How Do I Judge My Outcome When I Do Not Know the Outcome of Others? The Psychology of the Fair Process Effect

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On the basis of fairness heuristic theory, the authors provide an explanation of the frequently replicated fair process effect (the finding that perceived procedural fairness positively affects how people react to outcomes). The authors argue that, in many situations, people may find it difficult to assess whether their outcome is fair or unfair and satisfying or unsatisfying because they only have information about their own outcome and they do not know the outcomes of others and that, in these situations, people use the fairness of the procedure as a heuristic substitute to assess how to judge their outcome. The results of 2 experiments corroborate the authors' line of reasoning. Findings are discussed in terms of recent developments toward an integration of the procedural and distributive justice domains.

Justice is a key issue for understanding social behavior (Brockner, 1990, 1994; Brockner & Greenberg, 1990; Cropanzano & Folger, 1989, 1991; Cropanzano & Greenberg, in press; Folger & Konovsky, 1989; Greenberg, 1986, 1987b, 1990, 1993; Greenberg & Folger, 1983; Lind, 1995). Social psychologists have proposed a number of theories that deal with people's concerns about justice. Early conceptions of justice, such as that included in equity theory (Adams, 1965; Walster, Berscheid, & Walster, 1973; Walster, Walster, & Berscheid, 1978), argued that people judge an outcome as fair when the ratio of their own inputs and outputs equals the ratio of inputs and outputs of comparison others. Equity theory and other related conceptions of justice, such as relative deprivation theory (Crosby, 1976; Stouffer, Suchman, DeVinney, Star, & Williams, 1949) and the conceptions of Blau (1964), Deutsch (1975, 1985), and Homans (1961), are theories of distributive justice because they focus on the fairness of outcomes that people receive. Although issues of distributive justice are critical in social behavior and were the first to capture the attention of social psychologists, they constitute only part of the story: Social justice concerns include questions about the fairness of processes and procedures as well as questions about the fairness of outcomes (Brockner et al., 1994; Brockner, Wiesenfeld, & Martin, 1995; Folger, 1977; Folger & Konovsky, 1989; Folger & Martin, 1986; Greenberg, 1987b, 1990; Lind & Tyler, 1988; Tyler & Lind, 1992).

One of the most striking contributions of the work on social justice, and one of the most frequently replicated findings in social psychology, is the discovery that perceived procedural fairness positively affects how people react to their outcome (Folger, 1977; Folger, Rosenfield, Grove, & Corkran, 1979; Walker, LaTour, Lind, & Thibaut, 1974). Following Folger et al., several authors have labeled this the *fair process effect* (Greenberg & Folger, 1983; Lind & Earley, 1992; Van den Bos, Vermunt, & Wilke, 1997). Fair process effects have been found in laboratory experiments (Folger et al., 1979; Folger, Rosenfield, & Robinson, 1983; Greenberg, 1987a, 1987c, 1993; Kanfer, Sawyer, Earley, & Lind, 1987; Lind, Kanfer, & Earley, 1990; Lind, Kurtz, Musante, Walker, & Thibaut, 1980; Van den Bos et al., 1997; Walker et al., 1974) and in survey studies conducted with respondents involved in settings such as organizations (Folger & Konovsky, 1989), court trials (Lind, Kulik, Ambrose, & De Vera Park, 1993; Tyler, 1994), police–citizen encounters (Tyler & Folger, 1980), and political situations (Tyler & Caine, 1981, Studies 2 and 4; Tyler & DeGoey, 1995; Tyler & Folger, 1980; Tyler, Rasinski, & McGraw, 1985). In the Lind et al. (1990) experiment, for example, the goal (number of tasks to be completed) served as the outcome, and the experiment manipulated whether participants were or were not allowed an opportunity to voice their opinion about the goal they were

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assigned. Findings revealed a fair process effect: Participants who were allowed to voice their opinions not only judged the procedure as more fair, but also judged their outcome as more fair than did participants who were not allowed to voice their opinions.

Thus, numerous studies have shown the robustness of the fair process effect. Indeed, the fair process effect is one of the most important factors that have led some procedural justice researchers to conclude that the formation of overall justice judgments is more strongly affected by procedures than by outcomes (see, e.g., Lind & Tyler, 1988, p. 1). This has led to the current situation, namely, that procedural justice research tends to focus on one aspect of the cognitive process leading to fairness and other judgments: procedures. Distributive justice researchers, on the other hand, also tend to focus on one aspect of the fairness judgment process: outcomes. Some researchers have even suggested that outcomes may be more important for people's fairness judgments than procedures (e.g., Lerner & Whitehead, 1980; Rutte & Messick, 1995). Thus, both procedural and distributive justice research have tended to focus on only one aspect of the fairness judgment process at the expense of other important concepts. As several authors have pointed out, it is now time to integrate the procedural and distributive justice domains (Brockner & Wiesenfeld, 1996; Cropanzano & Folger, 1991; Folger, 1984; Greenberg, 1986, 1990; Sweeney & McFarlin, 1993; Tyler, 1994; Van den Bos et al., 1997).

The primary aim of the present article is to try to integrate the procedural and distributive justice domains by establishing how people form outcome judgments by paying particular attention to the psychology of the fair process effect. To achieve this purpose, we introduce a theory that provides a deeper understanding of the relationship between procedural and distributive justice and that we hope will provide a point of departure for integrating the two research domains. Our analysis of the psychology of the fair process effect may yield an as yet unidentified and unexplored explanation of this effect (for an overview of other explanations, see Greenberg & Folger, 1983; Lind & Tyler, 1988, Chapter 9).

Fairness Heuristic Theory

Fairness heuristic theory (Lind, 1992, 1994; Lind et al., 1993; Van den Bos et al., 1997) is based on two earlier theoretical formulations: the group-value model of procedural justice (Lind & Tyler, 1988) and the relational model of authority (Tyler & Lind, 1992). Fairness heuristic theory provides a psychological analysis of how people form fairness judgments and why: The theory assumes that, because ceding authority to another person provides an opportunity for exploitation and exclusion, people frequently feel uncertain and uneasy about their relationship with an authority. Therefore, the theory argues, people may ask themselves whether the authority can be trusted not to exploit them or threaten their social identity (cf. Huo, Smith, Tyler, & Lind, 1996; Lind & Tyler, 1988; Tyler & Lind, 1992). It is further argued that the most common approach to the resolution of this uncertainty is to refer to impressions of fairness. The theory argues that once a person has established a fairness judgment, perceived fairness serves as a heuristic that guides the interpretation of subsequent events.

Three elements of fairness heuristic theory offer explanations for why and when procedural information can affect judgments of outcomes (Van den Bos, 1996). The first element holds that, in comparison with an outcome, a procedure reveals more of what an authority thinks about the recipient of the procedure: Does the authority trust me? Am I treated in a neutral manner? Am I accorded the appropriate standing? Am I included in the group, organization, or society in question? Fairness heuristic theory states that people often think procedural information is especially diagnostic with respect to their inclusion in the group or organization, and they reciprocate this message of belongingness by being more accepting of less than ideal outcomes. Some recent research by Huo et al. (1996) showed that, as the theory predicts, process-linked perceptions have a greater impact on distributive fairness judgments in intragroup settings, where inclusion is presumably a more potent consideration, than in intergroup settings.

The second element was developed by Van den Bos et al. (1997). The starting point for that article was fairness heuristic theory's notion that once people have established fairness judgments (either procedural or distributive fairness), perceived fairness serves as a heuristic that guides the evaluation of subsequent events. On the basis of this notion, Van den Bos et al. argued that fairness judgments are more strongly influenced by information that is available in an earlier stage of interaction with the authority than by information that becomes available later. Furthermore, it was reasoned that, most of the time, information about the procedure is available before information about the outcome. For example, the manner in which a court trial is conducted is usually known before the verdict becomes apparent. Because information about the procedure is available earlier, and outcome information is not available until later, this element of fairness heuristic theory proposes that people form their fairness judgments on the basis of the fairness of the procedure and subsequently incorporate outcome information into their fairness judgments. This explains why so many studies have found that procedure information strongly affects people's outcome fairness judgments (i.e., fair process effects). Van den Bos et al. (1997) tested this prediction by making outcome information available either before or after process information and found, as predicted by the theory, that the first information, whether procedural or distributive, sets the stage for the interpretation of later fairness information. Of particular interest here, is the finding that the fair process effect on outcome evaluations was strongest when procedural information preceded outcome information, as predicted by fairness heuristic theory.

A third, and as yet unexplored, element of fairness heuristic theory is that concerns related to procedural fairness may be easier to interpret than those related to distributive fairness. For instance, people may find it easier to assess whether they have been treated politely and with dignity in a courtroom than to determine whether the fine that they received—as a result of the courtroom proceedings—is fair (Lind, 1994). This element has not been explored in the work by Huo et al. (1996), by Van den Bos et al. (1997), or by any other social justice research. Therefore, Van den Bos (1996) suggested that to achieve a further integration of the procedural and distributive justice orientations, future research should systematically investigate whether, in addition to the unique qualities that people may

ascribe to procedures and outcomes (Tyler & Lind, 1992) and the order in which people are informed about procedures and outcomes (Van den Bos et al., 1997), ease of interpretation might serve as a third explanation for the fair process effect.

Thus, ease of interpretation might serve as a third factor affecting people's judgments of fairness. How might the effects of this factor be investigated? Or, why are procedures easier to interpret than outcomes? More specific, under what conditions are procedures easier to interpret? A useful starting point for exploring these issues might be the notion that, in contrast with theories about procedural justice, distributive theories—such as equity theory and relative deprivation theory—all emphasize the importance of social comparison information in the process of evaluating the fairness of outcomes (see, e.g., Messick & Sentis, 1983). We argue that this suggests that when you only have information about the outcome of your own trial, you may indeed, as Lind (1994) has argued, find it quite difficult to assess whether the fine you have received is fair or unfair. However, we also propose that this may be a far less difficult task when you know what outcome someone else in a similar case has received. Therefore, we specify two important conditions under which people form outcome judgments: The condition in which people do know the outcomes of other people versus the condition in which they do not know the outcomes of others. Furthermore, we argue that it is easier for people to interpret their own outcome when they know the outcomes of others than when they do not know the outcomes of others. Below, we introduce the most generally accepted answer to the question of how outcome fairness judgments are formed, and we analyze whether this answer is valid under both of the above-identified conditions or under one condition only.

How Do People Form Outcome Judgments?

The most generally accepted answer to the question of how outcome fairness judgments are formed is provided by distributive justice theories. In contrast with theories of procedural justice, distributive theories—such as equity theory—all emphasize the importance of social comparison information in the process of evaluating outcomes. As argued by Messick and Sentis (1983), the comparison of a person's outcome with those of comparison others influences the person's beliefs about the fairness or justice of his or her outcome and affects how satisfied he or she is with this outcome.

However, we propose that the issue of how people form outcome judgments is more complicated than is suggested by equity theory and other distributive justice theories. That is, we argue that quite frequently people do not know the outcomes of others. For instance, in everyday life we often do not know the salaries of the people we work with. Furthermore, even if we do, we may well not have a good idea of their contributions. To give a second example: In the Lind et al. (1990) experiment, participants only received information about their own outcome and were not informed about the outcome of another participant.

How do people respond to receiving an outcome when they do not know the outcomes of others? The above-identified third element of fairness heuristic theory provides an answer to this question. Fairness heuristic theory argues explicitly that, to explain how people form fairness judgments, we have to know what information is available to people. Furthermore, it is reasoned that when persons do not have information about the outcomes of others they will use the information that is available. This suggests that in such situations people may turn to the fairness of the procedure to judge the fairness of their outcome and how satisfied they are with their outcome. In other words, we argue that in the condition in which people do not know the outcomes of other people, procedure information will be easier to interpret than outcome information. More specific, in situations in which a person only knows his or her own outcome (and is not informed about the outcome of another person), we expect a fair process effect: The person will judge his or her outcome as more fair and will be more satisfied with the outcome following a fair procedure than following an unfair procedure.

However, we also propose that when a person does have information about the outcome of another person, he or she will use this social comparison information to assess how fair his or her outcome is and how satisfied he or she is with the outcome. In other words, we argue that when people do have information about the outcomes of other people, procedure information is not easier to interpret than outcome information. Therefore, we expect weaker fair process effects in situations in which a person does know that he or she has received a better outcome than another person, has received a worse outcome than another person, or has received an equal outcome to another person (compared with situations in which persons do not know the outcomes of others). Thus, we predict that in situations in which people do not know the outcomes of others, outcome fairness judgments and outcome satisfaction perceptions will differ more as a function of whether people have received a fair procedure as opposed to an unfair procedure than they will in situations in which people do have information about the outcomes of others (Hypothesis 1).

It should be noted here, however, that Hypothesis 1 runs contrary to the conventional wisdom in the procedural justice literature (e.g., Lind & Tyler, 1988). That is, on the basis of this literature, one would expect that even in situations in which people do have information about the outcomes of others, they may continue to place greater emphasis on process information. For example, Lind and Tyler (1988) have argued that people are "more interested in issues of process than issues of outcome" (p. 1). Furthermore, it has been argued that, in many circumstances, people are used to relying on procedure information and that they therefore always place strong emphasis on such information (Lind, 1994). This suggests that the fair process effect may remain strong even in high outcome interpretability conditions (e.g., because people always weigh procedure information more heavily than outcome information or because they are accustomed to placing so much emphasis on process, or both). Therefore, as an alternative, one could hypothesize that not only in situations in which people do not know the outcomes of others, but also in situations in which people do have information about the outcomes of others, strong fair process effects will occur (Hypothesis 1_{alt}).

Differential Effects on Outcome Satisfaction and Fairness

An additional aim of this article involves the difference between the concepts of outcome fairness and outcome satisfaction

in situations in which information about others is available. Although the concepts of fairness and satisfaction are interrelated, they are different concepts, and it is important not to confuse them (Austin, McGinn, & Susmilch, 1980; Blau, 1964; Messick & Sentis, 1983). In fact, within situations in which people know the outcome of another person, we expected different effects on outcome satisfaction judgments than on outcome fairness judgments.

The main dependent variable in equity research has been people's outcome satisfaction. Following equity theory (e.g., Adams, 1965; Austin et al., 1980; Austin & Walster, 1974; Buunk & Van Yperen, 1989), we argue that an individual who is faced with inequity will feel distressed and will be less satisfied than an individual who is faced with equity. As noted by Adams (1965): "There can be little doubt that inequity results in dissatisfaction" (p. 283). Furthermore, following Adams (1965), we propose that in the inequity conditions some relative egoism will affect people's satisfaction judgments. That is, when people are made angry by a *disadvantageous* inequity there are two sources of negative affect: the injustice and the relative deprivation of lacking what the other person has received. When made guilty by an *advantageous* inequity, there is one source of negative affect and one source of positive affect: The negative source is the guilt about being unfairly advantaged, whereas the source of positive affect is the egoism-based pleasure of having a relatively good outcome. 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 who are confronted with advantageous inequity will feel uncomfortable but will be more satisfied than persons who are confronted with disadvantageous inequity. Thus, we predicted that a person who receives an outcome that is equal to the outcome of another person will be more satisfied than a person who receives an outcome that is more than the outcome of another person, and we expected that the individual who receives an outcome that is more than another individual will be more satisfied than an individual who receives an outcome that is less than the outcome of another individual (Hypothesis 2a).

However, we expected different effects on people's judgments of outcome fairness within situations in which people knew the outcome of another person. This is because a person who receives an outcome that is equal to the outcome of another person receives an equitable outcome and hence receives a fair outcome, whereas a person who receives more than another person and a person who receives less than another person receive inequitable outcomes and hence receive unfair outcomes. Thus, we predicted that a person who receives an outcome that is equal to the outcome of another person will judge his or her outcome as more fair than will both a person who receives more than another person and a person who receives less than another person and that these last two persons will not differ in their outcome fairness judgments (Hypothesis 2b).

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 experimental method we used was similar to that of Van den Bos, Vermunt, and Wilke (1996, Experiment 1). In the scenarios, participants were asked to imagine that they were participating in an experiment with another person. 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 either better than the outcome of the other participant, worse than that of the other participant, or equal to the outcome of the other participant, or participants did not know the outcome of the other participant. Outcome relative to the other participant was varied while the absolute level of the outcome that participants themselves received was held constant. Participants' outcome satisfaction judgments and their outcome fairness judgments were the dependent variables.

Method

Participants and design. One hundred and fifty-seven students (42 men and 115 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) × 4 (outcome of other participant: unknown, better, worse, equal) factorial design.

Experimental procedure. Participants read the scenario and answered the questions that constituted the dependent variables before or after participating in other, unrelated experiments. The experiments lasted a total of 1.5 hrs, and participants were paid 15 Dutch guilders. 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:

> You are participating in an experiment. You participate in the experiment with another person (Other). After all participants have participated in the experiment, a total of 200 lottery tickets will be divided among all participants. After you and Other have participated in the experiment, some lottery tickets will be divided between you and Other.

This was followed by the manipulation of procedure. Participants read the following sentences (manipulated information in italics):

> Before the experimenter decides about how the tickets should be divided between you and Other, the experimenter gives you *voice/no voice:* The experimenter *asks you/does not ask you* to voice your opinion about the percentage tickets that you should receive relative to Other.

After this, participants read the following sentence:

> The experimenter gives you 3 lottery tickets.

This was followed by the manipulation of outcome of other participant. In the conditions in which the outcome of the other participant was better, worse, or equal, participants read the following sentence (manipulated information in italics):

> Other receives *5 tickets/1 ticket/3 tickets.*

This last sentence was not presented to the participants in the other unknown condition.

After participants read the scenario, they were asked questions pertaining to the dependent variables. All ratings were made on 7-point scales. Outcome satisfaction was assessed by asking participants how

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

Dependent variable	Outcome of other participant			
	Unknown	Better	Worse	Equal
Outcome satisfaction				
Voice	$5.1_{a,b}$	2.6_{c}	4.1_{b}	5.4_{a}
No voice	3.1_{d}	2.8_{c}	4.2_{b}	5.3_{a}
Outcome fairness				
Voice	5.1_{b}	2.3_{c}	2.0_{c}	6.1_{a}
No voice	3.0_{d}	$2.4_{c,d}$	2.1_{c}	6.1_{a}

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 subscripts in common differ significantly, as indicated by a least significant difference test for multiple comparisons between means ($p < .05$).

satisfied they were with the 3 lottery tickets that they received (1 = *very dissatisfied*, 7 = *very satisfied*). Outcome fairness judgments were solicited by asking participants how fair they considered the 3 lottery tickets that they received (1 = *very unfair*, 7 = *very fair*).[1]

Results

The means of the outcome judgments in Experiment 1 are presented in Table 1. To analyze the data, we first conducted a 2 × 4 multivariate analysis of variance (MANOVA) on the two outcome judgments (satisfaction and fairness). This MANOVA showed a main effect of outcome, $F(6, 296) = 44.35$, $p < .001$, a main effect of procedure, $F(2, 148) = 3.41$, $p < .04$, and a significant Procedure × Outcome interaction, $F(6, 296) = 4.10$, $p < .01$. To test Hypothesis 1 more precisely, we collapsed the three conditions with information regarding Other's outcomes, thus yielding an information versus no-information contrast, and we tested this contrast in combination with the procedure variable in a 2 × 2 MANOVA. This MANOVA indicated only a main effect of procedure, $F(2, 152) = 4.97$, $p < .01$, and an interaction effect, $F(2, 152) = 5.63$, $p < .01$. These analyses were followed by performing, for each outcome judgment, a 2 × 4 analysis of variance (ANOVA), a 2 × 2 ANOVA, and a least significant difference test for multiple comparisons between means ($p < .05$).

A 2 × 4 ANOVA on participants' outcome satisfaction answers yielded only a main effect of outcome, $F(3, 149) = 19.23$, $p < .001$, as well as an interaction effect between procedure and outcome, $F(3, 149) = 4.23$, $p < .01$. A 2 × 2 ANOVA, which contrasted the information versus no-information variable with the procedure variable, showed only a main effect of procedure, $F(1, 153) = 8.46$, $p < .01$, and an interaction effect, $F(1, 153) = 9.41$, $p < .01$. In accordance with Hypothesis 1, the results of a least significant difference test showed that participants who did not know the outcome of the other participant were more satisfied with their outcome following an opportunity to voice their opinion than following no opportunity to voice their opinion. However, in contrast with Hypothesis 1_{alt}, but in agreement with Hypothesis 1, our results also revealed that in the conditions in which participants were informed about the outcome of the other participant (better, worse, or equal), participants who received voice were as much satisfied with their outcome as participants who did not receive voice. Furthermore, in line with Hypothesis 2a, we found that participants who received an equal number of lottery tickets as the other participant were more satisfied with their outcome than participants who received more tickets than the other participant and were more satisfied than participants who received fewer tickets than the other participant. We also found that participants who received more tickets than the other participant were more satisfied with their outcome than were participants who received fewer tickets than the other participant.

A 2 × 4 ANOVA on participants' outcome fairness judgments showed a main effect of outcome, $F(3, 149) = 97.45$, $p < .001$, and a main effect of procedure, $F(1, 149) = 6.31$, $p < .02$; effects that were qualified by a significant interaction, $F(3, 149) = 8.07$, $p < .001$. A 2 × 2 ANOVA yielded only a main effect of procedure, $F(1, 153) = 7.43$, $p < .01$, and an interaction effect, $F(1, 153) = 8.62$, $p < .01$. In line with Hypothesis 1, our results showed that participants who did not know the outcome of the other participant judged their outcome as more fair when they had received an opportunity to voice their opinion than when they had not received such an opportunity. Our findings furthermore yielded additional evidence for Hypothesis 1 because we found that in the conditions in which participants knew the outcome of the other participant, outcome fairness judgments did not differ as a function of whether participants were or were not allowed a voice. Furthermore, our results yielded differential effects on outcome fairness judgments than on outcome satisfaction judgments: In agreement with Hypothesis 2b, we found that participants who received an equal number of lottery tickets judged their outcome as more fair than did participants who received more tickets than the other participant and participants who received less tickets than the other participant. We also found that judgments of participants who received more tickets did not differ from judgments of participants who received fewer tickets.

Discussion

The findings of Experiment 1 yield strong support for our line of reasoning: In situations in which people do not know the outcomes of others, they may find it difficult to assess whether their outcome is fair or unfair and satisfying or unsatisfying, and they 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 have information about the outcomes of others will rely less on procedure information, yielding less strong (in Experiment 1, even absent) fair process effects on the outcome judgments of these persons.

Furthermore, the results of Experiment 1 also showed differ-

[1] For the sake of brevity, we only present participants' fairness judgments. In both Experiments 1 and 2, however, we also measured how just participants considered the outcome that they received. Furthermore, in Experiment 2 we have assessed how just participants judged the procedure. The results of these justice judgments were similar to the fairness judgment findings.

ential effects on perceived outcome satisfaction and outcome fairness. That is, our findings show that in situations in which persons know the outcome of another person, a person who receives an outcome that is less than the outcome of the other person is less satisfied than a person who receives an outcome that is more 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 that of another person. We also found, however, that persons who received an outcome that was more or less than the outcome of another person did not differ in their outcome fairness judgments and judged their outcomes as less fair than did persons who received outcomes that were equal to the outcome of someone else.

The only study that we know of that has taken into consideration the effects of social comparison information on both outcome fairness judgments and perceived outcome satisfaction is the Austin et al. (1980) study. In Austin et al. (1980, Experiment 1), participants received an outcome ($2.00) that was better than that of another participant (other received $1.50), worse than that of the other participant (other received $2.50), or equal to that of the other participant. Unfortunately, however, the results of both of the Austin et al. experiments failed to confirm the predictions with regard to participants' satisfaction judgments. That is, Austin et al. unexpectedly found that although underrewarded participants were less satisfied than equally rewarded participants, the satisfaction judgments of overrewarded and equally rewarded participants did not differ. Our findings suggest that the manipulations in our experiment may have been more precise than the manipulations in earlier studies (yielding significant effects in our experiments but not in those of others).

Thus, it can be concluded not only that our findings yielded evidence for our analysis of how outcome judgments are formed and provide an explanation of the fair process effect, but also that our findings are among the first to show differential effects on outcome satisfaction and outcome fairness judgments. In Experiment 1, however, 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 when participants are 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 et al. (1996, Experiment 2), participants directly experienced the fairness and satisfaction of an outcome. As a second test of our predictions, therefore, the same independent variables were manipulated in an experiment that used this paradigm. Furthermore, participants in Experiment 1 were informed about another person about whom they had no further information than that this person had also participated in the experiment in which they were participating. As was noted in the introduction, distributive justice theories have emphasized 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 participant (about whom they had no further information than that this person also participated in the experiment in which they were participating). To establish that our participants in Experiment 2 would compare themselves with the other participant, we tried to make the other participant comparable to our participants.

Experiment 2

Method

Participants and design. One hundred and sixty students (50 men and 110 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) × 4 (outcome of other participant: unknown, better, worse, equal) factorial design.

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 and the manipulation checks. Participants participated in the experiment and answered the questions that constituted the dependent variables and the manipulation checks before participating in another, unrelated experiment. The experiments lasted a total of 1 hr, and participants were paid 10 Dutch guilders.

In the first part of the instructions, participants were informed that they participated 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 time they would work on the tasks for 10 min. Furthermore, participants were informed that, after all participants had participated a lottery would be held among all participants. The winner of this lottery would receive 100 Dutch guilders (approximately U. S. $60). (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.) 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. Six practice questions were posed 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.

The task was then explained to the participants. Figures would be presented on the upper right part of the computer screen. Each figure consisted of 36 squares, and each square showed one of eight distinct patterns. On the upper left side of the computer screen, one of the eight patterns would be presented, and participants had 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 of patterns in the figure on the right side of the screen, another figure and another pattern would be presented on the screen. 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 that round was presented on the lower right side of the screen. On the lower left side of the screen, the time remaining in the present round was 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 it was communicated to 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 this percentage on the piece of

paper next to the computer. Participants were informed that the pieces of paper would be thrown way at the end of the experiment.

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.

It was then communicated to the participants that they received three lottery tickets. This was followed by the manipulation of outcome of other participant. In the Other better condition, participants were informed that Other received five tickets. In the Other worse condition, participants were informed that Other received one ticket. In the Other equal condition, participants were told that Other received three tickets. In the Other unknown condition, participants were not told anything about the number of tickets Other received.

After this, participants were asked questions pertaining to the dependent variables and the manipulation checks. All ratings were made on 7-point scales. Outcome satisfaction was assessed by asking participants how satisfied they were with the three lottery tickets that they received (1 = *very dissatisfied*, 7 = *very satisfied*). Outcome fairness judgments were measured by asking participants how fair they considered the three lottery tickets that they received (1 = *very unfair*, 7 = *very fair*). Procedure satisfaction was assessed by asking participants how satisfied they were with the procedure used to assess the number of tickets that they received (1 = *very dissatisfied*, 7 = *very satisfied*). Procedural fairness judgments were solicited by asking participants how fair they considered the procedure used to assess the number of tickets that they received (1 = *very unfair*, 7 = *very fair*).

As a check on the manipulation of procedure, participants were asked to what extent they agreed with the statement that they had been given an opportunity to voice their opinion (1 = *strongly disagree*, 7 = *strongly agree*) and to what extent they agreed with the statement that they had not been given an opportunity to voice their opinion (1 = *strongly disagree*, 7 = *strongly agree*). To check for the manipulation of outcome of other participant, we asked participants to what extent they agreed with the statement that they received fewer lottery tickets than Other, to what extent they agreed with the statement that they received more lottery tickets than Other, to what extent they agreed with the statement that they received an equal number of tickets as Other, and to what extent they agreed with the statement that they only knew how many tickets they received and that they did not know how many tickets Other received (1 = *strongly disagree*, 7 = *strongly agree* for all questions).

To assess whether participants thought of Other as a comparable person, they were asked to what extent Other had performed well in the work round relative to the performance of the participant self (1 = *much worse*, 4 = *equally*, 7 = *much better*), to what extent Other did his or her best in the work round relative to the participant self (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 self (1 = *much worse*, 4 = *equally*, 7 = *much better*), and to what extent Other was comparable to the participant self (1 = *completely not comparable*, 7 = *completely comparable*). When the participants had answered these questions and had completed the second experiment, they were thoroughly debriefed and paid for their participation.

Results

Manipulation checks. A 2 × 4 MANOVA on the manipulation checks of procedure yielded only a main effect of procedure, $F(2, 151) = 254.53$, $p < .001$. For each manipulation check of procedure, we subsequently conducted a 2 × 4 ANOVA. Answers on the question about whether participants were allowed an opportunity to voice their opinion showed only a main effect of procedure, $F(1, 152) = 435.44$, $p < .001$. Participants in the voice condition agreed more with the statement ($M = 6.3$) than did participants in the no-voice condition ($M = 1.7$). Participants' answers on the question of whether they were not allowed a voice yielded only a main effect of procedure, $F(1, 152) = 351.78$, $p < .001$. Participants in the no-voice condition agreed more with the statement ($M = 6.1$) than did participants in the voice condition ($M = 1.6$).

A 2 × 4 MANOVA on the manipulation checks of outcome showed only a main effect of outcome, $F(12, 443) = 387.68$, $p < .001$. For each manipulation check of outcome, we subsequently performed a 2 × 4 ANOVA, followed by a least significant difference test for multiple comparisons between means ($p < .05$). Answers on the question of whether the participant received fewer lottery tickets than the other participant indicated only a main effect of outcome, $F(3, 152) = 200.65$, $p < .001$. A least significant difference test revealed that participants in the other better condition agreed more with the statement ($M = 6.6$) than did participants in the other three outcome conditions ($M = 1.5$) and that no other differences between conditions were significant. Participants' answers on the question of whether they received more tickets than the other participant yielded only a main effect of outcome, $F(3, 152) = 656.90$, $p < .001$. Participants in the other worse condition agreed more with the statement ($M = 6.8$) than did participants in the other three outcome conditions ($M = 1.3$), and other differences between conditions were not significant. Answers on the question of whether participants received a number of tickets equal to that received by the other participant showed only a main effect of outcome, $F(3, 152) = 177.68$, $p < .001$. Participants in the other equal condition agreed more with the statement ($M = 6.4$) than did participants in the other three outcome conditions ($M = 1.5$); no other differences between conditions were significant. Participants' answers on the question of whether they knew only how many tickets they received and that they did not know how many tickets the other participant received yielded only a main effect of outcome, $F(3, 152) = 306.56$, $p < .001$. Participants in the other unknown condition agreed more with the statement ($M = 6.2$) than did participants in the other three outcome conditions ($M = 1.2$), and other differences between conditions were nonsignificant. It can therefore be concluded that the independent variables were perceived as intended.

Additional measures. The answers that participants gave on the questions that assessed whether participants thought of the other participant as a comparable person were subjected to a 2 × 4 MANOVA. This MANOVA did not yield significant results at either the multivariate level or the univariate level. Inspection of the means indicated that participants thought that the other participant had performed equally well in the work round ($M = 4.0$), had done equally his or her best in the work round ($M = 4.0$), was equally good in performing the tasks ($M = 4.0$), and was comparable to the participant him or herself ($M = 5.7$). Thus, we concluded that the participants thought of the other person as a comparable person.

A 2 × 4 ANOVA was performed on the percentage of lottery tickets that participants believed they should get relative to the

other participant by using the percentages participants recorded on the pieces of paper. This ANOVA yielded no significant effects. One hundred and fifty-three (out of 160) participants indicated that they should get 50% of the tickets. The grand mean percentage was 50.8%. 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 deserved—according to equity theory—to receive the same amount of outputs as the participant self).

Participants who were allowed voice also typed in their opinion about the percentage of tickets that they should receive relative to the other participant. We checked whether participants typed in a different percentage than the percentage that they had written down on the pieces of paper. Only one participant did so (this participant typed in 5% more than the percentage that he had written down).

Procedure judgments. A 2 × 4 MANOVA on the two procedure judgments (satisfaction and fairness) showed only a main effect of procedure: multivariate $F(2, 151) = 31.34, p < .001$. Both univariate tests were significant: $F(1, 152) = 56.12, p < .001$ for procedural satisfaction; $F(1, 152) = 40.27, p < .001$ for procedural fairness. As we expected, participants who received an opportunity to voice their opinion were more satisfied with the procedure ($M = 5.2$) and judged the procedure as more fair ($M = 5.0$) than did participants who did not receive a voice opportunity ($Ms = 3.5$ and 3.4, respectively).

Outcome judgments. The means of the outcome judgments in Experiment 2 are presented in Table 2. A 2 × 4 MANOVA on the two outcome judgments showed only a main effect of outcome, $F(6, 302) = 69.46, p < .001$, and a significant interaction between procedure and outcome, $F(6, 302) = 3.02, p < .01$. We then collapsed the three conditions with information regarding Other's outcomes and tested the resulting information versus no-information contrast in combination with the Procedure factor in a 2 × 2 MANOVA. This MANOVA indicated only a significant interaction, $F(2, 155) = 3.70, p < .03$. These analyses were followed by performing for each outcome judgment a 2 × 4 ANOVA, a 2 × 2 ANOVA, and a least significant difference test for multiple comparisons between means ($p < .05$).

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

	Outcome of other participant			
Dependent variable	Unknown	Better	Worse	Equal
Outcome satisfaction				
Voice	$5.1_{a,b}$	2.3_{c}	$4.4_{b,d}$	6.1_{e}
No voice	3.5_{d}	2.8_{c}	5.0_{b}	$6.0_{a,e}$
Outcome fairness				
Voice	4.7_{a}	2.1_{b}	1.8_{b}	6.2_{c}
No voice	3.4_{d}	2.4_{b}	2.0_{b}	6.1_{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 subscripts in common differ significantly, as indicated by a least significant difference test for multiple comparisons between means ($p < .05$).

A 2 × 4 ANOVA on participants' outcome satisfaction answers yielded only a main effect of Outcome, $F(3, 152) = 38.21, p < .001$, as well as an interaction effect between procedure and outcome, $F(3, 152) = 4.61, p < .01$. A 2 × 2 ANOVA, which contrasted the information versus no-information factor with the procedure variable, showed only a significant interaction, $F(1, 156) = 7.31, p < .01$. In accordance with Hypothesis 1, a least significant difference test showed that participants who did not know the outcome of the other participant were more satisfied with their outcome following an opportunity to voice their opinion than following no opportunity to voice their opinion. In contrast with Hypothesis 1_{alt}, however, but in agreement with Hypothesis 1, our results also revealed that in the conditions in which participants were informed about the outcome of the other participant (either better, worse, or equal), participants who received voice were as satisfied with their outcome as were those participants who did not receive voice. Furthermore, in line with Hypothesis 2a, we found that participants who received a number of lottery tickets equal to that received by the other participant were more satisfied with their outcome than were participants who received more tickets than the other participant and participants who received fewer tickets than the other participant. We also found that participants who received more tickets than the other participant were more satisfied with their outcome than were participants who received fewer tickets than the other participant.

A 2 × 4 ANOVA on participants' outcome fairness judgments showed only a main effect of outcome, $F(3, 152) = 137.07, p < .001$, as well as a significant interaction, $F(3, 152) = 4.93, p < .01$. A 2 × 2 ANOVA indicated only an interaction effect, $F(1, 156) = 4.00, p < .05$. Results of a least significant difference test showed that participants who did not know the outcome of the other participant judged their outcome as more fair when they had received an opportunity to voice their opinion than when they had not received such an opportunity. Furthermore, in accordance with Hypothesis 1, our findings showed that in the conditions in which participants knew the outcome of the other participant, outcome fairness judgments did not differ as a function of whether participants were or were not allowed a voice. Furthermore, our results yielded differential effects on outcome fairness judgments than on outcome satisfaction judgments: In agreement with Hypothesis 2b, participants who received an equal number of lottery tickets judged their outcome as more fair than did participants who received more tickets than the other participant and participants who received fewer tickets than the other participant. We also found that judgments of participants who received more tickets did not differ from judgments of participants who received fewer tickets.

Correlations between procedure and outcome judgments. The correlations between procedure and outcome judgments (both overall correlations and correlations within conditions of outcome of other participant) are displayed in Table 3. As can be seen in the upper part of Table 3, the overall correlations between the procedure and outcome judgments were moderately strong. More interesting, however, the correlations within each of the outcome conditions yielded additional evidence for Hypothesis 1. As can be seen in the lower parts of Table 3, within

Table 3
Overall and Within-Condition Correlations Between Procedure and Outcome Judgments (Experiment 2)

Condition	Outcome judgments	
	Outcome satisfaction	Outcome fairness
Overall		
Procedure satisfaction	.32***	.25**
Procedure fairness	.16*	.19*
Other unknown		
Procedure satisfaction	.75***	.52**
Procedure fairness	.75***	.70***
Other better		
Procedure satisfaction	.23	.06
Procedure fairness	.06	−.09
Other worse		
Procedure satisfaction	.18	.14
Procedure fairness	.02	−.02
Other equal		
Procedure satisfaction	.13	.02
Procedure fairness	.11	.01

Note. Entries are Pearson product–moment correlations.
* $p < .05$. ** $p < .01$. *** $p < .001$.

the condition in which participants did not know the outcome of the other participant, procedure and outcome judgments were highly and significantly correlated, whereas the correlations in the other three outcome conditions were low and nonsignificant. This suggests that, as expected on the basis of Hypothesis 1, there were two strikingly different cognitive processes operating in our conditions: Participants who did not know the outcome of the other participant used their judgments about the procedure to assess how to respond to their outcome, whereas participants in the other three outcome conditions did not.

General Discussion

Taken together, the findings of our two experiments show that when people do not have information about outcomes of others they indeed use procedural fairness to assess how to react to their outcome (resulting in fair process effects), but that they rely less on procedure information when they are informed about the outcome of another person (yielding less strong—or, in both our experiments, even absent—fair process effects). Furthermore, we found this both when people judge the fairness and satisfaction of a hypothetical outcome (Experiment 1) and when they directly experience the fairness and satisfaction of an outcome (Experiment 2).

Thus, our findings provide substantial support for our argument that the fact that the fair process effect is one of the most frequently replicated findings in the social justice domain does not necessarily mean that in all situations people rely on procedure information to assess how to react to their outcome. That is, if one looks at the currently accepted view in the procedural justice literature (e.g., Lind & Tyler, 1988), one would expect that even in situations in which people have information about outcomes of others they still use procedure information to assess how to respond to their outcome because procedure information always is weighted more heavily and is always easier to interpret than outcome information. However, our findings suggest that in situations in which people do have information about the outcomes of others they do not continue to place great emphasis on process information. In other words, our findings yield evidence for our analysis of how outcome judgments are formed and provide an explanation of the robustness of the fair process effect: In everyday life, most of the time people do not have extensive information about the outcomes of other people and, in such situations, they will use the fairness of the procedure to assess how to react to their outcome.

An additional aim of both experiments was to establish differential effects on *outcome* satisfaction and *outcome* fairness judgments in situations in which people are informed about outcomes of others (and we succeeded in showing these effects). It should be noted here that in future research, satisfaction and fairness may also yield different effects on outcome judgments in conditions in which people do not know the outcomes of others. Furthermore, in future research, differential effects may also be found with regard to *procedure* judgments. In the present studies, given our manipulations, we did not expect differential effects on outcome judgments when people did not know the outcomes of other people or differential effects on procedure judgments (and we did not find them). As our results do show, however, in circumstances in which people know the outcomes of others their outcome satisfaction judgments may be more strongly affected by relative egoism than are their outcome fairness judgments. Therefore, our findings provide a first step toward showing that although satisfaction and fairness are similar concepts, they can be different and that it is important not to confuse them. This suggests that social psychologists may have to develop two sets of theories (cf. Messick & Sentis, 1983): One set for fairness judgments and one for satisfaction judgments.

The present study falls in a category of recent articles (e.g., Brockner & Wiesenfeld, 1996; Cropanzano & Folger, 1991; Folger, 1984; Greenberg, 1986, 1990; Sweeney & McFarlin, 1993; Tyler, 1994; Van den Bos et al., 1997) that have proposed an integration of different perspectives held by procedural justice researchers and distributive justice researchers. The three elements of our fairness heuristic theory (Lind, 1992, 1994; Lind et al., 1993; Van den Bos et al., 1997) shed light on how these two perspectives may be integrated and provide explanations of the fair process effect. The first element is derived from the work of Tyler and Lind (Huo et al., 1996; Lind & Tyler, 1988; Tyler & Lind, 1992) and holds that perceptions of trust, neutrality, standing, and inclusion or exclusion affect how people react to procedures and outcomes and that, compared with outcomes, procedures are often thought to reveal more about how an authority thinks about the recipients of the procedures and hence affect people's procedure and outcome judgments strongly. The second element was the central focus of Van den Bos et al. (1997): Whether a procedure or an outcome is judged to be fair depends more on what information comes first than on what information comes next, and, because procedures often come first, they frequently affect fairness judgments more strongly. The third element of fairness heuristic theory—identified and explored for the first time in the present article—is that concerns related to procedural fairness may be easier to

interpret than those related to distributive fairness. That is, in many situations (e.g., when people do not know the outcomes of others) outcomes may be more difficult to interpret than procedures, and hence procedure information is needed to judge one's outcomes. However, in other situations (e.g., when outcome information of others is available) outcomes are easy to interpret, and hence one does not need procedural fairness to construct outcome judgments.

The three elements of fairness heuristic theory sometimes yield conflicting insights in the psychology of procedural and distributive justice. For example, the research by Van den Bos et al. (1997) on the second element of fairness heuristic theory showed that procedural desirability affects people's judgments more strongly when outcome information is negative than when outcome information is positive. On the basis of a diverse body of research—such as research on attributions, person evaluations, persuasion, counterfactuals, and social justice—Van den Bos et al. (1997) explained these results by emphasizing that a negative outcome may serve as a negative event, an unexpected event, or both, and hence is more likely to initiate sense-making or information-seeking activity than a positive outcome. Therefore, it was argued that people who find themselves subject to a negative outcome will use procedure information more as a source of information than will people who find themselves faced with a positive outcome. However, the findings of the present study on the third element of fairness heuristic theory suggest that sometimes when outcomes are negative (e.g., when one person receives three lottery tickets and another person receives five tickets) procedure information has no effect on people's judgments.[2] In other words, the present results cast doubt on the Van den Bos et al. (1997; cf. Brockner & Wiesenfeld, 1996) procedure-by-outcome explanation rooted in conceptions about informational search. We hope that the partially conflicting results of the above-mentioned fairness heuristic studies may deepen future understanding of the psychology of procedural and distributive justice.

A word of caution is important here, however. That is, the Van den Bos et al. (1997) article and the present study do not provide a narrow test of fairness heuristic theory. Instead, these studies show a confirmation of patterns of effects of some importance that happen to have been predicted by fairness heuristic theory, but these patterns of effects do have implications for whether fairness heuristic theory holds up in the long run. Most notably, previous work (e.g., Greenberg & Folger, 1983; Lind & Tyler, 1988, Chapter 9) may yield insights in the psychology of the fair process effect that may not be revealed by fairness heuristic theory.

Furthermore, it should be emphasized that the manipulations in Experiments 1 and 2 might be characterized as extreme endpoints of a continuum in which participants either did not have any meaningful basis for assessing the value of their outcomes or had complete information. In future research, it may be determined where other social comparison manipulations (such as social comparisons about other's opinions; cf. Folger et al., 1979) fall along this continuum. It should also be emphasized here that there may be instances in which social comparison information is present, and yet people remain uncertain in their inferences about possible fairness violations (i.e., the circumstances present them with other sources of ambiguity, independent of the presence or absence of social comparison). In everyday life, for example, the awareness of conflicting and yet equivalently reasonable perspectives on grounds for compensation can create a sense of ambiguity and uncertainty to at least the same degree as would be created by the absence of social comparison information. This suggests that under some, as yet unidentified, conditions, strong effects of procedures on outcome judgments may be expected even in situations in which social comparison information is present.

It should also be noted here that the attenuation of the fair process effect is not due simply to the presence of distributive justice information: There is evidence that fair process effects can occur even when people have information about what outcomes they deserve. Walker et al. (1974) found fair process effects even when participants knew they did or did not deserve the outcome. However, Walker et al.'s deservingness manipulation did not involve social comparison (i.e., their participants had nonsocial expectations about what outcomes they should receive, resulting in intrapersonal comparisons for these participants). As argued by Blau (1964) and demonstrated by the results of Austin et al. (1980), nonsocial expectations provide a weaker (or even an absent) basis for fairness evaluations than does social comparison information. This suggests that Walker et al.'s findings provide additional evidence for the line of reasoning put forward in the present article. On the basis of Blau (1964) and Austin et al. (1980), we argue that although Walker et al.'s participants had expectations about what outcomes they should receive, these expectations may not have provided them with enough information to reliably assess the fairness of the outcome that they received. Therefore, the Walker et al. participants used procedure information to form outcome judgments, resulting in fair process effects on their judgments of outcome. Thus, 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 information about outcomes can lessen or even eliminate fair process effects, and our line of reasoning may also provide an explanation of the occurrence of fair process effects under other sorts of information conditions.

Moreover, although we are convinced that our psychological analysis of the fair process effect is generalizable to other procedures and outcomes, it should be noted that in the present experiments we investigated specific procedures and specific outcomes and that it is important to explore the boundary conditions of our explanation of the fair process effect in future research. Most important, we stress that, in the conditions in which outcome information about another participant was present, participants in the present experiments were confronted with very strong and unambiguous information about outcome fairness. Our findings show that under such clear outcome fairness conditions, fair process effects disappear. This suggests that there are some conditions under which procedure information becomes largely irrelevant. However, as we noted above, the Walker et

[2] Note that in the present experiments, participants received procedure information before they received outcome information. As a consequence (cf. Van den Bos et al., 1997), the results of the present experiments provide a conservative test of the third element of fairness heuristic theory.

al. (1974) study and other experiments (e.g., Lind et al., 1980), have shown fair process effects in the face of quite relevant outcome information (but not such unambiguous information as in our experiments). As research accumulates concerning the limiting conditions of procedural justice effects, as it has in this study, the Van den Bos et al. (1997) study, and the Huo et al. (1996) study, researchers begin to understand not only when procedural justice and fair process effects disappear, but also why they occur at all and why they are so potent when they do occur. This knowledge in turn promises to advance understanding of fundamental issues in the social psychology of justice and of the role of justice-related phenomena in basic social relations.

One might ask whether the same logic that led us to our predictions about the fair process effect would not also lead to the prediction of a *fair outcome effect* on procedural justice ratings; an effect that is weaker or stronger depending on whether information about procedures is absent or ambiguous. For example, the strength of such an effect may vary as a function of the presence or absence of social comparison information about fair procedures to others. Certainly this is possible: We have long known that outcomes can influence procedural justice judgments (Lind & Tyler, 1988; Walker et al., 1974), and there is a growing body of research (e.g., Daly & Tripp, 1996; Lind & Lissak, 1985; Tyler, 1996; Van den Bos et al., 1997) that gives indirect support to the idea that these effects are stronger when process information is weaker. However, we suspect that there are some interesting differences in the way the fair process effect and any potential fair outcome effect work themselves out. Because the three aspects of procedural information described above work in many real world settings to fortify and render more interpretable information about procedures and social process, there is probably less temptation to refer to outcomes in evaluating procedures. This is not, of course, demonstrated in the research we have reported here, but it seems quite likely in light of the procedural justice literature. Procedural justice studies have long used procedural manipulations that either are executed on a single person in the absence of social information about the procedure that others have received or are applied without variation across participants. In these studies, strong procedural effects have been routinely observed, and fair outcome effects were either not seen or were independent of the procedure effects (see, e.g., Lind et al., 1980). In other words, although the processes we investigated in the present experiments probably would lead to greater fair outcome effects on procedural justice judgments when procedural information is weak or ambiguous, we suspect that it would be more difficult to find situations where this is the case in real world procedure settings than to find instances of fair process effects in real world outcome settings. However, as the three elements of fairness heuristic theory try to explain, this difference between procedure and outcome is "ecological" rather than fundamental—that is, it does not result from any unalterable feature of the two types of information but from circumstances that usually exist in everyday life and that give process information an advantage compared to outcome information.

However, to return to the concept that motivated the present research, compared with both previous studies on fairness heuristic theory and other research on social justice, the present findings tell us something that is very fundamental with regard to the psychology of the fair process effect. That is, for the first time it has been demonstrated that when people are asked to make an inference about outcome and when they have unambiguous and clear information about whether their outcome is fair, people will rely on such strong outcome information. However, in the absence of unambiguous outcome information, they will use other information—such as procedural information—as a heuristic substitute to assess how to judge their outcome. Viewed from this perspective, the present findings show that the fact that people's outcome judgments frequently reveal a fair process effect may not imply that they have a higher preference for procedural fairness compared to distributive fairness; rather it may indicate that they typically do not have information that is unambiguously related to distributive fairness. Our findings show that people may use distributive fairness instead of procedural fairness if they can establish the information conditions of the distributive fairness standard. On the other hand, the present study also points to the fact that most of the time people do not have unambiguous information about outcome fairness. This suggests, as argued by our theory, that people typically rely on fairness heuristics to assess how to respond to their outcome.

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