

Sometimes Unfair Procedures Have Nice Aspects: On the Psychology of the Fair Process Effect

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This article focuses on the psychology of the fair process effect (the frequently replicated finding that perceived procedural fairness positively affects people's reactions). It is argued that when people receive an unfavorable outcome, they may start looking for causes that explain why they received this outcome. Furthermore, the authors propose that unfair procedures provide an opportunity to attribute one's unfavorable outcome to external causes, whereas fair procedures do not. As a consequence, people may react more negatively after fair as opposed to unfair procedures (a reversal of the fair process effect). The findings of 3 experiments corroborate the authors' line of reasoning and show that if unfavorable outcomes strongly instigate attribution-seeking processes, a reversal of the fair process effect indeed can be found. In this way, these findings show that sometimes unfair procedures have nice aspects.

Justice is a key issue for understanding social behavior (Cropanzano & Folger, 1989, 1991; Cropanzano & Greenberg, 1997; Folger & Konovsky, 1989; Greenberg, 1990, 1993). The study of social justice has focused on at least two major issues: how people respond to the outcomes they receive (e.g., whether they are promoted as a result of a performance evaluation process) and how they react to the procedures with which these outcomes are obtained (e.g., whether performance evaluations are based on accurate or inaccurate information; Greenberg, 1986, 1987; Leventhal, 1980). Although concerns about distributive justice are crucial in social settings and were the first to draw the attention of social psychologists, they constitute only a part of the complete issue of social justice. People's perceptions of procedural fairness are also very important for an understanding of the psychology of social justice.

One of the most striking contributions of the work on social justice, and one of the most frequently replicated findings in social psychology, has been the discovery that perceived procedural fairness positively affects people's reactions (Folger, 1977; Folger, Rosenfield, Grove, & Corkran, 1979; Tyler, 1990; Walker, LaTour, Lind, & Thibaut, 1974). Following Folger et al., several authors have labeled this as the fair process effect (Greenberg & Folger, 1983; Van den Bos, Lind, Vermunt, & Wilke, 1997; Van den Bos, Lind, & Wilke, in press; Van den Bos, Wilke, Lind, & Vermunt, 1998). Fair process effects have been found in people's reactions to procedures received from various authorities, such as organizational authorities (Folger & Konovsky, 1989), police authorities (Tyler & Folger, 1980), political authorities (Tyler & DeGoe, 1995), and authorities in court trials (Lind, Kulik, Ambrose, & De Vera Park, 1993). Furthermore, as has been noted by Lind and Tyler (1988), an exciting aspect of research on the fair process effect is that the effect has been found on very different human reactions (for overviews, see Lind & Tyler, 1988; Tyler & Lind, 1992). This is important because it suggests that fair process studies may have substantial implications for a multitude of domains of human behavior. In the current article, therefore, we try to show effects of perceived procedural fairness on different human reactions. More specific, we investigate fair process effects on people's outcome judgments and their protest behaviors.

An illustration of previous research in which fair process effects were reported on participants' outcome judgments can be found in Van den Bos, Lind, et al. (1997). In some conditions of the experiments presented in that article, the only manipulation was whether participants were or were not allowed an opportunity to voice their opinion about an outcome they would receive. As expected, the findings revealed fair process effects on participants' outcome judgments: Participants who were allowed voice judged the outcome they received to be more fair and were more satisfied

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It is with great sadness that we report the death of Jan Bruins. Jan died at the age of 36 due to complications that arose from a treatment against cancer. He is dearly missed.

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with the outcome than those who were not allowed voice. An example of earlier work in which fair process effects on people's protest behaviors were reported is the Vermunt, Wit, Van den Bos, and Lind (1996) study. Participants in this experiment completed a test consisting of 10 items. The procedure that was manipulated was whether the experimenter graded only 1 of the 10 items or most of the items. The fair process effect that was found in that experiment was that participants showed more intentions to protest against the experimenter after the very inaccurate as opposed to the more accurate procedure.

Thus, numerous studies show the robustness of the fair process effect. Indeed, the fair process effect is one of the most important factors that has led some procedural justice researchers to conclude that perceived procedural fairness may affect people's reactions more strongly than outcome fairness perceptions (see, e.g., Lind & Tyler, 1988, p. 1). This led to the situation that procedural justice research nowadays 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 even suggest that outcomes may be more important for people's fairness judgments than procedures (e.g., Lerner & Whitehead, 1980). Thus, both procedural and distributive justice research tend 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, Lind, et al., 1997).

One of the reasons why we think it is important to study the fair process effect is that this may further the integration of the procedural and distributive justice domains. More specific, we argue that if one wants to understand the psychology of the fair process effect, one has to assess how people may react to outcome information. In doing so, we expand on notions that have been put forward in the literature by Rutte and Messick (1995), Brockner and Wiesenfeld (1996), Cropanzano and Greenberg (1997), and some elements of our earlier work on what has become known as fairness heuristic theory (Van den Bos, Vermunt, & Wilke, 1997; Van den Bos, Lind, et al., 1997). Although the ideas that have been put forward in all of these articles differ to some extent, there is a striking resemblance between them. In comparison with explanations by others as well as by our own previous work, the analysis of the psychology of the fair process effect that we put forward in the present article yields as yet unidentified and unexplored consequences of perceived procedural fairness on people's reactions (for overviews of earlier studies on the fair process effect, see Greenberg & Folger, 1983; Lind & Tyler, 1988, chap. 9). We start our exploration of the psychology of the fair process effect by asking how people may react to outcomes.

How Do People React to Outcomes?

One of the theoretical frameworks on which we base our line of reasoning is fairness heuristic theory. Fairness heuristic theory (for overviews, see Lind, *in press*; Lind et al., 1993; Van den Bos, *in press*; Van den Bos, Lind, et al., 1997; Van den Bos et al., *in press*; Van den Bos, Vermunt, & Wilke, 1997; Van den Bos, Wilke, &

Lind, 1998; Van den Bos, Wilke, et al., 1998) is based on the group-value model of procedural justice (Lind & Tyler, 1988) and the relational model of authority (Tyler & Lind, 1992). On the basis of these two models, fairness heuristic theory assumes that, because ceding authority to another person provides an opportunity for exploitation, people may feel uncertain about their relationship with an authority. Therefore, the theory argues, people want to know whether the authority can be trusted, whether the authority will treat them in an honest and nonbiased way, and whether the authority will accord them the appropriate standing as a member of their group (cf. Tyler & Lind, 1992). Therefore, people attend closely to information about trust, neutrality, and standing. Earlier articles examined the trust (Van den Bos, Wilke, & Lind, 1998) and neutrality (Van den Bos, Lind, et al., 1997) aspects of fairness heuristic theory. In the current article, we would like to focus on the standing element. More specific, in the experiments described in this article, participants received an unfavorable outcome by having an authority communicate to the participants that they were assigned to the lowest hierarchical position in the experimental group (Experiments 1 and 3) or that they were assigned to a lower hierarchical position than participants expected to get (Experiment 2).

In the current article, we would like to explore how people react to unfavorable outcomes. As demonstrated subsequently, this may yield surprising new insights into the psychology of the fair process effect. We base our line of reasoning on Rutte and Messick's (1995) integrated model of perceived unfairness; previous studies on justice and attributions by Brockner and Wiesenfeld (1996), Cropanzano and Greenberg (1997), and Van den Bos, Vermunt, and Wilke (1997); and work on self-serving attributions (e.g., Pyszczynski, Greenberg, & Holt, 1985; Pyszczynski, Greenberg, & LaPrelle, 1985). In these articles, it is suggested that receiving an unfavorable outcome may initiate sense-making or information-seeking behavior: People may start looking for reasons why they received this outcome (cf. Weiner, 1985). More interesting for the present purposes, Rutte and Messick (1995) suggested that when people's outcomes are unfavorable, they start to "search for one or more rules that were violated" (p. 247). On the basis of this model, we propose that people who have received an unfavorable outcome may start using procedure information as a source of information. Most relevant for the current article, we ask ourselves here: How will people use information about procedural fairness? Following research on self-serving attributions (e.g., Pyszczynski, Greenberg, & Holt, 1985; Pyszczynski, Greenberg, & LaPrelle, 1985), we suggest that when people are searching for reasons why they received an unfavorable outcome, an unfair procedure gives them an opportunity to make an external attribution of the reason why they received the outcome (e.g., "I received an unfavorable outcome because my procedure was unfair!"), whereas a fair procedure cannot serve as such an opportunity. On the basis of this line of reasoning, we propose that persons who receive an unfavorable outcome may react more positively when the procedure was unfair than when the procedure was fair. Because this hypothesis predicts a reversal of the fair process effect, we refer to it as the reversal hypothesis.

We think it is interesting to investigate this hypothesis because it runs contrary to the conventional wisdom in the procedural justice literature (for an overview, see Lind & Tyler, 1988). Research by Greenberg (1987), for example, shows that even when

people receive unfavorable outcomes, they are positively affected by perceived procedural fairness. This suggests that strong fair process effects will be found among people who have received unfavorable outcomes. Therefore, as an alternative, one could hypothesize the following: Even when people receive unfavorable outcomes, they will show more positive reactions after fair as opposed to unfair procedures. We label this the fair process effect hypothesis.

Experiment 1

Our line of reasoning emphasizes that when people start looking for causes that explain why they have received their outcome, they may find out that there is a nice aspect to unfair procedures in that procedural unfairness gives them an opportunity to make external attributions. As a result of this, people may react more positively after unfair as opposed to fair procedures. We further propose here that when people do not or only weakly start sense-making or cause-seeking activities, they will not come up with the just-mentioned nice aspect of procedural unfairness and hence will react predominantly to the fairness of the procedure. These people will react more positively after fair as opposed to unfair procedures.

Following the work on social justice and attributions (Brockner & Wiesenfeld, 1996; Cropanzano & Greenberg, 1997; Rutte & Messick, 1995; Van den Bos, Vermunt, & Wilke, 1997) and research on self-serving attributions (e.g., Pyszczynski, Greenberg, & Holt, 1985; Pyszczynski, Greenberg, & LaPrelle, 1985), we reasoned that people would start to look more for causes of why they received their outcome when their outcome was unfavorable than when it was favorable. Participants in Experiment 1, therefore, received a favorable or an unfavorable outcome: After their task performance was evaluated by means of either an accurate or an inaccurate procedure (cf. Leventhal, 1980; Vermunt et al., 1996), participants were assigned either to a lower, less attractive position than they occupied before (unfavorable outcome) or to the same, attractive position that they occupied before (favorable outcome). Participants' outcome judgments constituted the main dependent variable. Because it is important to measure affective elements in people's responses (cf. Tyler & Smith, 1997; Vermunt et al., 1996), we assessed participants' affective reactions to their outcome: Dependent variables were how happy, content, and agreeable participants felt about their outcome. Following the just-presented line of reasoning, we predicted that a reversed fair process effect would be found when participants received the unfavorable outcome and that the fair process effect would show when participants' outcome was favorable.

Method

Participants and design. Eighty-four students (49 men and 35 women) at the University of Essex participated in the experiment, and, for their participation, they were promised lottery tickets with which they could win film vouchers. Participants were randomly assigned to one of the conditions of the 2 (procedure: accurate vs. inaccurate) \times 2 (outcome: favorable vs. unfavorable) factorial design. The design was balanced, with 21 participants assigned to each of the four conditions.

Experimental procedure. Participants were invited to the laboratory to take part in a study on how people work together in small groups. On arrival at the laboratory, participants were led to separate cubicles, each of

which contained a computer with a monitor and a keyboard. They were told that a minimum of 5 participants were present and that they would simulate an organization together with 4 other persons. Furthermore, participants were informed that the computers were connected to one another and that they and a supervisor could communicate with each other 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 had been informed that the experiment would take about 45 min of their time.

In the first part of the instructions, participants were informed that in this experiment an organization, referred to as COMCO, would be simulated. Participants were told that there were five hierarchical positions in COMCO, labeled A, B, C, D, and E. It was communicated to the participants that Position A was the highest hierarchical position, Position B was the next-highest hierarchical position, and so on until Position E, which was the lowest position.

Participants were told that they would perform tasks in two phases of the experiment: Phases 1 and 2. In Phase 1, they would be randomly assigned to one of the Positions A to E. After Phase 1, the supervisor would evaluate them on how well they performed their tasks in Phase 1. On the basis of this evaluation, they would be assigned to a hierarchical position in Phase 2. The higher one's evaluation, the higher one's hierarchical position in Phase 2 would be. Furthermore, it was communicated to the participants that the higher their hierarchical position, the more attractive and enjoyable that position would be. Participants were also informed that a lottery would be held among the participants and that the higher their hierarchical position in Phase 2, the more lottery tickets they would receive. (Actually, after all participants had completed the experiment, 4 participants were randomly drawn, and these individuals each received a film voucher, a procedure to which none of the participants objected on debriefing.) To ensure comprehension of the experimental setting, we asked participants to indicate, on 7-point scales, how attractive they thought the five hierarchical positions were (e.g., "How attractive or unattractive do you think Position C is?" and "How attractive or unattractive do you think Position E is?" [1 = *very unattractive*, 7 = *very attractive*]).

Participants were then informed that the members of their group would be assigned to the position they would occupy in Phase 1. Actually, all participants were assigned to Position C. As a means of ensuring that participants perceived that they were a member of COMCO, they first performed two tasks with the other members of COMCO. In these tasks, referred to as group tasks, the members of COMCO allegedly gave advice to each other about some issues COMCO had to deal with. After this, participants performed an individual task referred to as the Individual Aptitude Test. Participants were told that the Individual Aptitude Test measured aptitudes that were important for a number of tasks they would do within COMCO, that the test measured to what extent people were able to discern patterns in all kinds of seemingly chaotic situations, and that it had been shown that relatively reliable predictions about future developments could be made on the basis of the patterns that people perceived. Participants were informed that the Individual Aptitude Test consisted of 20 questions (e.g., "Which of the following words does not belong to the set: sheep, wool, jumper, socks?"). After it was explained how to answer the questions, participants answered the 20 questions of the Individual Aptitude Test.

After they had completed the Individual Aptitude Test, participants were informed that Phase 1 had ended and that the experimenter now would evaluate how well they performed their tasks in the work round of Phase 1. Participants then were informed about the procedure that was used in the evaluation process: In the accurate procedure condition, the participants were informed that the experimenter had graded all 20 items of the Individual Aptitude Test in the evaluation process. In the inaccurate procedure condition, it was communicated to the participants that the experimenter had graded 2 of the 20 items. As a means of ensuring comprehension of the procedure that was followed, participants were asked to type in

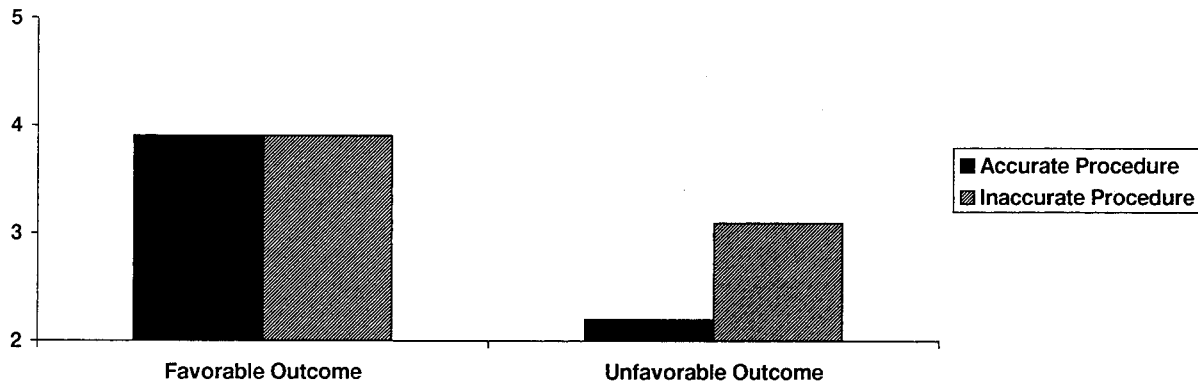


Figure 1. Mean outcome judgments as a function of procedural accuracy and outcome favorability: Experiment 1.

how many items the experimenter had graded. If participants gave a wrong answer to the question, the correct answer was disclosed.

Participants were then informed about the outcome of the evaluation process: They were told that they now would be assigned to the position they would occupy in Phase 2. Participants in the unfavorable outcome condition were assigned to Position E, and those in the favorable outcome condition were assigned to Position C. To ensure comprehension of their Phase 2 position, participants were asked to what position they were assigned in Phase 2. If participants gave a wrong answer to the question, the correct answer was disclosed.

Participants were then asked questions pertaining to the dependent variables and the manipulation check of procedure. All ratings were made on 7-point scales. Participants' outcome judgments were assessed by asking participants how happy (1 = *very unhappy*, 7 = *very happy*), content (1 = *very discontent*, 7 = *very content*), and agreeable (1 = *very hostile*, 7 = *very agreeable*) they felt about the outcome of the evaluation process. Participants' answers on these three questions were averaged to form an index of their outcome judgments ($\alpha = .86$). As a check on the manipulation of procedural accuracy, participants were asked how accurate they considered the procedure used in the evaluation process (1 = *very inaccurate*, 7 = *very accurate*). When the participants had answered these questions, the experiment ended, and participants were thoroughly debriefed.

Results

Manipulation checks. Participants' answers on the questions involving whether they thought Positions C and E were attractive positions served as a check on the manipulation of outcome favorability (note that these questions were posed at the start of the experiment, before participants were assigned to their Phase 2 position). These answers were subjected to a 2 (procedure) \times 2 (outcome) \times 2 (response dimension: attractiveness of Position C vs. attractiveness of Position E) 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. This MANOVA showed only a main effect of response dimension, $F(1, 80) = 196.12, p < .001$. Participants judged Position C to be more attractive ($M = 4.3$) than Position E ($M = 1.8$). This shows that we successfully manipulated outcome favorability: When participants were assigned to their Phase 2 position, participants in the unfavorable outcome condition received a less attractive position (Position E) than participants in the favorable outcome condition (Position C).¹

A 2 (procedure) \times 2 (outcome) analysis of variance (ANOVA) on participants' procedural accuracy judgments yielded only a main effect of procedure, $F(1, 80) = 4.25, p < .05$. Inspection of the means indicated that our manipulation of procedural accuracy was perceived as intended: Participants in the accurate procedure condition judged the procedure to be more accurate ($M = 4.3$) than participants in the inaccurate procedure condition ($M = 3.0$). This shows that procedural accuracy was induced as intended.

Outcome judgments. A 2 \times 2 ANOVA on the outcome judgments scale (perceived outcome happiness, contentment, and agreeableness) showed main effects of outcome, $F(1, 80) = 41.69, p < .001$, and procedure, $F(1, 80) = 5.11, p < .03$. More important, these effects were qualified by a significant interaction, $F(1, 80) = 4.75, p < .04$. Figure 1 shows these effects. Contrary to what was expected, participants who received a favorable outcome judged their outcome to be as positive after an accurate procedure ($M = 3.9$) as after an inaccurate procedure ($M = 3.9$), $t(40) = -0.06, ns$. More interesting, however, as was predicted by our reversal hypothesis, participants who received an unfavorable outcome judged their outcome to be less positive when their procedure was accurate ($M = 2.2$) than when their procedure was inaccurate ($M = 3.1$), $t(40) = -3.07, p < .01$.

Discussion

The findings of Experiment 1 provide supportive evidence for the reversal hypothesis: As predicted, participants who received an unfavorable outcome judged their outcome to be less positive after

¹ The means in the favorable outcome condition were not as high as expected. This may have been caused by the fact that we measured the outcome manipulation checks at the beginning of the experiment, before participants were assigned to a hierarchical position. Thus, participants were giving judgments regarding positions about which they had no actual experience, and this may have resulted in less extreme evaluations of the positions. It should be noted here, however, that, as intended, we found significant effects of outcome favorability on both the outcome manipulation checks and the main dependent variables (participants' outcome judgments). This shows that our outcome manipulation was successful in affecting some well-specified variables in intended ways, which suggested to us that it was acceptable to continue using the label "favorable outcome condition."

an accurate as opposed to an inaccurate procedure. Before we draw strong conclusions on the basis of these findings, however, it is important to replicate them. Conducting a second experiment is also important because, in contrast with what was expected, we did not find a fair process effect among participants who received a favorable outcome.

In Experiment 2, we tried to obtain the predicted effects in both the favorable and the unfavorable outcome conditions by manipulating outcome favorability by means of participants' outcome expectations: The outcome that participants received was held constant (all participants were assigned to the same hierarchical position in the second phase of the experiment), and—by means of a subtle induction—it was varied whether this outcome did or did not fall below what participants expected to receive. We judged this to be a potentially powerful manipulation, because people's expectations are very important when trying to understand the psychology of social justice. Furby (1986) has even noted that "the notion that meeting expectations is crucial in the definition of justice" (p. 183). This suggests that when people receive an outcome that meets their expectations, this can be labeled a favorable outcome, whereas when they receive an outcome that falls below their expectations, this can be called an unfavorable outcome. The other independent variable was procedural accuracy. As in Experiment 1, main dependent variables in Experiment 2 were participants' outcome judgments, but this time we focused on outcome judgments that are more typically measured in studies on the fair process effect (see, e.g., Van den Bos, Lind, et al., 1997; Van den Bos, Wilke, & Lind, 1998; Van den Bos, Wilke, et al., 1998): We asked participants how fair and just they considered their outcome and how satisfied they were with it.

Experiment 2

Method

Participants and design. One hundred twenty students (45 men and 75 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: accurate vs. inaccurate) \times 2 (outcome: favorable vs. unfavorable) factorial design. The design was balanced, with 30 participants assigned to each of the four conditions.

Experimental procedure. Participants were invited to the laboratory to take part 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. They were told that a minimum of 7 participants were present. Furthermore, participants were informed 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 took part in the experiment after participating in another, unrelated experiment. The experiments lasted a total of 1 hr, and participants were paid 10 Dutch guilders (1 Dutch guilder equaled approximately U.S. \$0.50 at the time the studies described here were conducted).

In the first part of the instructions, the experimental procedure was outlined to the participants: The participants were told that they would work in a 7-person group. There were seven hierarchical positions in this group, labeled A, B, C, D, E, F, and G. It was communicated to the participants that Position A was the highest hierarchical position, Position B was the next-highest hierarchical position, and so on until Position G, which was the lowest position.

Participants were told that they would perform tasks in two phases of the

experiment: Phases 1 and 2. In Phase 1, they would be randomly assigned to one of the Positions A to G. After Phase 1, the experimenter would evaluate them on how well they performed their tasks in Phase 1. On the basis of this evaluation, they would be assigned to a hierarchical position in Phase 2. The higher one's evaluation, the higher one's hierarchical position in Phase 2 would be. Furthermore, it was communicated to the participants that a lottery would be held among the participants. The winner of this lottery would receive 100 Dutch guilders. Participants were told that the higher their hierarchical position in Phase 2, the more lottery tickets they would receive. (Actually, after all participants had completed the experiment, the 100 Dutch guilders were randomly given to 1 participant, a procedure to which none of the participants objected on debriefing.) Five practice questions were posed to ensure comprehension of the experimental procedure (e.g., "Will you be assigned to your Phase 2 position on the basis of a random assignment or on the basis of an evaluation process?"). If participants gave a wrong answer to a question, the correct answer was disclosed.

Participants were then informed that the individuals in their group would be assigned to the position they would occupy in Phase 1. Actually, all participants were assigned to Position D. The task that they had to complete in Phase 1 was then explained to the participants. Participants were instructed that they would perform a work round in which they would complete an estimation task consisting of 20 estimation items. After the estimation items had been explained, and before the work round started, they would practice the estimation task in a practice round, also consisting of 20 estimation items. The estimation items were then explained: For each estimation item, figures would be presented on the computer screen. Participants were informed that each figure would consist of 180 squares and that each square would be either black or white. For each estimation item, a figure was presented for 5 s on the computer screen, and participants had to estimate the number of black squares in the figure (cf. Van den Bos, Vermunt, & Wilke, 1997).

After the estimation items had been thoroughly explained to the participants, they performed the practice round (consisting of 20 estimation items). After the practice round had ended, all participants were informed that research had shown that people's estimations were not affected by how hard they tried to do well. All participants also were told that the computer program had calculated the deviation of their answers from the true, objective amount of black squares. Furthermore, all participants were informed that an answer was graded as correct when the answer did not deviate more than 5 from the objective amount of black squares.

After this, participants' outcome expectations were manipulated. Participants in the unfavorable outcome condition were informed that the calculations by the computer program revealed that they had estimated 65% of the estimation items correctly.² (In reality, however, all stimulus information was preprogrammed, a procedure to which none of the participants objected on debriefing.) Three practice questions were posed to ensure comprehension of this information. If participants gave a wrong answer to a question, the correct answer was disclosed. In correspondence with previous studies (see, e.g., Van den Bos, Vermunt, & Wilke, 1997; Vermunt et al., 1996), participants in the favorable outcome condition did not receive information about the percentage of items they had answered correctly and did not answer the practice questions.

The work round (consisting of 20 estimation items) then began. After the work round, participants were informed that Phase 1 had ended and that the

² In a pilot study, we assessed that students at Leiden University thought they would pass a 20-item test when they had answered 65% of the items correctly. This led us to expect that informing our participants that they had answered 65% of the items correctly would lead them to expect that they would get a higher hierarchical position in the second phase of the experiment (and the manipulation check findings presented later confirmed this line of reasoning).

experimenter now would evaluate how well they had performed their tasks in the work round of Phase 1. Participants then were informed about the procedure that was used in the evaluation process: In the accurate procedure condition, the participants were informed that the experimenter had graded all 20 estimation items in the evaluation process. In the inaccurate procedure condition, it was communicated to the participants that the experimenter had graded 1 of the 20 estimation items (cf. Van den Bos, Vermunt, & Wilke, 1997). As a means of ensuring comprehension of the procedure that was followed, participants were asked how many estimation items the experimenter had graded. If participants gave a wrong answer to the question, the correct answer was disclosed. Participants then were asked to indicate, on a 7-point scale, whether they expected to get a higher or a lower position in Phase 2 than in Phase 1 (1 = *much higher*, 4 = *not higher and not lower*, 7 = *much lower*).

Participants were then informed about the outcome of the evaluation process: Participants were told that they now would be assigned to the position they would occupy in Phase 2. Actually, all participants were assigned to Position D. As a means of ensuring comprehension of their Phase 2 position, participants were asked to what position they were assigned in Phase 2. If participants gave a wrong answer to the question, the correct answer was disclosed. Participants were then asked questions pertaining to the dependent variables and the manipulation check of procedure. All ratings were made on 7-point scales. Participants' outcome judgments were assessed by asking them how fair (1 = *very unfair*, 7 = *very fair*) and just (1 = *very unjust*, 7 = *very just*) they considered the outcome of the evaluation process and how satisfied they were with the outcome (1 = *very dissatisfied*, 7 = *very satisfied*). Participants' answers on these three questions were averaged to form an index of their outcome judgments ($\alpha = .75$). As a check on the manipulation of procedural accuracy, participants were asked how accurate they considered the procedure used in the evaluation process (1 = *very inaccurate*, 7 = *very accurate*). To further validate our manipulation of procedure, we also asked participants how fair (1 = *very unfair*, 7 = *very fair*) and just (1 = *very unjust*, 7 = *very just*) they considered the procedure used in the evaluation process and how satisfied they were with this procedure (1 = *very dissatisfied*, 7 = *very satisfied*). These three items were averaged to form a procedural judgments scale ($\alpha = .96$). When the participants had answered these questions, the experiment ended, and participants were thoroughly debriefed and paid for taking part.

Results

Manipulation checks. Participants' answers on the question as to whether they thought they would get a higher or a lower position in Phase 2 than in Phase 1 served as a check on the manipulation

of outcome favorability (note that this question was posed before participants were assigned to their Phase 2 position). As was expected, a 2×2 ANOVA on these answers yielded only a main effect of outcome, $F(1, 116) = 15.98, p < .001$. Participants in the unfavorable outcome condition thought they would receive a higher position in Phase 2 ($M = 3.3$) than participants in the favorable outcome condition ($M = 4.2$). As was intended by our manipulation of participants' outcome expectations, the difference between participants' mean score and the midpoint of the response scale (4 = *not higher and not lower*) was significant in the unfavorable outcome condition, $t(59) = 4.24, p < .001$. This difference was not significant in the favorable outcome condition, $t(59) = -1.22, ns$. These results show that participants in the unfavorable outcome condition expected to get a higher position than D in Phase 2, and participants in the favorable outcome condition expected to get Position D in Phase 2. It can be concluded, therefore, that we successfully manipulated outcome favorability: When participants were assigned in Phase 2 to Position D, those in the unfavorable outcome condition received a lower position than they expected, and those in the favorable outcome condition received the position they expected.

A 2×2 ANOVA on participants' procedural accuracy judgments yielded only a main effect of procedure, $F(1, 116) = 291.15, p < .001$. As expected, participants in the accurate procedure condition judged the procedure to be more accurate ($M = 6.1$) than participants in the inaccurate procedure condition ($M = 2.0$). This shows that procedural accuracy was induced as intended.

To further validate our manipulation of procedure, we had measured participants' procedural judgments (perceived procedural fairness, justice, and satisfaction). As was expected, a 2×2 ANOVA on the procedural judgments scale showed only a main effect of procedure, $F(1, 116) = 446.20, p < .001$. Participants' procedural judgments were more positive when their procedure was accurate ($M = 6.2$) than when their procedure was inaccurate ($M = 2.2$). These findings provide corroborative evidence that our procedure manipulation was successfully operationalized.

Outcome judgments. An illustration of participants' mean scores on the outcome judgments scale in Experiment 2 (perceived outcome fairness, justice, and satisfaction) can be found in Figure 2. A 2×2 ANOVA on the outcome judgments scale yielded

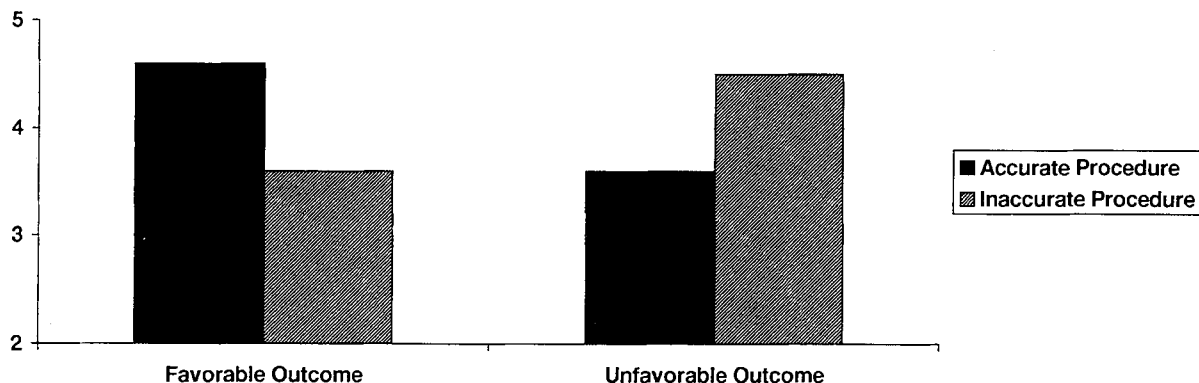


Figure 2. Mean outcome judgments as a function of procedural accuracy and outcome favorability: Experiment 2.

only the predicted interaction effect, $F(1, 116) = 23.24, p < .001$. As was expected, participants who received a favorable outcome judged their outcome to be more positive when their procedure was accurate ($M = 4.7$) than when their procedure was inaccurate ($M = 3.6$), $t(58) = 3.69, p < .001$. However, as predicted by our reversal hypothesis, participants who received an unfavorable outcome judged their outcome to be less positive after an accurate ($M = 3.8$) than after an inaccurate procedure ($M = 4.5$), $t(58) = -3.11, p < .01$.

Discussion

The findings of Experiment 2 strongly support our reversal hypothesis: As predicted by this hypothesis—and in contrast with the fair process effect hypothesis—participants who received an unfavorable outcome reacted less positively toward their outcome when their procedure was accurate than when their procedure was inaccurate. These findings nicely replicated the results of Experiment 1. Furthermore, the results of Experiment 2 revealed a real reversal of the fair process effect because in this experiment we were successful in establishing a condition in which we replicated the fair process effect: Participants who received a favorable outcome judged their outcome to be more positive after an accurate as opposed to an inaccurate procedure.

It should be noted here that, in contrast with the findings of Experiment 1, we did not find a main effect of outcome favorability on participants' outcome judgments in Experiment 2. Although the manipulation check findings indicated that we successfully operationalized outcome favorability, we think that in future studies it should be sorted out why we obtained an outcome main effect in Experiment 1 but not in Experiment 2. In this article, however, we would like to explore an issue that is more relevant for the present purposes: The findings of Experiments 1 and 2 suggest that people who receive an unfavorable outcome will discover that an inaccurate procedure provides an opportunity to attribute the reason for their unfavorable outcome to an external cause (the inaccurate procedure), and as a result they will react more positively when their procedure was inaccurate than when their procedure was accurate. Thus, these findings show a reversal of the fair process effect when people have received unfavorable outcomes. However, as reflected in what we have labeled the fair process effect hypothesis, previous studies on procedural accuracy and outcome favorability—such as those conducted by Greenberg (1987); Van den Bos, Vermunt, and Wilke (1997); and Vermunt et al. (1996)—have shown clear positive effects of procedural accuracy even when people have been confronted with unfavorable outcomes. How can we reconcile the findings of Experiments 1 and 2 with those of previous studies? We propose here that a crucial distinction between Experiments 1 and 2 and the previous studies was that the evaluative context was stronger in Experiments 1 and 2 than in the previous studies by Greenberg (1987); Van den Bos, Vermunt, and Wilke (1997); and Vermunt et al. (1996).

In Greenberg's study, for example, the experimenter silently observed participants' performance (see Greenberg, 1987, p. 224), which suggests that persons participated in an evaluative context that was not very strong. Similarly, a careful inspection of the stimulus materials used in the experiments by Van den Bos, Vermunt, and Wilke (1997) and Vermunt et al. (1996) suggested

that the stimulus materials and contexts of these experiments were only weakly evaluative. In contrast with this, participants in our Experiments 1 and 2 were faced with a context in which they had been told that their performance would be evaluated, that the supervisor would evaluate them on how well they performed their tasks, and that, on the basis of this evaluation, they would be assigned to a hierarchical position in the second phase of the experiments. This suggests that we made self-evaluative considerations salient in Experiments 1 and 2.

We propose here that an important distinction between Experiments 1 and 2 and the studies by Greenberg (1987); Van den Bos, Vermunt, and Wilke (1997); and Vermunt et al. (1996) is whether the evaluative context of the experiment was strong or weak. Furthermore, following the work on self-serving attributions (see, e.g., Innes & Young, 1975), we argue that if people receive an unfavorable outcome in a context in which they feel they are strongly evaluated, they will be more inclined to search for causes for their unfavorable outcome than when they are only weakly evaluated. As a result, we expect that when people are strongly evaluated, they will react more positively when their procedure is unfair than when their procedure is fair (cf. Experiments 1 and 2), and that when they are weakly evaluated, they will react more positively after fair as opposed to unfair procedures (cf. Greenberg, 1987; Van den Bos, Vermunt, & Wilke, 1997; Vermunt et al., 1996).

In Experiment 3, we varied the strength of the evaluative context of the setting participants found themselves in: Following Innes and Young (1975), we manipulated whether the instructions strongly emphasized that participants' performance would be evaluated (cf. Experiments 1 and 2) or only weakly emphasized the evaluation process (cf. Greenberg, 1987; Van den Bos, Vermunt, & Wilke, 1997; Vermunt et al., 1996). The other independent variable was procedural accuracy. Participants in Experiment 3 all received an unfavorable outcome. Whereas in the first phase of the experiment participants occupied the middle hierarchical position (Position D) in the experimental group, in the second phase all participants were assigned to the lowest hierarchical position (Position G). Because it is important to show that a reversed fair process effect can be found on people's behavioral intentions (cf. Greenberg, 1990; Lind & Earley, 1992), participants' intentions to protest (cf. Van den Bos, Vermunt, & Wilke, 1997; Vermunt et al., 1996) served as the dependent variable.

Experiment 3

Method

Participants and design. Ninety-six students (29 men and 67 women) at Leiden University participated in the experiment and were paid for taking part. Participants were randomly assigned to one of the conditions of the 2 (strength of evaluative context: weak vs. strong) \times 2 (procedure: accurate vs. inaccurate) factorial design. The design was balanced, with 24 participants assigned to each of the four conditions.

Experimental procedure. Participants were invited to the laboratory to take part 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. They were told that a minimum of 7 participants were present. Furthermore, participants were informed 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 took part in the experiment after participating in another, unrelated experiment. The experiments lasted a total of an hour and a quarter, and participants were paid 12.50 Dutch guilders.

In the first part of the instructions, the experimental procedure was outlined to the participants: The participants were told that they would work in a 7-person group. There were seven hierarchical positions in this group, labeled A, B, C, D, E, F, and G. It was communicated to the participants that Position A was the highest hierarchical position, Position B was the next-highest hierarchical position, and so on until Position G, which was the lowest position. Participants were told that they would perform tasks in two phases of the experiment, Phases 1 and 2, and that in Phase 1 they would be randomly assigned to one of the Positions A to G.

Participants in the strong evaluative context were then informed that, after Phase 1, the experimenter would evaluate how well they performed their tasks in Phase 1 and that, on the basis of this evaluation, they would be assigned to a hierarchical position in Phase 2. As a means of ensuring comprehension of the evaluative context, participants were asked whether or not the experimenter would evaluate their performance in Phase 1, and to enhance the strength of this announcement (cf. Smith, Spears, & Oyen, 1994) this practice question was repeated periodically during the computer program. If participants gave a wrong answer to the question, the correct answer was disclosed. Participants in the weak evaluative context were told only that, after Phase 1, the experimenter would assign them to their Phase 2 position on the basis of how they performed their tasks, and were not asked the just-mentioned practice question.

After this, it was communicated to all participants that a lottery would be held among the participants. The winner of this lottery would receive 100 Dutch guilders. Participants were told that the higher their hierarchical position in Phase 2, the more lottery tickets they would receive. (Actually, after all participants had completed the experiment, the 100 Dutch guilders were randomly given to 1 participant, a procedure to which none of the participants objected on debriefing.) Three practice questions were posed to ensure comprehension of the experimental procedure. If participants gave a wrong answer to a question, the correct answer was disclosed.

Participants were then told that the members of their group would be assigned to the position they would occupy in Phase 1. Actually, all participants were assigned to Position D. Participants were then instructed that, in Phase 1, they would perform a work round consisting of 20 estimation items. Before the work round started, they would practice the estimation task in a practice round, also consisting of 20 estimation items. After the estimation items had been explained to the participants, they performed the practice round, and after the practice round had ended, participants were informed that the computer program had calculated the deviation of their answers from the true, objective amount of black squares. It was also communicated to the participants that an answer was graded as correct when the answer did not deviate more than 5 from the objective amount of black squares. The work round then began. After the work round, participants were told that Phase 1 had ended. Participants in the strong evaluative context condition were then told that the experimenter now would evaluate how well they had performed their tasks in the work round of Phase 1. In the weak evaluative context condition, participants were informed that the experimenter now would take a look at how they had performed their tasks in the work round of Phase 1.

After this, participants in the accurate procedure condition were told that the experimenter had graded all 20 estimation items. In the inaccurate procedure condition, it was communicated to the participants that the experimenter had graded 1 of the 20 estimation items. As a means of ensuring comprehension of the procedure that was followed, participants were asked how many estimation items the experimenter had graded. If participants gave a wrong answer to the question, the correct answer was disclosed.

Participants were then informed about their outcome: Participants were told that they would be assigned to the position they would occupy in Phase 2. Actually, all participants were assigned to Position G. As a means of ensuring comprehension of their outcome, participants were asked to what position they were assigned in Phase 2. If participants gave a wrong answer to the question, the correct answer was disclosed. After this, participants were asked questions pertaining to the dependent variable and the manipulation checks. All ratings were made on 7-point scales. Participants' intentions to protest were measured by asking participants that if they would protest against the experimenter, to what extent they would do so (1 = *very weak*, 7 = *very strong*). Following Innes and Young (1975), we tried to establish, by means of the evaluative context manipulation, that participants would be more inclined to look for reasons why they received their unfavorable outcome in the strong evaluative condition than in the weak evaluative condition. As a check on the manipulation of evaluative context, we therefore assessed participants' attribution ratings by posing two questions: Participants were asked whether the fact that they had been assigned to Position G was the result of something about themselves or not (1 = *not something about me*, 7 = *something about me*), and they were asked whether the fact that they had been assigned to Position G was the result of the number of answers that had been graded or their Phase 1 performance (1 = *the number of answers that were graded*, 7 = *my Phase 1 performance*). These items were averaged to form an attribution ratings scale ($\alpha = .69$). As check on the manipulation of procedural accuracy, participants were asked how accurate they considered the procedure used to determine their Phase 2 position (1 = *very inaccurate*, 7 = *very accurate*). As additional checks on the manipulation of procedure, participants were asked how fair (1 = *very unfair*, 7 = *very fair*) and just (1 = *very unjust*, 7 = *very just*) they considered the procedure used to determine their Phase 2 position and how satisfied they were with this procedure (1 = *very dissatisfied*, 7 = *very satisfied*). These three items were averaged to form a procedural judgments scale ($\alpha = .81$). When the participants had answered these questions, the experiment ended, and participants were thoroughly debriefed and paid for taking part.

Results

Manipulation checks. By means of the manipulation of evaluative context, we tried to affect participants' attribution ratings. Following Innes and Young (1975), we expected that participants would be more inclined to search for reasons for their unfavorable outcome in the strong than in the weak evaluative condition. More specific, we expected that when explicitly asked to indicate their attributions, participants who had been subjected to an inaccurate procedure would find more reason, of course, to attribute their outcome to an external cause than participants who had experienced an accurate procedure (cf. Cohen, 1982). More important, we expected that this effect of procedural accuracy would be stronger in the strong evaluative context than in the weak evaluative context. Our results confirmed these expectations: A 2×2 ANOVA on the attribution ratings scale yielded a main effect of procedure, $F(1, 92) = 64.08, p < .001$. As expected, participants who had experienced an inaccurate procedure found more reasons to attribute their Phase 2 position to an external cause ($M = 3.2$) than participants whose procedure had been accurate ($M = 5.9$). More interesting, this effect was qualified by a significant interaction, $F(1, 92) = 6.69, p < .02$, showing that the procedure effect was stronger in the strong evaluative context ($\eta^2 = .38$; $M = 2.9$ vs. $M = 6.5$) than in the weak evaluative context ($\eta^2 = .14$; $M = 3.4$ vs. $M = 5.3$). It can be concluded that the context manipulation was successful in establishing the effects on participants' attribution ratings that we intended with this manipulation.

A 2×2 ANOVA on participants' procedural accuracy judgments yielded only a main effect of procedure, $F(1, 92) = 127.93$, $p < .001$. As was expected, participants in the accurate procedure condition judged the procedure to be more accurate ($M = 5.4$) than participants in the inaccurate procedure condition ($M = 2.3$). This shows that procedural accuracy was induced as intended.

A 2×2 ANOVA on the procedural judgments scale (perceived procedural fairness, justice, and satisfaction) showed only a main effect of procedure, $F(1, 92) = 80.58$, $p < .001$. As was expected, participants' procedural judgments were more positive after an accurate procedure ($M = 5.0$) than after an inaccurate procedure ($M = 3.0$). These findings provide corroborative evidence that our procedure manipulation was perceived as intended.

Protest intentions. A 2×2 ANOVA on participants' protest intentions yielded only a significant interaction, $F(1, 92) = 8.53$, $p < .01$. Figure 3 shows this interaction effect. As was predicted, participants in the weak evaluative context were less likely to protest after an accurate procedure ($M = 3.4$) than after an inaccurate procedure ($M = 4.3$), $t(46) = -2.18$, $p < .02$, and participants in the strong evaluative context showed more intention to protest when their procedure was accurate ($M = 4.0$) than when their procedure was inaccurate ($M = 3.3$), $t(46) = 1.95$, $p < .03$.

General Discussion

In the first two experiments described here, we contrasted the reversal hypothesis with the fair process effect hypothesis. These studies revealed supportive evidence for the reversal hypothesis (and not the fair process effect hypothesis). In our third experiment, we reconciled the reversal hypothesis with the fair process effect hypothesis: We reasoned that a crucial distinction between Experiments 1 and 2 and previous studies on procedural accuracy and outcome favorability was the evaluative strength of the context participants found themselves in. In correspondence with this analysis, results of Experiment 3 revealed a reversal of the fair process effect when the evaluative context was strong (cf. Experiments 1 and 2) and a fair process effect when the evaluative context was weak (cf. Greenberg, 1987; Van den Bos, Vermunt, & Wilke, 1997; Vermunt et al., 1996).

An interesting implication of the findings of Experiment 3 is that they suggest that in previous studies the evaluative context

may not have been strong enough to establish a reversal of the fair process effect. If people receive an unfavorable outcome in a context in which they feel they are strongly evaluated, they will be more inclined to search for causes for their unfavorable outcome than when they are only weakly evaluated (Innes & Young, 1975). People can, of course, find more reason to attribute their unfavorable outcome to an external cause when their procedure was inaccurate as opposed to accurate (cf. Cohen, 1982), but we showed this procedure effect to be stronger in the strong evaluative context than in the weak evaluative context. This suggests that when people are strongly evaluated, they will pay more attention to the fact that procedural unfairness provides an opportunity to attribute an unfavorable outcome to an external cause and, as a consequence, will react more positively when their procedure was unfair than when their procedure was fair (cf. Experiments 1 and 2); when they are weakly evaluated, however, they predominantly will pay attention to the fairness of the procedure and will react more positively after fair as opposed to unfair procedures (cf. Greenberg, 1987; Van den Bos, Vermunt, & Wilke, 1997; Vermunt et al., 1996). In other words, these findings suggest that a strong evaluative context is a necessary precondition before the positive effect that perceived procedural fairness typically has on people's reactions reverses. If people's self-relevant processes are not triggered strongly enough, such a reversal of the fair process effect is not likely to be expected.

Previous procedural justice research has shown strong fair process effects when people have received unfavorable outcomes. In fact, Lind and Tyler (1988, chap. 9; see also Brockner & Wiesenfeld, 1996) concluded that fair process effects are especially strong when outcomes are unfavorable. This has been explained by arguing that unfavorable outcomes initiate sense-making or information-seeking activity, as a result of which strong fair process effects emerge (e.g., Van den Bos, Vermunt, & Wilke, 1997). The current article does not contradict this line of reasoning, because we also have argued for enhanced information-seeking activities as a result of unfavorable outcomes. The present article, however, expands this line of reasoning by suggesting a previously unidentified consequence of these processes: A consequence of these sense-making processes may be that people find an external cause for their unfavorable outcome (in this article: procedural unfairness) and, hence, may react more positively after unfair as

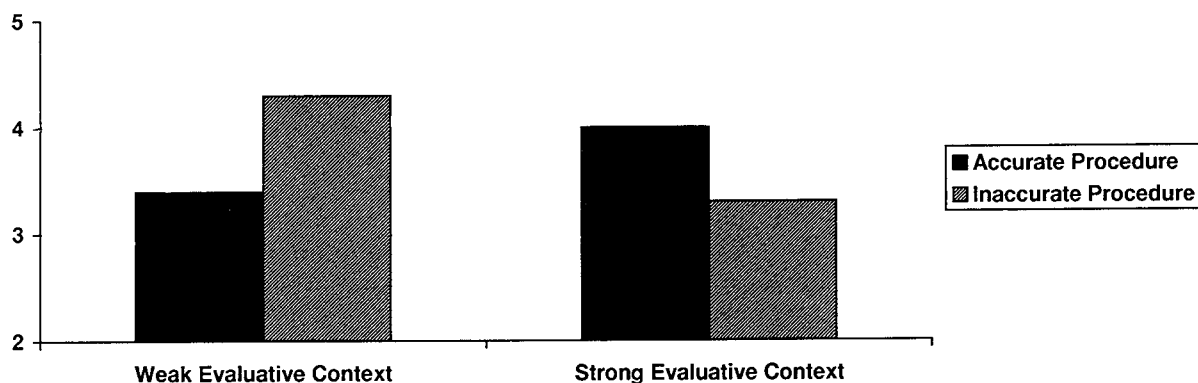


Figure 3. Mean protest intentions as a function of procedural accuracy and strength of evaluative context: Experiment 3.

opposed to fair procedures. The findings further suggest that, in previous studies (such as Van den Bos, Vermunt, & Wilke, 1997), no such reversals of the fair process effect were found because manipulations should be very strong to create such effects.

It should be noted here that there is some evidence that the effects reported in this article are consistent with a study by Gilliland (1994). Gilliland's findings suggest that when people are denied a job opportunity by a process that has low face validity, they will have higher self-efficacy than those who are denied a job by a process that has high face validity. People who are selected for the job, however, will show high self-efficacy after procedures that have high as opposed to low levels of face validity. These findings are important because they are conceptually analogous to those predicted and found here (especially the findings of Experiments 1 and 2), yet in a quite different way. Furthermore, the fact that Gilliland found comparable results on self-efficacy judgments but not on other dependent variables (e.g., participants' performance behaviors) seems to be in accordance with findings of our Experiment 3, which show that reversals of fair process effects are revealed only when the self-evaluative context is highly salient. This corresponds with Brockner and Wiesenfeld (1996; see also Cropanzano & Greenberg, 1997), who have noted that when people are focusing on self-evaluations, the relationship between procedure and outcome information may be very different relative to situations in which people are focusing on issues other than self-related concerns.³

Furthermore, it should be noted here that Cropanzano and Greenberg (1997) have argued that, with respect to the issue of social justice and self-relevant cognitions, there are two competing theoretical perspectives at work. On the one hand is the attributional perspective. According to this model, following an unfair procedure preserves self-esteem by allowing an individual to blame someone else for a negative occurrence. This framework is consistent with the present findings and the Gilliland (1994) results. Another perspective was taken by Tyler and DeGoey (1995). Consistent with the relational model, these authors argued that unfair treatment should lower self-esteem, because it demonstrates that an individual is not valued by a group. As suggested by Cropanzano and Greenberg (1997; see also Brockner & Wiesenfeld, 1996), the key to resolving the controversy between these two perspectives may be what information procedures and outcomes are communicating or what information people have been focusing on. When people are focusing on how they should evaluate their own abilities and skills, the effects reported in the current article and Gilliland (1994) may be more likely to occur, whereas when people are primarily concerned with personal dignity and focusing on their relationship with authorities and their groups, the effects Tyler and DeGoey predicted may be more likely to be revealed. We hope that the present article may stimulate researchers to solve the just-mentioned controversy.

We reasoned that it made sense to begin our line of research by performing empirical studies that enabled us to examine the processes we identified as clearly as possible and to achieve high internal validity and experimental control: experimental studies. In our studies, we tried to achieve acceptable levels of external validity. One way we tried to do this was to use stimulus materials that had real-life characteristics and that were important for our participants (and debriefing interviews indicated that we were successful in this). Care must be taken, however, in generalizing

from the experimental findings presented here to real-world settings. Furthermore, in addition to evaluative context, there are, of course, other manipulations that can trigger sense-making processes (see, e.g., Schlenker, Weigold, & Hallam, 1990). However, strength of evaluative context has been shown to yield successful results on people's self-serving attributions (e.g., Innes & Young, 1975), and, following our analysis of the differences between Experiments 1 and 2 versus previous studies on procedural accuracy and outcome favorability (Greenberg, 1987; Van den Bos, Vermunt, & Wilke, 1997; Vermunt et al., 1996), we judged evaluative context to be a crucial manipulation for our present purposes. Although we are convinced that our psychological analysis of the fair process effect is generalizable to other social contexts and experimental manipulations, and although the present article has identified some important conditions in which reversals of the fair process effect may be found, future research may want to explore the boundary conditions of the effects reported here. However, what matters most is that the present experiments suggest that particular effects may occur. This may stimulate future research to explore other conditions in which reversals of the fair process effect are (or are not) found.

In all experiments presented in this article, participants received an outcome after they had received procedure information. We judged this fixed order to be appropriate because Van den Bos, Vermunt, and Wilke (1997) showed that information that is received second (either procedure or outcome information) affects people's judgments less strongly than information that is received first. The research presented here was initiated by Van den Bos, Lind, et al.'s (1997) point that—to understand why people typically react in a positive way to their outcomes after fair procedures—one has to know to what outcome information people are reacting. In the present research, we expanded on the Van den Bos, Lind, et al. line of reasoning by exploring the possible effects outcome favorability may have on the fair process effect. We therefore decided to test our predictions in a conservative way by presenting outcome information after procedure information. We reasoned that if, in these "procedure before outcome" experiments, we would find effects of outcome favorability on participants' reactions, we would have revealed a robust phenomenon (cf. Van den Bos, Vermunt, & Wilke, 1997). Thus, we believe that the order in which we have presented procedure and outcome information works against our hypotheses and, hence, that we have tested these in a conservative way.

Related to this, the current article was stimulated by the Rutte and Messick (1995) article in which it was stated that after people have received an unfavorable outcome, they start to pay attention to fairness issues (e.g., procedural fairness). We think that outcome information triggered the processes we hypothesized because the unfavorable outcome that we manipulated in our experiments was strongly related to the amount of standing the experimenter accorded to the participants: Participants received the lowest or a lower than expected hierarchical position. In contrast with this, participants in the Van den Bos, Vermunt, and Wilke (1997) experiments judged a hypothetical outcome (which can lead to

³ We are grateful to two anonymous reviewers for explaining the relevance of the articles by Brockner and Wiesenfeld (1996), Cropanzano and Greenberg (1997), and Gilliland (1994).

flawed data; Lind, 1998) or reacted to an unfavorable outcome with small relational and instrumental value (participants in the unfavorable outcome condition did not receive 5 Dutch guilders). Moreover, the findings presented here suggest that the evaluative context in the Van den Bos, Vermunt, and Wilke (1997) experiments was not strong enough to establish a reversal of the fair process effect. Although not the focus of this article, it is important to explore in future research whether it is possible to establish under what conditions procedures trigger a cognitive process, as a result of which people may react more negatively toward fair as opposed to unfair outcomes. Perhaps by making procedure more directly related or outcome less directly related to standing considerations than was done here, such effects can be found. This suggests that future research should explore whether other operationalizations of procedure and outcome yield effects other than the findings reported in the current article. We hope that the partially conflicting results of the just-mentioned fairness heuristic studies may deepen future understanding of procedural and distributive justice issues, but we think it is safe to conclude that our findings provide new and refined insights into the psychology of the fair process effect.

Previous research has shown a reversal of the fair process effect by means of voice versus no-voice procedures: Folger's (1977) research on the frustration effect showed that when voice procedures are repeatedly followed by inequitable outcomes, people might become frustrated about their voice opportunities and hence react more negatively to voice procedures than to no-voice procedures. Folger's experiment was the first to reveal a reversal of the fair process effect, and thus it was extremely important in regard to insights into the psychology of this effect. Following Folger, Van den Bos, Vermunt, and Wilke (1996) also used voice procedures to study the reversal of the fair process effect. Their research on the consistency rule and the voice effect showed that when people are led to expect a no-voice procedure, they may react more negatively to voice procedures than to no-voice procedures. The current research is the first to demonstrate a reversal of the fair process effect by means of accurate versus inaccurate procedures. Moreover, according to our knowledge, the present article is the first to point out that unfair procedures can have nice aspects.

We would like to note here that we happen to have derived the main line of reasoning from our previous work on fairness heuristic theory (especially Van den Bos, Vermunt, & Wilke, 1997). However, the present research does not provide a narrow test of fairness heuristic theory. Instead, the research presented here showed a confirmation of a pattern of effects of some importance that we have derived by relying on elements of this theoretical framework. However, these patterns have implications that hold whether or not this framework endures in the long run. Other theories may be worthwhile to pursue in future studies. Most notably, Greenberg and Folger's (e.g., 1983) and Lind and Tyler's (1988) analyses of the fair process effect may yield insights in the psychology of this effect that may not be revealed by fairness heuristic theory. More generally, theorists' understanding of procedural and distributive justice may profit from a greater knowledge of the psychological processes involved in fairness judgments. Remember that we reasoned that, in comparison with favorable outcomes, unfavorable outcomes may stimulate cognitive processing more, which resulted in the effects we found. We would like to propose here that an interesting implication of this

hypothesized psychological process has to do with the fact that evidence of enhanced cognitive activity may be found on a variety of measures of cognitive processing (for an overview, see Taylor & Fiske, 1981), measures developed in the domain of cognitive social psychology. This suggests that social justice research may profit from measurement methods commonly used in cognitive social psychology. By means of those methods, it may be delineated more precisely how people think about social justice issues.

But, to return to the concept that motivated the research reported here, in comparison with both previous studies on fairness heuristic theory and other research on social justice, the findings of the present research reveal something that is very fundamental with regard to the psychology of an important phenomenon in the social justice literature: the fair process effect. Greenberg (1986, 1987) has pointed out that much is known about ways to improve performance evaluation procedures but that relatively less is known about the consequences of these procedures. The present work helps to fill this gap. One of the reasons why these are important findings is that they make crucial differentiations in the effects perceived procedural justice may have. The procedural justice literature has typically showed positive effects of perceived procedural fairness (for overviews, see Lind & Tyler, 1988, and Tyler & Lind, 1992). The current findings, however, show that fair procedures can have negative effects as well. More specific, this article has revealed that the favorability of the outcome that people receive is an important moderator of positive versus negative procedure effects. In this way, the present research points out that procedure and outcome issues are interrelated. This may help to further the integration of the procedural and distributive justice domains.

More speculatively, the present findings may imply that the nature of the attribution process may be different from the one implied in the Brockner and Wiesenfeld (1996) review.⁴ The conceptual advance of the current article may be to specify the nature of the attribution process that people go through in the face of unfavorable outcomes, which helps to explain previous findings (see Brockner & Wiesenfeld, 1996) and the current findings. Rather than the more information-processing (cold cognition) question "Why did I receive this bad outcome?" people—at least sometimes—seem to be addressing more of a motivated (hot cognition) question, "What does the bad outcome say about me?" In this sense, the present findings may offer an important extension to the literature on justice that examines the relationship between procedural and distributive justice (see Brockner & Wiesenfeld, 1996; Van den Bos, Lind, et al., 1997; Van den Bos, Vermunt, & Wilke, 1997). The present research suggests that sometimes people may be pleased to find out that their procedure was unfair. As a result, sometimes unfair procedures have nice aspects.

⁴ We thank an anonymous reviewer for pointing this out to us.

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Correction to Räikkönen et al. (1999)

In the article "Effects of Optimism, Pessimism, and Trait Anxiety on Ambulatory Blood Pressure and Mood During Everyday Life," by Katri Räikkönen, Karen A. Matthews, Janine D. Flory, Jane F. Owens, and Brooks B. Gump (*Journal of Personality and Social Psychology*, 1999, Vol. 76, No. 1, pp. 104–113), Table 4 (p. 111) contained an error.

The four sets of column heads ("Adjusted" and "Unadjusted") were inadvertently transposed. The corrected table appears below.

Table 4
Average Ratings of Mood Across 3 Days in Optimists, Pessimists, and Anxious Participants

Measure	M	Negative mood		M	Positive mood		M	Bored mood		M	Negative interpersonal interactions	
		Unadjusted p	Adjusted ^a p		Unadjusted p	Adjusted ^a p		Unadjusted p	Adjusted ^a p		Unadjusted p	Adjusted ^a p
Dispositional Optimism												
Overall score		.001	.05		.03	.32		.18	.91		.002	.01
Low (optimism)	8.9			13.5			4.4			0.06		
High (pessimism)	9.4			12.5			4.3			0.10		
Pessimism subscale		.002	.04		.83	.52		.16	.62		.0001	.003
Low	9.0			14.3			3.7			0.05		
High	9.6			14.2			3.9			0.11		
Optimism subscale		.04	.42		.003	.03		.55	.53		.052	.17
Low	9.4			13.6			3.8			0.09		
High	9.0			15.0			3.8			0.06		
Trait anxiety		.001	.05		.02	.10		.005	.01		.58	.07
Low	8.9			14.8			3.7			0.06		
High	9.6			13.6			3.9			0.09		

^a Adjusted for anxiety–optimism.