness judgments than for satisfaction judgments. In fact, results of a least significant difference test on participants' *outcome fairness judgments* revealed that participants in the equal-to-other condition judged their outcome as more fair than participants in the better-than-other and worse-than-other conditions and that the fairness judgments of participants in the better-than-other condition did not differ from the fairness judgments of those in the worse-than-other condition. Furthermore, a least significant difference test on participants' *outcome satisfaction judgments* showed that participants in the equal-to-other condition were more satisfied with their outcome than participants in both the better-than-other and the worse-than-other conditions, and that participants in the better-than-other condition were more satisfied with their outcome than participants in the worse-than-other condition.

Discussion

The findings of Experiment 1 provide strong support for our line of reasoning: When people receive outcomes that are better or worse than expected, they may find it difficult to assess whether their outcome is fair or unfair and satisfying or unsatisfying, and they may therefore use the fairness of the procedure to assess how to respond to their outcome. As a result, the outcome judgments of these people show strong fair process effects. However, persons who receive an outcome that is equal to, better than, or worse than the outcome of another person must rely less on procedure information, yielding less strong fair process effects on the outcome judgments of these persons.

Furthermore, the results of Experiment 1 also show differential effects on perceived outcome satisfaction and outcome fairness. That is, as predicted by Hypothesis 2, our findings indicate that a person who receives an outcome that is worse than the outcome of another person is less satisfied than a person who receives an outcome that is better than the outcome of the other person, and that this last person is less satisfied than a person who receives an outcome that is equal to the other person's outcome. We also found, however, that persons who receive an outcome that is better or worse than the outcome of the other person do not differ in their outcome fairness judgments and judge their outcomes as less fair than a person who receives an outcome that is equal to the outcome of someone else.

We also found evidence that the two reference points that we manipulated (expectation based vs. social comparison based) affected the two outcome judgments (fairness vs. satisfaction) differently: Fairness judgments tended to be more strongly affected by social-comparison-based information, and satisfaction judgments tended to be more strongly influenced by expectation-based information. This seems to imply that social-comparison-based reference points are indeed more strongly related to perceived fairness than are expectation-based reference points. This finding is in agreement with the position adopted by Blau (1964) and Austin et al. (1980), who argued that social comparisons are more directly related to fairness than expectations. Before we draw strong conclusions on the basis of these findings, however, it is important to replicate them in a second experiment.

In Experiment 1, participants read a scenario in which they were asked to imagine that they were involved in a situation

and to judge how fair and satisfying their outcome was in this hypothetical situation. One might wonder whether similar results would be obtained were participants exposed to a situation in which they directly experience the fairness and satisfaction of their outcome. In the experimental situation developed by Van den Bos, Lind, et al. (1997, Experiment 2), participants directly experience the fairness and satisfaction of an outcome. As a second test of our predictions, therefore, the same independent variables were manipulated in an experiment using this paradigm. Furthermore, as was noted in the introduction, distributive theories emphasize the importance of social comparison information in the process of evaluating outcomes. We can ask ourselves whether participants in Experiment 1 really compared themselves with the other person (about which they had no further information than that this hypothetical person also would rent a house). To ensure that our participants in Experiment 2 would compare themselves with the other person, we tried to make the other person comparable to our participants.

Experiment 2

Method

Participants and Design

Two hundred students (78 men and 122 women) at Leiden University participated in the experiment and were paid for their participation. Participants were randomly assigned to one of the conditions of the 2 (procedure: voice, no voice) \times 5 (outcome: better than expected, worse than expected, equal to other, better than other, worse than other) factorial design. Twenty participants were assigned to each of the 10 conditions.

Experimental Procedure

Participants were invited to the laboratory to participate in a study on how people perform tasks. On arrival at the laboratory, participants were led to separate cubicles, each of which contained a computer with a monitor and a keyboard. Next to the monitor, participants found a piece of paper and a pencil. Participants were told that the computers were connected to one another and that the experimenter could communicate with them by means of the computer network. The computers were used to present the stimulus information and to collect data on the dependent variables. Participants participated in the experiment either before or after participating in other, unrelated experiments. The experiments lasted a total of 1.5 hr, and participants were paid 15 Dutch guilders (approximately US \$7.50).

In the first part of the instructions, participants were informed that they would participate in the experiment with another person, referred to as "Other." The experimental procedure was then outlined to the participants: After the experimental tasks were explained, participants would practice the tasks for 2 min, after which they would work on the tasks for 10 min. Furthermore, participants were informed that after all participants were run, a lottery would be held among all participants. The winner of this lottery would receive 100 Dutch guilders. (Actually, after all participants had completed the experiment, the 100 Dutch guilders were randomly given to one participant; a procedure to which none of the participants objected upon debriefing.) Participants were told that a total of 200 lottery tickets would be divided among all participants. Furthermore, participants were told that after the work round, the experimenter would divide some lottery tickets between them and Other. We posed six practice questions to ensure comprehension of the lottery. If participants gave a wrong answer to a question, the correct answer was disclosed, and main characteristics of the lottery were repeated.

After this practice, participants in the better-than-expected condition were informed that a good performance in the work round would yield them at least one lottery ticket. Participants in the worse-than-expected condition were informed that a good performance in the work round would yield them at least five lottery tickets. Participants in the equal-to-other, better-than-other, and worse-than-other conditions were told only that a good performance would yield them some lottery tickets.

The task was then explained to the participants. Figures would be presented on the upper right part of the computer screen. Each figure would consist of 36 squares, and each square would show one of eight distinct patterns. On the upper left side of the computer screen, one of the eight patterns would be presented, and participants would have to count the number of squares with this pattern in the figure on the right side of the screen. When participants had indicated the correct number, another figure and pattern would be presented. In both the practice round and the work round, the number of tasks that the participant had completed (i.e., the number of figures that the participant had counted) in the present round would be presented on the lower right side of the screen. On the lower left side of the screen, the time remaining in the present round would be shown.

The practice round then began, after which the work round began. After the work round had ended, participants were told how many tasks they had completed in the work round, and—in order to try to ensure that participants compared themselves to Other—we informed the participant that Other had completed an equivalent number of tasks. Participants were then told that the experimenter would divide the lottery tickets between them and Other. After this, participants were asked to think for 1 min about the percentage of lottery tickets that they should receive relative to Other and to write down this percentage on the piece of paper next to the computer. Participants were informed that at the end of the experiment, the pieces of paper would be thrown away.

The procedure that participants received was then manipulated. In the voice condition, the experimenter allegedly asked participants, by means of the computer network, to type in their opinion about the percentage of tickets that they should receive relative to Other. (In reality, however, all stimulus information was preprogrammed.) Participants in the no-voice condition were informed that they would not be asked to type their opinion about the percentage of tickets that they should receive relative to Other.

We then informed participants that they had received three lottery tickets. After this, participants in the worse-than-other condition were informed that Other had received five tickets. In the better-than-other condition, participants were informed that Other had received one ticket. In the equal-to-other condition, participants were told that Other had received three tickets. In the better-than-expected and worse-than-expected conditions, participants were told nothing about the number of tickets Other had received.

After this, participants were asked questions pertaining to the dependent variables. All ratings were made on 7-point scales. We measured outcome fairness judgments by asking participants how fair they considered receiving three lottery tickets (1 = *very unfair*, 7 = *very fair*). We assessed outcome satisfaction by asking participants how satisfied they were with receiving three lottery tickets (1 = *very dissatisfied*, 7 = *very satisfied*). We solicited procedural fairness judgments by asking participants how fair they considered the procedure used to assess the number of tickets they received (1 = *very unfair*, 7 = *very fair*). We assessed procedure satisfaction by asking participants how satisfied they were with the procedure used to assess the number of tickets that they had received (1 = *very dissatisfied*, 7 = *very satisfied*). To assess whether participants thought of Other as a comparable person, we asked them to what extent Other did his or her best in the work round relative to the participant (1 = *much worse*, 4 = *equally*, 7 = *much better*), to what extent Other was good in performing the tasks in the work round relative to the participant (1 = *much worse*, 4 = *equally*, 7 = *much*

better), and to what extent Other was comparable to the participant (1 = completely not comparable, 7 = completely comparable). When the participants had answered these questions and had completed the other experiments in which they would participate, they were thoroughly debriefed and paid for their participation.

Results

Percentage Findings

A 2 (procedure) \times 5 (outcome) analysis of variance (ANOVA) was performed on the percentages of lottery tickets that participants believed that they should get relative to the other participant and which they wrote down on the pieces of paper. This ANOVA yielded no significant effects. One hundred eighty-nine (out of 200) participants indicated that they should get 50% of the tickets. The grand mean percentage was 50.8%.

Participants who were allowed voice ($n = 100$) also typed in their opinion about the percentage of tickets that they should receive relative to the other participant. An ANOVA indicated that independent of the outcome that participants received, participants typed in that the lottery tickets should be divided equally between themselves and the other participant: Ninety-three of the participants answered that they should get 50% of the tickets, and the grand mean percentage was 50.3%. Thus, these findings are supportive of equity theory: Participants preferred to divide outcomes equally between themselves and the other participant (who contributed an equal amount of inputs, and who hence—according to equity theory—deserved to receive the same amount of outputs as the participants themselves).

Comparability Measures

The answers that participants gave on the questions that assessed whether participants thought of Other as a comparable person were subjected to a 2 (procedure) \times 5 (outcome) MANOVA. This MANOVA did not yield significant results at either the multivariate level or the univariate levels. Inspection of the means indicated that participants thought that Other had done equally his or her best in the work round ($M = 4.0$), was equally good in performing the tasks ($M = 3.9$), and was

comparable to themselves ($M = 5.4$). Thus, we can conclude that the participants thought of Other as a comparable person.

Procedure Judgments

A 2 \times 5 MANOVA on the two procedure judgments (fairness and satisfaction) showed only main effects of procedure at both the multivariate level and the univariate levels: multivariate, $F(2, 189) = 57.87, p < .001$; for procedural fairness judgments, $F(1, 190) = 54.27, p < .001$; for procedural satisfaction judgments, $F(1, 190) = 112.35, p < .001$. As was expected, participants who received an opportunity to voice their opinion judged the procedure as more fair ($M = 4.8$) and were more satisfied with the procedure ($M = 5.3$) than participants who did not receive a voice opportunity ($M = 3.1$ and $M = 3.2$, respectively).

Outcome Judgments

The means of the outcome judgments in Experiment 2 are presented in Table 2. To analyze these data, we performed the same orthogonal planned comparisons that were used in Experiment 1, again focusing on the two planned interaction contrasts that were predicted by Hypotheses 1 and 2: Hypothesis 1 predicted an interaction between procedure (voice vs. no voice) and the reference type contrast (better than expected/worse than expected vs. equal to other/better than other/worse than other), and Hypothesis 2 predicted an interaction effect between the social equality contrast (equal to other vs. better than other/worse than other) and response dimension (outcome fairness vs. satisfaction judgments). Before we conducted the contrast analyses, we tested for overall effects in a 2 (procedure) \times 5 (outcome) \times 2 (response dimension) MANOVA. After we have presented the results of this overall analysis, we will discuss the results of the contrast analyses.

Overall analysis. A 2 \times 5 \times 2 MANOVA yielded a main effect of procedure, $F(1, 190) = 4.12, p < .05$, a main effect of outcome, $F(4, 190) = 79.15, p < .001$, and a main effect of response dimension, $F(1, 190) = 23.08, p < .001$. These main effects were qualified by a significant Procedure \times Outcome effect, $F(4, 190) = 4.77, p < .01$, and an interaction

Table 2
Mean Outcome Judgments as a Function of Procedure and Outcome (Experiment 2)

Dependent variable	Outcome				
	Better than expected	Worse than expected	Equal to other	Better than other	Worse than other
Outcome fairness					
Voice procedure	5.5 _b	4.2 _c	6.4 _a	1.9 _e	2.4 _{d,e}
No voice procedure	4.2 _c	3.0 _d	6.3 _{a,b}	2.5 _{d,e}	2.6 _{d,e}
Outcome satisfaction					
Voice procedure	6.1 _a	3.1 _c	6.1 _a	4.7 _b	2.4 _{c,d}
No voice procedure	5.2 _b	2.1 _d	6.2 _a	4.7 _b	3.1 _c

Note. Entries are means on 7-point scales; higher values indicate more positive ratings of the dependent variable in question. For each dependent variable, means with no subscript in common differ significantly, as indicated by a least-significant-difference test for multiple comparisons between means ($p < .05$).

between outcome and response dimension, $F(4, 190) = 32.45$, $p < .001$. Other effects were not significant ($ps > .42$).

Contrast representing Hypothesis 1. The contrast analysis that tested Hypothesis 1 showed a main effect of procedure (as noted above with the overall analysis); an effect that was qualified by the predicted interaction between procedure and the reference type contrast (better than expected/worse than expected vs. equal to other/better than other/worse than other), $F(1, 190) = 18.15$, $p < .001$, indicating that, as predicted by Hypothesis 1, variations in procedure affected outcome judgments more strongly when outcomes varied according to expectations as opposed to social comparisons. In fact, results of least significant difference tests for multiple comparisons between means (see Table 2 for results) showed that strong procedure effects were found in the better-than-expected and worse-than-expected conditions, and no procedure effects were indicated in the equal-to-other, better-than-other, and worse-than-other conditions.

We also found a main effect of response dimension (as noted above); an effect that was qualified by a Response Dimension \times Reference Type contrast effect, $F(1, 190) = 20.41$, $p < .001$ (other effects were not significant, $ps > .38$). Thus, we replicated the effect we found in Experiment 1: Outcome fairness judgments were more strongly affected by social comparison information than by expectations, and outcome satisfaction judgments were more strongly influenced by expectation-related information than by social comparisons.

Contrast representing Hypothesis 2. The contrast analysis that was relevant to Hypothesis 2 yielded a main effect of the social equality contrast (equal to other vs. better than other/worse than other), $F(1, 190) = 228.40$, $p < .001$, and (as noted above) main effects of procedure and response dimension. More interesting, however, we also found the predicted Social Equality Contrast \times Response Dimension effect, $F(1, 190) = 31.16$, $p < .001$ (other effects were not significant, $ps > .37$). As predicted by Hypothesis 2, the difference between the equal-to-other condition and the mean of the better-than-other and worse-than-other conditions was greater for judged outcome fairness than for judged outcome satisfaction. In fact, results of a least significant difference test on the outcome fairness judgments revealed that participants in the equal-to-other condition judged their outcome as more fair than participants in the better-than-other condition and as more fair than participants in the worse-than-other condition, and that judgments of better-than-other participants did not differ from judgments of worse-than-other participants. Furthermore, a least significant difference test on participants' outcome satisfaction judgments showed that participants in the equal-to-other condition were more satisfied with their outcome than participants in the better-than-other condition and were more satisfied than participants in the worse-than-other condition, and that participants in the better-than-other condition were more satisfied than participants in the worse-than-other condition.

General Discussion

Taken together, the findings of our two experiments show that when people receive outcomes that are better or worse than expected, they indeed use procedural fairness—as a heuristic

substitute—to assess how to react to their outcome (resulting in strong fair process effects) but that they rely less on procedure information when they receive outcomes that are equal to, better than, or worse than those of comparison others (yielding less strong fair process effects). Furthermore, we found this both when people judged a hypothetical outcome (Experiment 1) and when they directly experienced the outcome (Experiment 2).

The findings of the present study support pleas in recent articles (e.g., Brockner & Wiesenfeld, 1996; Cropanzano & Folger, 1991; Van den Bos, Lind, et al., 1997; Van den Bos, Vermunt, & Wilke, 1997) proposing an integration of different perspectives held by procedural and distributive justice researchers. In the present article, we have tried to integrate the procedural and distributive justice domains by paying attention to the psychology of the frequently replicated fair process effect, and our findings show new refined insights into the psychology of this effect. Van den Bos, Lind, et al. (1997) provided some first data on fairness heuristic theory's notion that to explain the fair process effect we must carefully assess what information is available to people when forming outcome judgments. However, it was not clear whether the Van den Bos, Lind, et al. results might have been showing attenuation of the fair process effect when any solid outcome reference point is available. The present studies reveal that it is not just a question of any reference point (such as expectations), but rather specifically social comparison equity information that matters. If people lack such an unambiguous, relevant reference point about outcomes, they rely on other information, such as procedure information, when assessing how to respond to their outcome.

Future research may be needed to determine which sorts of outcome information attenuate the fair process effect and which do not. Our findings, however, make it clear that social comparison equity information can lessen or even obliterate fair process effects. We hope that by showing—in the absence of better data—that procedures can be used as proxies for social-comparison-based information, the current article may help broaden the scope of the interesting literature on reference points (see Boles & Messick, 1995; Loewenstein et al., 1989; and Messick & Sentis, 1985, for overviews).

It is possible, of course, that we found the interaction effects we did because our manipulations of outcome expectations were not strong enough to be informative to our participants. That is, perhaps if we had used stronger expectation manipulations (cf. Van den Bos et al., 1996), our participants would have found little reason to refer to procedure in evaluating the outcomes. We believe there are several things that argue against this interpretation of the findings. First, we matched the objective magnitude of the social-comparison-based and the expectation-based manipulations. This does not guarantee that the two sorts of conditions had similar subjective meaning, but it does suggest that the manipulations were probably similarly potent. Second, a total of 500 participants took part in our experiments, thus enhancing the statistical power of our findings. Third, the means in the better-than-expected and worse-than-expected conditions in both studies make it clear that our expectation manipulations were potent enough to have substantial impact on outcome evaluations. And fourth, the substantial research literature on the fair process effect contains instances of the effect in the context

of very strong variations of outcome expectations (see Lind & Tyler, 1988; Tyler & Lind, 1992).

Our findings also yielded differential effects on outcome fairness and satisfaction judgments. That is, the difference between the equal-to-other condition versus better-than-other and worse-than-conditions was greater for judged fairness than for judged satisfaction. This pattern of effects nicely replicated the results reported by Van den Bos, Lind, et al. (1997) and suggests that satisfaction judgments are more strongly affected by relative egoism than fairness judgments. Moreover, in accordance with the work by Blau (1964) and Austin et al. (1980), we found that outcome variations relative to social comparisons were more directly related to fairness than were outcome variations relative to expectations. These results show that although outcome fairness and favorability are closely related, they are different and that people may differentially form judgments on these two dimensions of outcome evaluation. This suggests that researchers should not confuse these two types of judgments and that they should draw an explicit distinction between outcome fairness and favorability, a distinction that has been largely overlooked since the Messick and Sentis (1983) work.

We can ask ourselves whether people also make a distinction between *procedure* fairness and favorability. In the present studies, given our manipulations, we did not expect differential effects on procedure judgments (and we did not find them). Following Lind et al. (1990), we have investigated the fair process effect by manipulating whether participants received an opportunity to voice their opinion and by measuring whether participants' outcome judgments were more positive following a voice procedure than a no-voice procedure (the former procedure having been identified in Experiment 2 as more fair). Furthermore, there is widespread consensus that voice is the most important and most prototypical procedure investigated in procedural justice research and that voice is commonly perceived as a more fair procedure than no voice (see, e.g., Lind et al., 1990; Lind & Tyler, 1988; Tyler & Lind, 1992; Van den Bos, Vermunt, & Wilke, 1996). Findings of Experiment 2, however, indicate that a voice procedure is judged not only as more fair but also as more satisfying than a no-voice procedure. This suggests that in the present study, fair process effects and favorable process effects tended to converge. In the future, researchers may want to investigate whether the same pattern of results will be found if procedural fairness and favorability pertain to issues other than voice (e.g., reversibility or accuracy) and may want to explore under what conditions procedure fairness and favorability differ. The present findings point out, however, that people can draw a distinction between *outcome* fairness and favorability, and we hope that our findings may stimulate future researchers to draw a distinction between *procedure* fairness and favorability.

The current findings are especially important in light of research evidence that has been interpreted as showing that people react similarly to outcome favorability and outcome fairness (cf. Liebrand, Messick, & Wolters, 1986; Messick, Bloom, Boldizar, & Samuelson, 1985; Messick & Sentis, 1979, 1983) and in light of the recent tendency of some researchers to equate these two dimensions of outcome evaluation (Brockner & Siegel, 1996; Brockner & Wiesenfeld, 1996; Brockner, Wiesenfeld, & Martin, 1995; Cropanzano & Folger, 1991). The present

findings suggest that equating the two concepts may lead one to draw wrong conclusions regarding major research findings in the domain of procedural and distributive justice, because doing so can create a sense of ambiguity and uncertainty as to whether these findings have been caused by outcome fairness or merely by outcome favorability (Cropanzano & Greenberg, 1997). Moreover, we argue that paying attention to the divergence between the two concepts may lead to the development of two sets of theoretical lines of thought: one set for judged fairness (and related concepts, such as justice and equity) and another set for judged favorability (and related notions, such as satisfaction, wants, and preferences; see Messick & Sentis, 1983).

If this interpretation of our findings is correct, the present study is the first to directly provide supportive evidence for fairness heuristic theory's hypothesis that people need not just any reference point (e.g., expectations) but specific fairness information (e.g., social-comparison-based equity information) to decide how to behave in social interactions. Thus, compared with previous studies on fairness heuristic theory and other research on social justice, the present studies tell us something that is very fundamental with regard to social justice. That is, the present work reveals that people may react differently when dealing with issues related to outcome fairness as opposed to outcome favorability. This finding is important, because until one makes an explicit distinction between fairness and favorability, many of our justice theories may be suspect. The present findings, therefore, may serve as an important first step toward focusing on the divergence as well as the convergence of what is judged to be fair and just versus what is perceived as favorable and satisfying. Future researchers may thus want to explore the relationship between social justice and other important social motives. The present article on fairness heuristic theory's substitutability proposition may help pave the way for this future avenue of social justice research.

References

- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 267–299). New York: Academic Press.
- Austin, W., McGinn, N. C., & Susmilch, C. (1980). Internal standards revisited: Effects of social comparisons and expectancies on judgments of fairness and satisfaction. *Journal of Experimental Social Psychology, 16*, 426–441.
- Blau, P. M. (1964). *Exchange and power in social life*. New York: Wiley.
- Boles, T. L., & Messick, D. M. (1995). A reverse outcome bias: The influence of multiple reference points on the evaluation of outcomes and decisions. *Organizational Behavior and Human Decision Processes, 61*, 262–275.
- Brockner, J., & Siegel, P. (1996). Understanding the interaction between procedural and distributive justice: The role of trust. In R. M. Kramer & T. R. Tyler (Eds.), *Trust in organizations: Frontiers of theory and research* (pp. 390–413). Thousand Oaks, CA: Sage.
- Brockner, J., & Wiesenfeld, B. M. (1996). An integrative framework for explaining reactions to decisions: Interactive effects of outcomes and procedures. *Psychological Bulletin, 120*, 189–208.
- Brockner, J., Wiesenfeld, B. M., & Martin, C. L. (1995). Decision frame, procedural justice, and survivors' reactions to job layoffs. *Organizational Behavior and Human Decision Processes, 63*, 59–68.

- Buunk, B. P., & Van Yperen, N. W. (1989). Social comparison, equality, and relationship satisfaction: Gender differences over a ten-year period. *Social Justice Research, 3*, 157–180.
- Cropanzano, R., & Folger, R. (1991). Procedural justice and worker motivation. In R. M. Steers & L. W. Porter (Eds.), *Motivation and work behavior* (Vol. 5, pp. 131–143). New York: McGraw-Hill.
- Cropanzano, R., & Greenberg, J. (1997). Progress in organizational justice: Tunneling through the maze. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 317–372). New York: Wiley.
- Crosby, F. (1976). A model of egoistical relative deprivation. *Psychological Review, 83*, 85–112.
- deCarufel, A., & Schopler, J. (1979). Evaluation of outcome improvement resulting from threats and appeals. *Journal of Personality and Social Psychology, 37*, 662–673.
- Furby, L. (1986). Psychology and justice. In R. L. Cohen (Ed.), *Justice: Views from the social sciences* (pp. 153–203). New York: Plenum.
- Lerner, M. J., & Whitehead, L. A. (1980). Procedural justice viewed in the context of justice motive theory. In G. Mikula (Ed.), *Justice and social interaction: Experimental and theoretical contributions from psychological research* (pp. 219–256). Bern, Austria: Huber.
- Liebrand, W. B. G., Messick, D. M., & Wolters, F. J. M. (1986). Why are we fairer than others: A cross-cultural replication and extension. *Journal of Experimental Social Psychology, 22*, 590–604.
- Lind, E. A. (1992, March). *The fairness heuristic: Rationality and "rationality" in procedural evaluations*. Paper presented at the Fourth International Conference of the Society for the Advancement of Socio-Economics, Irvine, CA.
- Lind, E. A. (1994). *Procedural justice, disputing, and reactions to legal authorities* (ABF Working Paper No. 9403). Chicago: American Bar Foundation.
- Lind, E. A. (1995). Justice and authority relations in organizations. In R. Cropanzano & K. M. Kacmar (Eds.), *Politics, justice, and support: Managing the social climate of work organizations*. (pp. 83–96). Westport, CT: Quorum.
- Lind, E. A. (1998). Procedural justice, disputing, and reactions to legal authorities. In A. Sarat, M. Constable, D. Engel, V. Hans, & S. Lawrence (Eds.), *Everyday practices and problem cases* (pp. 177–198). Evanston, IL: Northwestern University Press.
- Lind, E. A., Kanfer, R., & Earley, P. C. (1990). Voice, control, and procedural justice: Instrumental and noninstrumental concerns in fairness judgments. *Journal of Personality and Social Psychology, 59*, 952–959.
- Lind, E. A., Kulik, C. T., Ambrose, M., & De Vera Park, M. V. (1993). Individual and corporate dispute resolution: Using procedural fairness as a decision heuristic. *Administrative Science Quarterly, 38*, 224–251.
- Lind, E. A., & Tyler, T. R. (1988). *The social psychology of procedural justice*. New York: Plenum.
- Loewenstein, G. F., Thompson, L., & Bazerman, M. H. (1989). Social utility and decision making in interpersonal contexts. *Journal of Personality and Social Psychology, 57*, 426–441.
- Messick, D. M., Bloom, S., Boldizar, J. P., & Samuelson, C. D. (1985). Why are we fairer than others? *Journal of Experimental Social Psychology, 21*, 480–500.
- Messick, D. M., & Sentsis, K. (1979). Fairness and preference. *Journal of Experimental Social Psychology, 15*, 418–434.
- Messick, D. M., & Sentsis, K. (1983). Fairness, preference, and fairness biases. In D. M. Messick & K. S. Cook (Eds.), *Equity theory: Psychological and sociological perspectives* (pp. 61–94). New York: Praeger.
- Messick, D. M., & Sentsis, K. (1985). Estimating social and nonsocial utility functions from ordinal data. *European Journal of Social Psychology, 15*, 389–399.
- Rutte, C. G., & Messick, D. M. (1995). An integrated model of perceived unfairness in organizations. *Social Justice Research, 8*, 239–261.
- Stouffer, S. A., Suchman, E. A., DeViney, L. C., Star, S. A., & Williams, R. M. (1949). *The American soldier: Adjustment during army life* (Vol. 1). Princeton, NJ: Princeton University Press.
- Thibaut, J., & Kelley, H. H. (1959). *The social psychology of groups*. New York: Wiley.
- Tyler, T. R., & Lind, E. A. (1992). A relational model of authority in groups. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 115–191). San Diego, CA: Academic Press.
- Van den Bos, K. (1996). *Procedural justice and conflict*. Unpublished doctoral dissertation, Leiden University, Leiden, the Netherlands.
- Van den Bos, K., Lind, E. A., Vermunt, R., & Wilke, H. A. M. (1997). How do I judge my outcome when I do not know the outcome of others?: The psychology of the fair process effect. *Journal of Personality and Social Psychology, 72*, 1034–1046.
- Van den Bos, K., Lind, E. A., & Wilke, H. A. M. (in press). The psychology of procedural and distributive justice viewed from the perspective of fairness heuristic theory. In R. Cropanzano (Ed.), *Justice in the workplace: Volume 2. From theory to practice*. Hillsdale, NJ: Erlbaum.
- Van den Bos, K., Vermunt, R., & Wilke, H. A. M. (1996). The consistency rule and the voice effect: The influence of expectations on procedural fairness judgements and performance. *European Journal of Social Psychology, 26*, 411–428.
- Van den Bos, K., Vermunt, R., & Wilke, H. A. M. (1997). Procedural and distributive justice: What is fair depends more on what comes first than on what comes next. *Journal of Personality and Social Psychology, 72*, 95–104.
- Walker, L., LaTour, S., Lind, E. A., & Thibaut, J. (1974). Reactions of participants and observers to modes of adjudication. *Journal of Applied Social Psychology, 4*, 295–310.

Received October 22, 1997

Revision received December 9, 1997

Accepted December 11, 1997 ■