

CHAPTER 4

HOT COGNITION AND SOCIAL JUSTICE JUDGMENTS

The Combined Influence of Cognitive and Affective Factors on the Justice Judgment Process

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The moral force . . . is cognitive. Affective forces are involved in moral decisions, but affect is neither moral nor immoral . . . Moral . . . mechanisms . . . are cognitive.

—Kohlberg, 1971, pp. 230–231

Morality . . . depends on some internal sense or feeling.

—Hume, 1777/1998, p. 224

These two quotes by these two "giants" of the literature on morality and justice illustrate the contrasting insights rationalist and intuitionist models have developed regarding the influence of cognitive and affective factors that may impact how people form judgments about justice and morality. Rationalist and intuitionist conceptions of justice and morality stand for two broad ways of thinking about justice and morality and encompass

many elements of the essence of justice and morality (for an insightful review, see Beauchamp, 2001). However, the primary issue for the current chapter is that rationalist theories emphasize that reasoning causes justice and morality judgments to be constructed primarily by means of cognitive processes. These "cold-cognitive" processes (Abelson, 1963; Kunda, 1999) pertaining to the justice and morality judgment process involve the careful evaluation and weighing of relevant information before a justice judgment or a judgment about what is right and wrong is formed (see, e.g., Kohlberg, 1969; Piaget, 1932/1975; Turiel, 1983). Intuitionist notions, in contrast, suggest that justice judgments are strongly influenced by affective factors, that people's intuitive feelings about what is right or wrong cause moral judgments, and that reasoning pertaining to justice and morality is usually a post-hoc construction, generated after justice or moral judgments have been reached on the basis of people's gut feelings (see, e.g., Haidt, 2001; Kagan, 1984; Wilson, 1993).

Notwithstanding some notable exceptions (e.g., Folger & Cropanzano, 1998; Lerner & Goldberg, 1999; Sinclair & Mark, 1991, 1992; Tanaka & Takimoto, 1997), and in contrast to moral psychology where a lot of attention has been paid to rationalist versus intuitionist conceptions of right and wrong (e.g., Haidt, 2001; Kohlberg, 1969), the social psychology of justice judgments often has been remarkably silent about the important issue of whether rationalist (e.g., cognitive) or intuitionist (e.g., affective) factors constitute the essence of how justice judgments are formed. As a result, for example, scientists have ignored this important issue or have implicitly adopted either rationalist or intuitionist assumptions about the justice judgment process. For example, perhaps the best illustration of an implicit adoption of (in this case, rationalistic) assumptions are suggestions in the literature that we should understand the justice judgment process by focusing on calculations (such as logarithm-based functions that include 16 variables or more) that people are supposed to conduct when assessing what is just (see, e.g., Jasso, 1994, 1999; Sabbagh, Dar, & Resh, 1994). I would like to propose in this chapter to make rationalist and intuitionist assumptions explicit when studying the justice judgment process, and, in doing so, to focus on processes that, psychologically speaking, make sense.

Furthermore, whereas there has been a tendency in the literature to claim that either rationalist (e.g., Jasso, 1994) or intuitionist (e.g., Haidt, 2001) models are true, I note here that in some situations people seem to construct justice judgments in a thorough way, weighing all relevant information carefully in an impartial manner (e.g., Sabbagh et al., 1994), whereas in other circumstances (e.g., Hafer, 2000) people's gut reactions seem to lead to snap judgments. Thus, rather than continuing the ancient and ongoing impasse of believing in either rationalist or intuitionist conceptions (see, e.g., Haidt, 2003; Pizzaro & Bloom, 2003), I propose here

that it makes more sense and that it is scientifically more exciting to adopt an integrative approach, in which social conditions are studied that influence the relative importance of rationalist (e.g., cognitive) and intuitionist (e.g., affective) factors on the justice judgment process. Building on this line of reasoning, I will review in this chapter some recent research studies that have been conducted focusing on the relative impact of cognitive and affective factors on the process leading people to form justice judgments.

Another way in which I think it would make sense to focus on the combined influence of cognitive and affective factors on the justice judgment process is by arguing more specifically than has been done before that it may well be the case that the justice judgment process should be understood as often being a "hot cognitive" process (Abelson, 1963; Kunda, 1999; Stapel, 2003). That is, a process in which cognitive and affective determinants often work together to produce people's judgments of what they think is just or unjust and right or wrong. Thus, instead of focusing on the issue of whether either cognitive or affective factors play a more important role in the justice judgment process, the integrative attempt I propose here studies the social-cognitive process by which justice judgments are formed (see, e.g., Folger, 1986; Van den Bos & Lind, 2002), by incorporating appropriate attention to the role that motivations (see, e.g., De Cremer & Tyler, 2005), emotions (e.g., Cropanzano, Weiss, Suckow, & Grandey, 2000), and affective states (e.g., Sinclair & Mark, 1991) play in this process.

Essentially what hot cognition means is cognition colored by feeling (for more extensive introductions to the concept, see, e.g., Abelson, 1963; Kunda, 1999; Stapel, 2003). The research that I will review in this chapter provides some tentative evidence that hot cognition indeed plays a pivotal role in the social justice judgment process. It is to a discussion of this empirical evidence that I now turn.

Affect as Information

Until the beginning of the new millennium, there was remarkably little research on the potential role that affect may have in the process of forming justice judgments (for exceptions, see, e.g., Sinclair & Mark, 1991, 1992; Tanaka & Takimoto, 1997). Working from the above-noted line of reasoning, it seemed important therefore to start studying the role of affect in the psychology of social justice judgments more explicitly. In one line of research on this topic, my colleagues and I focused on the issue whether people may use their affective feelings as input (cf. Schwarz & Clore, 1983; see also Forgas, 1995, 2002) in the justice judgment process and under what conditions this is most likely to occur.

In a first research project on this issue, I studied the possible impact of the affective states that people had been brought in prior and unrelated to the justice event they subsequently experienced (Van den Bos, 2003). Extending on the affect-as-information literature (e.g., Schwarz & Clore, 1983), I explicitly argued that information uncertainty (a concept derived from our earlier research on the uncertainty management model and its predecessor, fairness heuristic theory; see, e.g., Van den Bos & Lind, 2002; Van den Bos, Lind, Vermunt, & Wilke, 1997) may be an important moderator of affect-as-information effects on the social justice judgment process.

Information Uncertainty

The uncertainty management model's approach to the justice judgment process is driven, among other things, by the literature on human judgment under uncertainty (e.g., Kahneman, Slovic, & Tversky, 1982). Following this approach, the uncertainty management model argues that, in the process of forming justice judgments, people tend to look first for justice information that is most relevant in the particular situation in which they find themselves. The model further proposes that it is not uncommon that people lack information about the most relevant justice issues (Van den Bos & Lind, 2002).

For example, it may well be argued that the most well-known and the most widely-accepted answer to the question of how people judge whether their outcome is just or unjust has been provided by equity theory (e.g., Adams, 1965). In essence, equity theory proposes that people judge an outcome as just when their own outcome-to-input ratio equals some comparative or referent outcome-to-input ratio. This process is often driven by social comparison with other people's outcomes and inputs such that people judge their outcome as just when the ratio of their own inputs and outcomes equals the ratio of inputs and outcomes of comparison others (Messick & Sentis, 1983). Equity theory has received wide support in social and organizational studies (e.g., Berkowitz & Walster, 1976).

Thus, equity theory has been very influential and one of the theory's basic propositions is that, in order to judge whether an outcome is just, people have to know what outcomes comparison others have received. However, we can ask ourselves whether people always know the outcomes of others, as most theorizing on equity theory assumes they do (for overviews, see Adams, 1965; Messick & Sentis, 1983). Van den Bos and colleagues (1997) argued that they frequently do not. For instance, in everyday life we often do not know the salaries of the people with whom we work, and even if we do, we may not have a good idea of their contributions. If social comparison information about outcomes frequently is not available, then in everyday life the issue of how people form judgments of outcome justice is more complicated than equity theory suggests and frequently takes place

under conditions in which the most relevant information (such as information what outcome a social comparison other got) is missing.

The uncertainty management model notes explicitly that issues of distributive justice (such as studied by equity theory) are critical in social behavior, but that social justice concerns also include questions about the justice of the way people have been treated. Research in this area is often referred to as procedural justice research (Van den Bos, 2005; see also Brockner & Wiesenfeld, 1996; Lind & Tyler, 1988; Tyler & Lind, 1992). Therefore, the uncertainty management model also pays appropriate attention to the fact that people may also be uncertain about how to judge the procedure they have encountered and the model systematically examines the role that information uncertainty may play in the formation of procedural justice judgments.

One of the key determinants that lead people to judge a particular procedure as just or unjust is whether or not people receive an opportunity to voice their opinion in a decision-making process. Introducing the concept of information uncertainty to the field of procedural justice is important as this shows that the psychology of especially no-voice procedures is more complicated than what was previously thought (Van den Bos, 1999). That is, in earlier procedural justice studies two different types of no-voice procedures have been treated as if they were one and the same thing whereas they are different in every-day life and may prompt different justice judgment processes. One type of no-voice procedure has been used in studies by Folger (1977) and Lind, Kanfer, and Earley (1990). In both these experiments, only participants who got voice were informed about a possibility that participants could get an opportunity to voice their opinion about an important decision the experimenter was going to make, and after this they were informed that they got such an opportunity. Participants in the no-voice condition were not informed about the possible voice opportunities and hence implicitly were not allowed a voice. This can be labeled as an implicit no-voice procedure (Van den Bos, 1999). Other studies have used a different type of no-voice procedure (e.g., Brockner et al., 1998; Hunton, Hall, & Price, 1998; Van den Bos et al., 1997): In both the voice and the no-voice conditions, participants were informed that there was a possibility that participants could get an opportunity to voice their opinion about a decision the experimenter was going to make. Participants in the voice conditions were told that they got voice whereas participants in the no-voice conditions were informed that they did not get an opportunity to voice their opinion. I will call this latter procedure an explicit no-voice procedure (Van den Bos 1999).

Making a distinction between implicit and explicit no-voice procedures is important as it may further our insights into the psychology of procedural justice judgments. That is, in the case of implicit no-voice proce-

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dures, the procedures communicate no voice information and hence people have no direct, explicit information about procedure to rely on. In contrast, in the case of voice and explicit no-voice procedures people do have such direct, explicit procedure information. The uncertainty management model predicts that under conditions of information certainty versus uncertainty people will form their procedural justice judgments in different ways.

Affect as Information under Conditions of Information Uncertainty

The uncertainty management model predicts that in information-uncertain situations, such as the conditions about outcome and procedural information discussed in the previous section (see also Van den Bos, 1999, 2003; Van den Bos et al., 1997), people start using other information to assess what is just. Building on the uncertainty management model (Van den Bos & Lind, 2002) and the literature on social cognition and affect (e.g., Forgas, 1995, 2001, 2002; Martin & Clore, 2001; Schwarz & Clore, 1983; Sedikides, 1995), I proposed in 2003 that especially under conditions of information uncertainty, temporary affect may serve as a source of information for people and that it is hence particularly under these conditions that people may consult their existing affective state to infer their justice evaluations and make a judgment accordingly. I therefore studied whether in information-uncertain conditions people in a positive affective state indeed may show more positive justice judgments than those in a negative affective state (Van den Bos, 2003).

As hypothesized, the findings of three experiments indeed show that when people are uncertain about how to judge the justice of the outcome they have received (Van den Bos, 2003, Experiment 1) or the way they have been treated (Van den Bos, 2003, Experiments 2 and 3), they will judge their outcome or procedure to be more just when they had been brought into a positive affective state than when in an affective state that is neither positive nor negative. Findings further suggest that under information-uncertain conditions people will judge the events they experience to be more unjust when in a negative affective state than when in the control condition. Thus, as predicted, findings show that both positive and negative affective states may impact people's justice judgments.

To put it differently, people in a positive affective state may see the justice of events through rose-colored glasses whereas those in a negative affective state may do so through dark-colored glasses. Interestingly, although both the positive and the negative affect conditions differed significantly from the control condition, negative affect differed stronger from the control condition than positive affect did (Van den Bos, 2003). This negativity effect suggests that negative affect has a stronger impact on people's justice judgments than positive affect. In other words, both rose-

and dark-colored glasses effects can be found, but the latter is stronger than the former.

Even more interesting for the current purposes is the implication that when people are in situations in which they are uncertain about how to judge the justice of the events they experienced (such as receiving an outcome but not knowing the outcomes of similar others, Van den Bos et al., 1997, or implicitly receiving no voice, Van den Bos, 1999) then affective factors may strongly influence people's justice judgments. On the other hand, when people are in situations in which they have all relevant information available (such as exactly knowing the inputs and outcomes of comparable others, Van den Bos et al., 1997, or explicitly receiving voice or no voice, Van den Bos, 1999) then people use these cognitive pieces of information and are not influenced by the affective states they were in prior and unrelated to experiencing the justice-related event. Thus, information certainty may be a crucial moderator for when cognitive versus affective factors are determining the social justice judgment process such that under conditions of information uncertainty, affect plays a crucial role in the justice judgment process whereas under conditions of information certainty, cognitive factors kick in.

Affect as Information When Stimuli are Ambiguous

Recently, Susanne de Wit expanded this line of reasoning by showing that when it is somewhat ambiguous for people how to judge the justice of their outcome (e.g., they receive €3 for their participation in an experiment and they only know that a comparable other participant receives between €1 and €5 for their participation in the same experiment) then they will judge their outcome to be less just when—prior and unrelated to receiving their outcome—they had been put into negative as opposed to neutral affective states (De Wit & Van den Bos, 2006, Studies 1 and 2). In contrast, the affect manipulation had no significant effects on people's justice judgments when they had received a non-ambiguous distribution of outcomes (e.g., they received €3 and the comparable other participant also received €3).

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As De Cremer, Van Kleef, and Wubben note in this volume, ambiguity may be considered a specific form of informational uncertainty. Ambiguity refers to conditions under which the available information does not allow participants to give a definite answer (Van Hiel & Mervielde, 2002), and people are often motivated in ambiguous information conditions to search for information to impose certainty (Ross & Murphy, 1996). De Cremer (2007a) recently addressed the possible influence of ambiguous information conditions on people's fairness reactions. More specifically, his research findings reveal that when no-voice procedures are ambiguous, people are influenced by the emotions that other individuals

display. That is, when the other persons expressed anger in ambiguous conditions then participants were more convinced that the authority who denied them voice was really unfair and therefore they reacted more with anger towards the authority. However, when the other persons displayed guilt then participants reasoned that the authority was apparently not such an unfair person and as a result they themselves displayed less anger toward the authority.

The reason why there has been a relatively small amount of justice studies that showed some evidence for the possible influence of affect on the justice judgments process may have to do with the fact that researchers did not make a distinction between situations in which people are certain about how to form justice judgments and conditions under which people are uncertain about this. The research reviewed here suggests that information certainty (Van den Bos, 2003) or ambiguity of events encountered (De Cremer, 2007a; De Wit & Van den Bos, 2006) are crucial moderators that should be taken into consideration, if one wants to confidently predict and find justice judgments to be influenced by the affective state people are in. Information uncertainty and ambiguity of events encountered play a crucial role in the social judgment literature (see, e.g., Kahneman et al., 1982), and it may be important to start paying more explicit attention to the potentially pivotal moderating effects these concepts may have for phenomena studied in the more general literature on social cognition and affect (see, e.g., Martin & Clore, 2001).

Justice-Relevant Affect as Information

Thus far, we have focused on the influence of affective states that people are in prior and unrelated to their experiencing a justice-related event. However, the relationship between justice and affect is also important, because experiencing just or unjust events may cause strong emotional (e.g., Cropanzano et al., 2000) and affective reactions among people (e.g., Van den Bos, Poortvliet, Maas, Miedema, & Van den Ham, 2005). For example, experiencing fair and just outcomes or procedures lead people to be more satisfied with their outcomes (Van den Bos, Wilke, Lind, & Vermunt, 1998), to report more happiness with the way they have been treated (Van den Bos, 2001), and in general to experience more overall positive affect (Tyler & Smith, 1998; Vermunt, Wit, Van den Bos, & Lind, 1996) as well as more specific positive emotions (De Cremer, Stinglhamber, & Eisenberger, 2005; Mikula, Scherer, & Athenstaedt, 1998). Unfair and unjust outcomes and procedures, on the other hand, lead to more resentment and anger against the authority making the decision (Folger, Rosenfield, Grove, & Corkran, 1979; Van den Bos et al., 2005), more sadness and disappointment with treatment (De Cremer, 2006a; Van den Bos & Miedema, 2000), and in general more global negative affect (De Cremer, 2006b) as

well as more specific negative emotions (De Cremer, 2007b; De Cremer & Ruiters, 2003). Another line of research by Susanne de Wit focuses on these affective reactions that people may experience following the experience of just and unjust events (De Wit & Van den Bos, 2007).

This line of research reveals, among other things, that when people are underpaid (as opposed to paid in accordance to the amount promised in advance) this may lead to increased negative affect and may lead people to judge their outcome as being unjust. In other words, people experienced injustice-related affect. However, when people have taken a (placebo) pill that supposedly could influence their emotional reactions to events they would encounter, being underpaid may not lead to negative affective reactions and people may judge their outcome as just as those who have been paid in accordance to what was promised to them. These findings suggest that attributions of affective feelings play a crucial role in the process with which people form justice judgments when they are confronted with injustice and hence experience injustice-related affect (e.g., De Wit & Van den Bos, 2007).

Affective-Experiential States

Until now, we have examined in this chapter the issue of how affective states that are unrelated (De Wit & Van den Bos, 2006; Van den Bos, 2003) or related (De Wit & Van den Bos, 2007) to the just or unjust events that people encounter may influence the justice judgment process. Besides these variables, stable individual differences or temporary mindsets that influence how people react to affect-evoking events (such as just and unjust events) may also play a substantial role in the psychology of how people form justice judgments and react toward just and unjust events. It is to a discussion of these effects of affective-experiential states on the justice judgment process that I now turn.

People vary consistently in the intensity of their affective reactions (Larsen, Diener, & Cropanzano, 1987). Individuals who are high in affect intensity, therefore, should respond strongly to an unfair event, while those who are low in affect intensity should respond less strongly. In accordance with this line of reasoning, Van den Bos, Maas, Waldring, and Semin (2003) showed that, compared to those with low levels of affect intensity, participants high in affect intensity showed stronger affective responses toward outcomes that were equal to (versus worse than) the outcome of a comparable other participant. Similar effects were found on participants' reactions toward voice and no-voice procedures. This suggests that individual differences in affect intensity moderate how people react toward fair and unfair events. A possible implication of these findings may be related

to Snyder's research on the strength of the situation. Snyder shows that if the situation is weak (or uncertain) then personality differences are more predictive of people's responses (Snyder, 2006; Snyder & Cantor, 1998). Future research may want to assess whether individual differences indeed exert a stronger influence on people's fairness judgments and fairness reactions when situational forces are weak or when people are uncertain about themselves or are faced with informational uncertain conditions.

Interestingly, it can be noted here that some recent research findings reveal that individual differences in *emotional* uncertainty (as measured by the scale developed by Greco & Roger, 2001) moderated people's worldview reactions toward homeless individuals (Van den Bos, Euwema, Poortvliet, & Maas, in press) as well as their reactions toward extremely negative statements about religion (Van den Bos, Van Ameijde, & Van Gorp, in press). The Greco and Roger (2001) measure of *cognitive* uncertainty did not have significant effects on people's reactions in these studies or in other studies in which we included this scale. An implication of these findings may be that the influence of personal uncertainty concerns on the justice judgment process (Van den Bos, 2001) as well as on reactions of worldview defense and system justification (Van den Bos, Euwema, et al., in press; Van den Bos, Van Ameijde, & Van Gorp, in press) may best be understood from a perspective that focuses on the emotional or affective components that the experience of personal uncertainty entails (Van den Bos, 2006; Van den Bos et al., 2005).

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Another, I think, very interesting line of work that should be discussed here has been developed by Marjolein Maas. A core assumption that drove the line of research by Maas and Van den Bos (2006) was that personal uncertainty often leads people to react more strongly toward fair and unfair events (Van den Bos, 2001; Van den Bos et al., 2005), because being uncertain or being reminded about things one is uncertain about may instigate strong affective-experiential processes. Thus, in terms of cognitive-experiential self-theory (Epstein, 1994; Epstein & Pacini, 1999), the idea was that experiencing feelings of uncertainty may lead people to start processing information they subsequently receive in experiential-intuitive ways.

In correspondence with other lines of research (e.g., Chaiken & Trope, 1999; Shweder & Haidt, 1993; Smith & DeCoster, 2000; Strack & Deutsch, 2004), cognitive-experiential self-theory distinguishes between two conceptual systems that people may use to process information, namely experiential-intuitive and rational-cognitive systems (Epstein, 1994; Epstein & Pacini, 1999). The experiential way of processing information is intuitive, preconsciously encodes information into concrete images or metaphors, and makes associative connections. In experiential modes, events are experienced passively, and people can be seized by their emotions. The rationalistic way of processing information, on the other hand, is analytic, encodes

information in abstract ways, is based on making logical cause-and-effect connections, and requires intentional, effortful processing. In rationalistic modes of information processing, people experience events actively and consciously while thinking things over and making justifications for what happened in these events, and in these modes people are in control of their thoughts.

Cognitive-experiential self-theory also assumes that the operation of experiential mindsets is intimately associated with affect-related experiences (see, e.g., Epstein & Pacini, 1999). If experiential mindsets indeed make people's fairness reactions more susceptible to affect-related processes, then the intensity with which people react affectively to daily life events (Larsen et al., 1987; Van den Bos et al., 2003) should interact with people's mindsets. Maas and Van den Bos (2006), therefore, predicted that under conditions of uncertainty, individual differences in affect intensity (Larsen et al., 1987) should moderate people's fairness reactions especially when they have been brought in experiential (as opposed to rationalistic) modes of information processing.

To study this hypothesis, Marjolein Maas introduced a new manipulation of experiential versus rationalistic mindsets to the research literature. In both the experiential and rationalistic conditions of this manipulation, participants read a text prior to, and independent of the justice manipulation. In the experiential condition, participants were asked to read the text and react to it by noting the first thing that came to their mind, to be as expressive as possible in their reactions to the text, to be as intuitive as possible in their reactions, and to give gut reaction toward the text. In the rationalistic condition, participants read the text and were asked to take their time to ponder on the text, to weigh the pros and cons of the things mentioned in the text, and to give their reactions once they had thought these over, and to give their reactions in an as rationalistic and analytical style as possible. After being brought into experiential or rationalistic mindsets in this way, participants participated in a study in which they received fair or unfair events.

As predicted, the findings of the studies reported by Maas and Van den Bos (2006) indeed suggest that, in uncertain conditions, people who have been brought in experiential mindsets react more strongly toward fair and unfair events when they score high on the affect intensity scale (compared to those who have been brought in rationalistic mindsets and who score low on affect intensity). In other words, it is the combination of experiential mindsets and high affect intensity that yields the strongest reactions to fair and unfair events. These results show how important affect-related individual differences and temporary mindsets may work together to shape the justice judgment process and its consequences.

This research is also important because it highlights the fact that when one studies the effects of personal uncertainty (e.g., Van den Bos, 2001; Van den Bos et al., 2005) or other relevant moderators on the justice judgment process (e.g., Miedema, Van den Bos, & Vermunt, in press) it is important to ensure that participants are brought into affective-experiential states and are not scoring low on affect intensity. Related to this, following mortality salience experiments (see, e.g., Greenberg, Solomon, & Pyszczynski, 1997), our manipulations of uncertainty salience are typically followed by assessing the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) and quite often focus on assessing participants' affective reactions toward fair and unfair procedures and outcomes. Recent research evidence suggests that when one does not assess the PANAS (Gabriele Jacobs-Belschalk, personal communication, October 24, 2005) or focuses on more cognitive dependent variables (Van den Bos et al., 2005) than uncertainty salience may have weaker or even nonsignificant effects. This may suggest that one should study how people form and react to justice judgments by explicitly taking into account the fact that these processes should be understood as being processes of hot cognition. Experiments and other studies one then sets up to examine these processes may want to take into consideration this and may want to ensure that conditions are right if they want to study strong and reliable effects of the hot-cognitive processes they are interested in. In the next section, I will further explore the possible relationship between hot cognition and social justice judgments.

Personal Uncertainty, the Alarm System, and Hot Cognition

There are different types of uncertainties that people can encounter (Van den Bos & Lind, 2002), but I often think that the most important type that the uncertainty management model studies is personal uncertainty, the experience that is the result of people being uncertain about themselves (Van den Bos, 2001; Van den Bos et al., 2005).¹ In our earlier research, we showed that reminding people about things they feel uncertain about may be a pivotal moderator of the processes by which people form and react to justice judgments (Van den Bos, 2001). Furthermore, at least sometimes, personal uncertainty may constitute an even better explanation of these kinds of processes than relevant other theoretical concepts, such as those suggested by terror management theory (see Van den Bos et al., 2005).

Recently, we started to speculate that personal uncertainty may play an important role in the social justice judgment process (Van den Bos, 2001), and possible self-regulatory processes pertaining to this process (Van den

Bos, 2004), because the experience of personal uncertainty (Van den Bos, 2001; Van den Bos et al., 2005) and other self-threatening events (Miedema et al., in press) may constitute alarming events to people (Van den Bos, Ham, Lind, Simonis, Van Essen, & Rijpkema, 2006). More specifically, in this line of research we examined a possible connection between, on the one hand, the augmentation of justice effects in the presence of personal uncertainty (e.g., Van den Bos, 2001; Van den Bos et al., 2005) and other self-threatening conditions (Miedema et al., in press) and, on the other hand, related phenomena in social cognition and social neuroscience showing the possible existence of a "human alarm system" (Eisenberger & Lieberman, 2004; Eisenberger, Lieberman, & Williams, 2003).

Integrating these different lines of research, we argued that personal uncertainty is a state that activates the human alarm system because uncertainty is a threat to this system. In the Van den Bos and colleagues (2006) paper we explored the possible implications of this research proposition. In doing so, we argued that it is now well-established in the justice literature that personal uncertainty (Van den Bos, 2001; Van den Bos & Lind, 2002; Van den Bos et al., 2005) and other self-threatening conditions (Miedema et al., in press) lead to more extreme reactions toward fair and unfair events. Interestingly, in the literatures on close relationships and social neuroscience, personal uncertainty and self-threats recently have been suggested to lead to the activation of the "human alarm system," a psychological system that people use to detect and handle alarming situations and that prompts people to process more alertly what is going on in the situations they find themselves in. A complete review of the alarm-system literature is beyond the scope of this paper (for overviews, see, e.g., Eisenberger & Lieberman, 2004; Eisenberger et al., 2003), but for the current purposes it is noteworthy that Murray, Holmes, and Collins (2005) recently suggested that personal uncertainty (Murray, Rose, Bellavia, Holmes, & Garrett Kusche, 2002) and felt insecurity in close relationships (Murray, 2005) may activate the human alarm system so that, among other things, people process more alertly what is happening in their relationships.

Related to this, Eisenberger and colleagues (2003) have argued that being ostracized or experiencing other self-threatening events activates parts of the human brain which Eisenberger and colleagues have labeled the human alarm system. Furthermore, Eisenberger and Lieberman (2004) proposed that the alarm system is responsible for detecting cues that might be harmful to survival and, after activation, for recruiting attention and coping responses to minimize threat. For example, Eisenberger and colleagues (2003) have argued that experiencing social exclusion or other self-threatening events may be an experience of social pain. Like physical pain, the experience of social pain may trigger the human alarm system, hence "alerting us when we have sustained injury to our social con-

nections" (Eisenberger et al., 2003, p. 292). From an evolutionary perspective, the working of such an alarm system would be adaptive (see Eisenberger & Lieberman, 2004) such that an activated alarm system prompts the human organism to act and respond more quickly or otherwise alertly toward what is going on in the organism's environment and hence make the survival of the organism more likely.

What we were proposing in the Van den Bos and colleagues (2006) paper is that one way to triangulate the relationships between personal uncertainty (Miedema et al., in press; Van den Bos, 2001; Van den Bos et al., 2005), the human alarm system (Eisenberger & Lieberman, 2004; Eisenberger et al., 2003; Murray et al., 2005), and social justice judgments is by conceptualizing an overlap between the alarm system and the justice judgment process. A hypothesis that can be derived from such a postulated overlap is that factors that people associate with alarming conditions should enhance the sensitivity of the alarm system and thus, given the postulated overlap, potentiate sensitivity to the justice-related events people subsequently experience. So, just as Eisenberger and Lieberman (2004) postulated that the brain bases of social pain are similar to those of physical pain and hypothesized that "factors that enhance the sensitivity to one type of pain should enhance the sensitivity of this alarm system and thus potentiate sensitivity to the other type of pain as well" (p. 297), we postulated that presenting to people alarm-related symbols should activate the human alarm system and hence potentiate sensitivity to other types of processes associated with it as well, including enhanced sensitivity to the justice judgment process, thus making people to react more sensitively toward subsequently experienced fair or unfair events.

More specifically, from the literature reviewed here at least two things can be concluded: (a) personal uncertainty and other self-threatening conditions activate the human alarm system (Eisenberger et al., 2003; Murray et al., 2005); (b) personal uncertainty and self-threatening conditions lead to more extreme judgments about procedural and outcome justice (Miedema et al., in press; Van den Bos 2001; Van den Bos et al., 2005). Thus, it is known that the same conditions that may activate the human alarm system, may also lead to more extreme justice judgments. Building on this observation, this suggests that activating the human alarm system directly, by presenting alarm-related stimuli to people, may lead to more extreme reactions toward fair and unfair events.

An intriguing hypothesis that follows from the alarm-system perspective, laid out in detail in the Van den Bos and colleagues (2006) paper, is that the presentation of cues that are closely or even subtly related to alarming conditions may lead people to form more extreme judgments about subsequently presented fair and unfair events. Findings of various experiments (scenario studies, an experiential experiment, and functional magnetic

resonance imaging [fMRI] testing) indeed provide evidence for this line of reasoning both inside and outside the psychology lab.

That is, research findings reveal that viewing large exclamation points prior to making evaluations of the justice of accurate or inaccurate procedures, good or bad outcomes, and voice or no-voice procedures indeed made react more extremely toward the procedures or outcomes (Van den Bos et al., 2006, Experiments 1–3). Furthermore, another experimental study replicated and extended these findings by showing that a flashing warning light produced similar effects on outcome justice judgments among participants with various educational backgrounds and from different age groups who were walking in a shopping center of an average Dutch city (Van den Bos et al., 2006, Experiment 4). In correspondence with the alarm-system view of the justice judgment process, the findings reveal that the mere presence of a flashing light that has been switched on can lead people to show more extreme justice judgments in response to variations in good and bad outcomes.

A noteworthy implication of this line of research is that our findings may be important precisely because they raise the possibility that not only justice judgments but also other social judgments might be influenced by the presentation of stimuli like exclamation points or flashing lights. Previous justice theories have tended to assume that there is something unique about the justice concept; something that makes the process of how justice judgments are formed stand apart compared to the processes with which people form judgments of other constructs (see, e.g., Lerner, 1977, 1980, 2003; Montada, 1998, 2002; see also Cropanzano, Goldman, & Folger, 2003; Folger, 1984, 2001; Folger, Cropanzano, & Goldman, 2005; Mikula, 2005). It is my conjecture is that justice may sometimes have unique qualities and that it may sometimes not. A challenge for future justice research is to find out the conditions under which the justice judgment process shows unique aspects and when it does not. An important, indeed a theoretically exciting aspect of the current findings is that they suggest that justice judgments conform to other alarm-related judgments (see, e.g., Eisenberger & Lieberman, 2004; Eisenberger et al., 2003; Murray et al., 2002, 2005).

More generally, although I truly appreciate and value the attempts in the justice literature to study what makes the psychology of the justice concept different from the psychology of other concepts, I also argue that this may have come at the expense of relative neglect for a thorough examination of the basic processes that also may play a pivotal role in how people form justice judgments. Therefore, in the alarm-system line of research I have explicitly focused on the basics of the justice judgment process. Indeed an important implication of the findings presented in this line of research is that the findings suggest that the justice judgment process may

share important similarities with the processes that determine other human judgments and responses. In investigating this issue, one aim of this line of work was to show that the justice judgment process may be affected by sometimes subtle cues in people's environments; cues that may not have been revealed when one would have studied justice judgments as being something unique, compared to other human judgments.

The studies reported in the Van den Bos and colleagues (2006) paper were in part inspired by the conjecture that uncertainty management findings reported in the justice literature (see, e.g., Van den Bos, 2001; Van den Bos & Lind, 2002; Van den Bos et al., 2005) may be explained by the notion that experiences of personal uncertainty may often constitute alarming events to people and that it is this alarm-related component of uncertainty manipulations that may be largely driving uncertainty effects reported in the social psychological literature (e.g., Hogg, 2005; McGregor, Zanna, Holmes, & Spencer, 2001; Murray et al., 2002). Very interesting in this respect are some auxiliary findings from fMRI testing that we recently collected (Van den Bos & Rijkema, 2007). Findings of this study show that watching an exclamation point leads to a brain activation pattern that shares areas (medial frontal gyrus, Brodmann area [BA] 9) with the brain regions found to be active in personal moral judgment tasks (Greene, Somerville, Nystrom, Darley, & Cohen, 2001). Furthermore, it is known that BA 9 is sensitive for tapping the combined effects of cognitive and emotional responses of people (see, e.g., Greene, Nystrom, Engell, Darley, & Cohen, 2004). This may indicate that a combination of cognition and emotion may best predict how people will form justice judgments (Van den Bos et al., 2006) and make personal moral decisions (Greene et al., 2001, 2004). In other words, the social psychology of social justice, morality, and uncertainty management may be processes of "hot cognition," and not "cold cognition" (Abelson, 1963; Kunda, 1999; Stapel, 2003).

CONCLUSIONS

To conclude, in this chapter on hot cognition and social justice judgments, I focused on what we may learn when we study the justice judgment process by focusing on the combined influence that cognitive and affective factors may exert on this process. To this end, I reviewed some recent lines of reasoning that try to show the circumstances when affective and when cognitive factors may be more likely to impact the process leading people to form justice judgments (e.g., Van den Bos, 2003). Concepts such as information uncertainty and stimulus ambiguity may provide relevant moderating conditions in this respect. I further argued, and provided some suggestive evidence (Van den Bos et al., 2006), that the justice judgment

process should be understood as often involving hot cognitive processes (Abelson, 1963; Kunda, 1999; Stapel, 2003). Thus, the proposition put forward here is that, not unlike the cognitive appraisal literature (see, e.g., Smith & Kirby, 2001), cognitions about just and unjust events are colored by the feelings people are experiencing before or as a result of the just and unjust events (see also Tomaka & Blascovich, 1994; Zohar, 1997).

When studying the relationship between justice and affect, other issues are clearly important as well. These issues include topics such as approach and avoidance motivations and the affective connotations these motivational states may have (e.g., Van Prooijen, Karremans, & Van Beest, 2006) as well as the distinction that at least sometimes should be made between different emotions and different affective states that people are experiencing as a result of different types of fair and unfair events (e.g., Peters, Van den Bos, & Karremans, 2006). That said, the integrative attempt I put forward in this chapter examines the social-cognitive process by which justice judgments are formed (see, e.g., Folger, 1986; Van den Bos & Lind, 2002), while at the same time trying to pay proper attention to the role that motivations (see, e.g., De Cremer & Tyler, 2005), emotions (e.g., Cropanzano, Weiss, Suckow, & Grandey, 2000), and affective states (e.g., Sinclair & Mark, 1991) may have in the justice judgment process. Studying the combined influence of cognitive and affective factors on how people form and react to justice judgments may reveal that these processes should be conceived as often more involving processes of hot cognition than processes of cold cognition.

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NOTE

1. Whereas I and others (e.g., McGregor et al., 2001) are focusing on "personal uncertainty," it should be noted here that De Cremer and Sedikides (2005) concentrated on a related yet slightly different concept, namely "self-uncertainty." Self-uncertainty can refer to different levels of the self, such as personal, relational, and collective selves. In my research, I mainly made personal uncertainty a salient issue by asking participants to think about the emotions they are experiencing when they are uncertain about themselves (Van den Bos, 2001; Van den Bos et al., 2005). Thus, to be very precise, the "personal uncertainty" manipulation I used in my research in essence is

referring to "personal self-uncertainty." I will often abbreviate this term to "personal uncertainty." Future research may want to examine in more detail the possible distinctions and overlaps between the different types of uncertainty concepts and operationalizations reported in the literature.

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