



Report

Narrowing down to open up for other people's concerns: Empathic concern can be enhanced by inducing detailed processing

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ARTICLE INFO

Article history:

Received 22 July 2010

Revised 19 October 2010

Available online 23 November 2010

Keywords:

Empathy

Empathic concern

Power

Regulatory focus

Processing styles

ABSTRACT

In three experiments inducing a detailed versus abstract processing style using perceptual (Experiment 1), motivational (Experiment 2), and social (Experiment 3) manipulations, we found that empathic concerns are enhanced in contexts associated with a more detailed processing style (i.e., local perceptual scope, prevention motivation, and low power, respectively). Hence, simple contextual changes known to impact on processing styles may influence empathy beyond individual differences. The present findings are discussed in terms of their implications for empathy research and their relation with research on mood and level of construal.

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Human development and physical and psychological well-being depend on the ability to function effectively within a social context, and a key component of effective social interaction is empathy. Empathy is related to a host of socially advantageous behaviors such as helping (Batson, O'Quin, Fultz, Vanderplas, & Isen, 1983) and cooperation (Rumble, Van Lange, & Parks, 2010). It promotes health after physician–patient encounters (Van Dulmen & Bensing, 2002) and improves intergroup relations (Dovidio et al., 2010). Furthermore, several psychopathologies are marked by deficits in empathy, and a host of psychotherapeutic approaches regard empathy as a fundamental component of successful treatment (Decety & Moriguchi, 2007; Farrow & Woodruff, 2007).

Although empathy has so far been mostly treated as a stable individual disposition (e.g., Spreng, McKinnon, Mar, & Levine, 2009), the investigation reported here explores the possibility that subtle contextual manipulations leading to a detailed (versus holistic) processing style enhance people's propensity to empathize with others. Such research should inform us how empathy can be facilitated.

Unpacking empathy: empathic concern requires concreteness and self-other differentiation

In its broadest sense, empathy refers to the reactions of one individual to the observed experiences of another individual (e.g., Davis, 1983). However, empathy still remains a riddle in social

psychology (Allport, 1968). A clear, consensual definition of the construct remains elusive (e.g., Batson, 2009; Spreng et al., 2009), contributing to a disagreement in the literature about the exact nature of the phenomenon (e.g., Decety & Jackson, 2004; Preston & de Waal, 2002), or rather the phenomena (e.g., Batson, 2009).

In their seminal article, Preston and de Waal (2002) provide an interdisciplinary integration of theory and data on empathy and propose the perception–action model (PAM). The PAM states that at the core of empathic capacity lies a mechanism providing an observer (the subject) with access to the subjective state of another (the object) through the subject's own neural and bodily representations (i.e., perception–action links; see also de Waal, 2008). According to the PAM, when the subject attends to the object's state, the subject's neural representations of similar states are automatically and unconsciously activated, which lets the subject share its emotions and needs, ultimately fostering compassion and altruistic behavior. PAM's utility is that it establishes empathy along a continuum ranging from mimicry (e.g., Dimberg, Thunberg, & Elmhed, 2000) and emotional contagion (e.g., Blairy, Herrera, & Hess, 1999; Hatfield, Cacioppo, & Rapson, 1994) to perspective taking.

Along this continuum, different psychological states can be distinguished (see Batson, 2009). They map onto a general consensus that at the very basic level a distinction should be made between two components of the empathy construct (e.g., Baron-Cohen & Wheelwright, 2004; Preston & de Waal, 2002; Spreng et al., 2009), which are also found – despite a significant heterogeneity of measures – in self-report measures (Ickes, 1997). The *cognitive* component refers to the ability to accurately infer what others are thinking or feeling. It is also called empathic accuracy (Ickes, 1997), but more commonly labeled perspective taking (cf., Batson, 2009, for further labels). In contrast,

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the *affective* component comprises compassionate emotions felt for others. Generally called empathic concern (Davis, 1983; cf., Batson, 2009, for further labels), this component refers to other-oriented emotional responses elicited by and congruent with the perceived welfare of the other person (e.g., Batson, 1991). Of note, congruency refers to the valence of the emotion often being the same, but it does not imply that the specific *content* of the emotional reaction is the same¹.

The present research focuses on the latter (i.e., affective) component and in what follows we will refer to it as emotional concern, which describes an emotional reaction (e.g., compassion) to another's emotional response (e.g., sadness) that generally does not depend on a cognitive understanding of why a person is suffering (Rankin, Kramer, & Miller, 2005).

Because empathic concern comprises experiencing an emotion that is different from the other person's emotion, it requires some differentiation of one's own and the other's emotional states, concrete representations of these states (e.g., not merely negative affect), as well as some level of awareness of the distinction (Eisenberg & Strayer, 1987). One may, for example, feel sorrow, but not deep grief, when seeing someone mourning. The view that empathic concern requires concrete differentiation between self and other emotions is stressed by Decety and Jackson (2004; see also Hoffman, 2000, and Eisenberg, 2000); who in their excellent review of the literature identify self-other awareness as one of three functional components of empathy.

To this point, the development of a self-representation is vital for the empathic process (Lewis, 1999), with the emergence of self-other differentiation being highly correlated with the development of empathy (e.g., Meltzoff & Moore, 1992; Zahn-Waxler, Radke-Yarrow, & King, 1979), which in turn is correlated with mirror-self recognition (Zahn-Waxler et al., 1979; cf. Gallup, 1982). A self-other distinction is also relevant to Preston and de Waal's PAM (2002), which stresses its role in differentiating activation caused by one's own action from that generated by the perception of action in another.

Of interest, Preston and de Waal (2002) also proposes that the basic perception–action process may be subject to contextual influences. How might then contextual changes influence empathic concerns? Building on the importance of concreteness and self-other differentiation, we suggest that people's empathic concerns may be enhanced by a detailed and concrete (compared to an abstract and holistic) processing style.

Increasing empathic concerns through detailed processing: perceptual, motivational and social inductions

Processing styles are content-free ways of perceiving the world, and they can carry over to other, unrelated tasks, without people's awareness (e.g., Schooler, 2002). They are thus cases of procedural priming and describe *how* we look at or attend to information: We may focus on the details or we may perceive the entire gestalt (Navon, 1977). To illustrate, Navon (1977) showed participants large letters made of small letters and had them report on whether or not a target letter had been presented (the Navon-letter-task). In general, participants' decisions were faster when the target letter matched

the global letters than the local letters (speaking to his global dominance hypothesis). These different processing styles may be visualized by imagining two blobs. In a concrete processing style one “zooms in” on the blobs and thus subjectively increases their distance, increases their perceived dissimilarity, and focuses on the constituting parts rather than the whole. Contrary, with an abstract processing style one “zooms out” and thus subjectively decreases their distance, increases their perceived similarity, and focuses on the whole (cf., Förster, 2009).

Differences in processing styles are of central interest in cognitive, social, and clinical psychology (Förster & Dannenberg, 2010). Of importance here, Förster (2009) found evidence for a link between differentiation processes and perceptual processing styles, namely a facilitation of dissimilarity (similarity) search upon local (global) perceptual scope priming. These differences in perceptual processing styles have also been related to other forms of conceptual processing, for example in social judgments, with local (global) processing enhancing contrast (assimilation) effects with others (e.g., Förster, Liberman, & Kuschel, 2008; Förster, Özelsel, & Epstude, 2010).

Differences in perceptual and conceptual processing may also be elicited by real world variables. For example, relying on regulatory focus (Higgins, 1997) as a real life variable at the motivational level, Förster and Higgins (2005) found participants' chronic prevention strength to be positively correlated with the speed of processing local letters in the Navon-letter-task, whereas the reverse was true for promotion strength. Friedman and Förster (2001) further report evidence of enhanced local (global) processing after an induced prevention (promotion) focus (cf. also Förster, Friedman, Özelsel, & Denzler, 2006). For power, a real life variable at the social level, Smith and Trope (2006) showed effects of power-priming on processing style for both perceptual breadth and abstractness. For example, at the perceptual level low-power participants made less plausible guesses concerning a fragmented picture than high-power or control participants. At the conceptual level, low-power participants performed worse than high-power or control participants in a task measuring inclusiveness of categorization. Finally, Förster (2009; Experiments 8, 9) demonstrated that both power and regulatory focus map onto the differentiation processes induced by processing styles: low-power and prevention focus participants generated more dissimilarities than similarities, whereas high-power or promotion focus participants generated more similarities.

Taken together, these findings suggest that prevention focus and low power narrow conceptual and perceptual scope, leading to a detailed and concrete processing. Empathic concern requires self-other differentiation and consists of ‘zooming in’ on concrete other-oriented feelings of warmth and compassion (i.e., feelings different from those of the other). Building upon this reasoning, it stands to reason that empathic concern should be facilitated when people engage in a more detailed and concrete form of processing. This is what we tested in three experiments.

Overview of the experiments

We induced a detailed and concrete versus an abstract and holistic form of processing using contextual manipulations at the perceptual, motivational, and social levels (see Förster & Dannenberg, 2010). Experiment 1 induced a local or global perceptual scope or both (control). Experiment 2 induced a prevention or promotion focus motivational state. Finally, Experiment 3 primed the concept of low or high power. We predicted that participants' empathic concerns would be facilitated under conditions promoting a detailed, concrete processing style (i.e., local perceptual scope, a prevention focus, or a sense of low power) as opposed to conditions promoting a holistic, abstract processing style (i.e., global perceptual scope, a promotion focus, or a sense of high power).

¹ Amongst other factors, this distinguishes empathic concern from coming to feel as the other (i.e., emotional contagion; Hatfield et al., 1994; also “automatic emotional empathy”, Hodges & Wegner, 1997). Contagion may represent a first step in the processes of experiencing empathy (Preston & de Waal, 2002). However, Blairy et al. (1999) demonstrated that shared affect also decreases emotion recognition in others and impairs empathic accuracy. More importantly, emotional contagion can also lead to feeling distressed at witnessing another's suffering (i.e., empathic/personal distress; Hoffman, 1981; Batson, 1991), and thus feelings of being distressed by the state of the other and not for the other (which is our focus). Personal distress is a self-focused, aversive affective reaction, usually related with the desire to alleviate one's own but not the other's distress (e.g., Batson, 1991).

Experiment 1

In this experiment, we induced a local, a global, or both perceptual scopes (control) in participants with the Navon-letter-task (Navon, 1977). As few data speak to the direction of effects of perceptual scope, we included a control group. Because empathic concern requires self-other differentiation and representations of concrete other-oriented emotions, we expected that participants' empathic concern would be facilitated when primed with a local (as opposed to a global perceptual) scope.

Method

Participants and design

Forty-one Dutch-speaking students (16 females) participated for course credit and were randomly assigned to either a local or a global perceptual scope or to a control condition.

Procedure and materials

Participants learned that they would participate in two unrelated studies. In order to induce a local versus global perceptual scope, participants first completed the global–local processing task (Navon, 1977; for detailed descriptions, see Förster, 2009; Macrae & Lewis, 2002). On a computer screen participants saw a series of global letters (2.5 cm × 2.5 cm) formed with local letters (0.5 cm × 0.5 cm). Prior to each trial, participants saw a fixation cross presented for 500 ms at the center. Participants were presented a total of eight global composite letters in random order and had to press as quickly as possible a response key if the stimulus contained the letter *L*, and a different response key if it contained the letter *H*. In the *global perceptual scope condition* the *Hs* and the *Ls* happened to always be the global letters (e.g., an *H* made of *Fs* or an *L* made of *Ts*), in the *local perceptual scope condition* they happened to always be the local letters (e.g., an *F* made of *Hs* or a *T* made of *Ls*), and in the *control condition* half of the targets were global and half were local letters. Overall, participants were confronted with 48 trials stemming from eight sets of composite letters.

Upon completion, participants filled in a scale allegedly pre-tested as part of a different study. This was the Empathic Concern scale (IRI; Davis, 1980; $\alpha = 0.80$), containing 7 items to be rated on a scale ranging from 1 (*does not describe me well*) to 5 (*describes me very well*). Sample items are “When I see someone being taken advantage of, I feel kind of protective toward them” and “Sometimes I don't feel sorry for other people when they are having problems” (reversed). Among a plethora of measures, the Interpersonal Reactivity Index (IRI; Davis, 1980) is the most relevant and frequently used questionnaire for measuring individual differences in empathic tendencies (Baron-Cohen & Wheelwright, 2004; Pulos, Elison, & Lennon, 2004) and shows covariation with activity in the anterior cingulate and the anterior insula/fronto-insular cortex (i.e., regions activated when observing pain in others; Singer et al., 2006).

Results and discussion

A significant omnibus ANOVA revealed that the priming manipulation influenced participants' empathic concern, $F(1,38) = 3.73$, $p = .033$, $\eta_p^2 = .16$. In line with predictions, follow-up contrasts

indicated that participants in the local priming condition reported greater empathic concern ($M = 3.31$, $SD = 0.40$) than participants in the global priming ($M = 3.00$, $SD = 0.25$) or in the control condition ($M = 3.05$, $SD = 0.27$), $F(1,39) = 7.28$, $p = .010$, $\eta_p^2 = .16$, whereas the latter two conditions did not differ ($F < 1$; see Table 1).

The control condition informs us that it is the local perceptual scope along with its detailed processing style that made participants report greater empathic concern and not the global perceptual scope along with its holistic processing style that decreased their concern.

Experiment 2

Experiment 2 primed participants with a promotion focus on ideals or a prevention focus on responsibilities and duties (Higgins, 1997) using a maze-task (Friedman & Förster, 2001). Prevention and promotion focus are associated with a local versus global perceptual scope, respectively (Förster & Higgins, 2005; Förster et al., 2006; cf. also Friedman & Förster, 2001), as well as dissimilarity versus similarity search processes, respectively (Förster, 2009). We reasoned that the detailed, concrete processing style induced by a prevention focus would facilitate ‘zooming in’ on concrete, other-oriented emotions in participants (i.e., would increase empathic concern) as compared to the abstract, holistic processing style associated with ‘zooming out’ and induced by a promotion focus.

Method

Participants and design

Forty French-speaking students (34 females) took part for course credit and were randomly assigned to either a promotion or a prevention focus condition.

Procedure and materials

The procedure followed that of Experiment 1, but in the ostensible first study participants now completed the regulatory focus manipulation (Friedman & Förster, 2001): Participants had 3 minutes to draw the path for a mouse through a labyrinth. In the *promotion focus condition* this entailed leading a hungry mouse through the labyrinth to a piece of cheese. In the *prevention focus condition* participants had to save the mouse from a bird of prey, leading it safely to its mouse hole.

Upon completion, participants reported their empathic concern (IRI; Davis, 1980; $\alpha = 0.66$). Participants also filled in a questionnaire unrelated to this study. Order of questionnaires was counterbalanced, had no effects ($Fs < 1$), and is not further discussed. Finally, they were debriefed, thanked, and given course credit.

Results and discussion

An ANOVA revealed that regulatory focus influenced participants' empathic concern, $F(1,38) = 5.40$, $p = .026$, $\eta_p^2 = .12$. As predicted, participants manifested a greater empathic concern when primed with prevention ($M = 4.26$, $SD = 0.45$) rather than with promotion focus ($M = 3.88$, $SD = 0.59$; see Table 1).

These findings extend the results found for detailed versus abstract processing style manipulations at the perceptual level to the motivational level, in showing that contextual changes known to

Table 1
Overview on Experiments 1–3: empathic concern as a function of experimental condition.

	Experiment 1: perceptual scope			Experiment 2: regulatory focus		Experiment 3: power	
	Local	Control	Global	Prev.	Prom.	Low	High
Empathic concern	3.31 (0.40)	3.05 (0.27)	3.00 (0.25)	4.2 (0.45)	3.88 (0.59)	3.89 (0.45)	3.47 (0.59)

Note. Standard deviations are presented in parentheses; Prev. = Prevention; Prom. = Promotion.

facilitate a detailed form of processing at any of these two levels facilitate empathic concern. Furthermore, they attest to the reported relation between perceptual scope and regulatory focus (Förster & Higgins, 2005; Förster et al., 2006; Friedman & Förster, 2001).

Experiment 3

Experiment 3 addressed the social level and investigated whether high- versus low-power, manipulated with a word-completion-task (Schmid Mast, Jonas, & Hall, 2009), influences empathic concern. Recent research suggests that low versus high power facilitates detailed versus abstract processing, respectively (Smith & Trope, 2006; for bidirectional evidence see Smith, Wigboldus, & Dijksterhuis, 2008). Based on these findings, and research showing a link between low power and differentiation processes (Förster, 2009), we predicted that the detailed, concrete processing style associated with low power should facilitate empathic concern.

Method

Participants and design

Forty French-speaking students were paid for taking part in a battery of unrelated studies, which involved male participants only. They were randomly assigned to the powerful or the powerless condition.

Procedure and materials

The procedure followed the previous experiments, but as ostensible first study participants received a booklet containing the power priming: a word-completion-task pre-tested for power and valence (Schmid Mast et al., 2009, p. 839f). To ensure implicit priming, participants were probed for suspicion (see Schmid Mast et al., 2009). Four participants were excluded from the analysis because they suspected that the word-completion-task was related to the empathic concern measure, thus leaving a total of 36 participants. Each version of the word-completion-task consisted of 40 fragmented words: 20 were the same neutral words in both conditions and the remaining 20 were associated with being either *powerful* or *powerless* (e.g., “po_er”, and “su_mi_sion”).

Upon completion, participants turned to the ostensible second study and filled the Empathic Concern scale (IRI, Davis, 1980; $\alpha = 0.74$). Finally, they were debriefed, thanked, and paid 5€.

Results and discussion

An ANOVA revealed that power priming influenced participants' empathic concern, $F(1,34) = 5.76$, $p = .022$, $\eta_p^2 = .15$. As predicted, participants reported greater empathic concern when primed with low ($M = 3.89$, $SD = 0.45$) than high power ($M = 3.47$, $SD = 0.59$; see Table 1).

In order to extend the present findings to another power manipulation and a mixed-gender sample, we conducted a further, fourth experiment in which we primed power by situational recall. In this fourth experiment ($N = 41$; 32 females) the procedure followed the previous power-experiment, but we now primed power by having participants recall a situation in which they had power over someone else or in which someone else had power over them (see Galinsky, Magee, Ines, & Gruenfeld, 2006, for detailed wording of participants' instructions). Using this alternative manipulation of power and a mixed sample indeed replicated our previous findings: low-power participants reported greater empathic concern ($M = 4.02$, $SD = 0.58$) than high-power participants ($M = 3.83$, $SD = 0.55$), $F(1,39) = 5.867$, $p = .020$, $\eta_p^2 = .13$.

General discussion

Our data suggest that compared with a holistic and abstract processing style, a detailed and concrete processing style facilitates people's propensity to care about others' feelings. Experimentally manipulated local perceptual scope (versus global perceptual scope; Experiment 1), prevention focus (versus promotion focus; Experiment 2), and low power (versus high power; Experiment 3) all contributed to increase participants' level of empathic concern. Experiment 1 included a control condition and suggests that it is the detailed processing style induced by a local perceptual scope that facilitates participants' empathic concern and not the holistic processing style induced by a global perceptual scope that inhibits it. These results also suggest that in addition to motivational or affective factors that may moderate people's empathic dispositions, purely cognitive manipulation of processing styles that are unrelated to affect (see Förster & Dannenberg, 2010) facilitate empathy.

Importantly, our claim is not that detailed (versus abstract) processing by itself explains sympathetic concern for others, but rather that this processing style underpins and facilitates it because it is linked to processes of differentiation (Förster, 2009) and to concrete representations (e.g., Förster & Higgins, 2005; Smith & Trope, 2006; for a review Förster & Dannenberg, 2010), which are both relevant for empathic concern. As such, our findings support Preston and de Waal's (2002) theorizing that self-other distinction is relevant to differentiate activation caused by one's own action from that generated by the perception of action in another.

The current experiments are the first to demonstrate how contextual changes promoting a detailed processing style influence people's empathic concern. In light of the converging results on a measure that assesses individual differences in empathy, our experiments suggest that IRI (Davis, 1980) outcomes might be inflated or deflated depending on whether the testing situation induces a detailed versus holistic processing style, respectively (e.g., a prevention focus elicited by loss-framings or a promotion focus elicited by gain-framings).

Our research also draws attention to a largely overlooked aspect of empathy, which is the initial perception of the affective state of a third party. As de Waal (2008) points out, a well documented example of empathic concern typical of humans and apes (but rare in monkeys and other species) is consolation: the reassurance provided by an uninvolved bystander to one (usually the victims) of the parties involved in an aggressive incident. The findings suggest that people with a concrete, detailed processing style may be more prone to proximal perception of empathic cues. As such they open a novel research avenue. To what extent empathic concern facilitated by detailed processing and measured by the IRI (Davis, 1980) translates into real behavioral consolation or even interventions also need to be investigated by future research, as our findings stop short of demonstrating effects for social behavior.

Implications for regulatory focus and power research

More generally, our parallel findings at the perceptual, motivational, and social levels converge nicely with research pointing to a structural relation in terms of processing styles induced by perceptual scope, regulatory focus, and power – which all have been furthermore found to entail a focus on dissimilarities (Förster, 2009). They also underpin research reporting fit effects between these levels and more precisely between regulatory focus and perceptual scope (Förster & Higgins, 2005; Förster et al., 2006; Friedman & Förster, 2001), regulatory focus and power (Sassenberg, Jonas, Shah, & Brazy, 2007), and power and perceptual scope (Smith & Trope, 2006; Smith et al., 2008). As such, they constitute an extension of the literature on power, regulatory focus, and processing styles as well as their interrelations.

At first sight, our findings concerning power may seem at odds with Schmid Mast et al. (2009) who found high power to result in more interpersonal sensitivity. However, their measures comprised “empathic accuracy paradigms” assessing “correct inference of other’s thoughts and feelings” (p. 838) which address the cognitive component of empathy, and more precisely perspective taking (Spreng et al., 2009). Conversely, our findings dovetail nicely with theoretical advances claiming (e.g., Fiske, 1993; Keltner, Gruenfeld, & Anderson, 2003) and research findings indicating a detrimental effect of power on empathy (e.g., Galinsky et al., 2006; Van Kleef et al., 2008). Somewhat ironically, even though high-power individuals are more responsive to affordances of different situations (Guinote, 2008), they seem to be less responsive to the needs of others. The current experiments extend these findings by pointing to the other side of the coin: low power may increase empathic concern. They further suggest that it may not be power per se but the processing styles associated with various power roles that influence people’s empathy.

Level of construal and processing styles

The careful reader might wonder why we equated detailed and concrete (versus holistic and abstract) when referring to the processing style responsible for the obtained results. In line with other researchers (e.g., Förster et al., 2010, p. 237, who refer to a “local, detail oriented” versus a “global, holistic processing style”) and based on construal level theory we believe the concreteness and detailedness of the processing style to be tightly related: “higher levels of abstractness contain less concrete details” (Trope & Liberman, 2010, p. 441). Thus, a detailed processing style – and a low-level construal, defined as being concrete and contextualized (Trope & Liberman, 2003) – involves forming a concrete representation of an object or experience. Reciprocally, focusing on details of an object or experience entails concrete rather than abstract representations. Although our set of experiments did not involve manipulating level of construal, similar findings may be expected for a low level of construal, as it has been demonstrated to induce detailed and concrete processing (Liberman & Förster, 2009).

In line with this interpretation, Sanna, Lundberg, Parks, and Chang (2010) have recently shown that the level at which a social dilemma problem is construed can predict the degree of cooperation (i.e., a pro-social behavior known to involve empathy; Rumble et al., 2010). They predicted and found that when motives were framed abstractly (e.g., being cooperative or competitive), high levels of construal resulted in more cooperation and competitiveness, respectively (see also Giacomantonio, Dreu, Shalvi, Sligte, & Leder, 2010). However, when motives were framed *concretely* (e.g., returning resources versus taking them from a common resource pool), low levels of construal produced more cooperation and competitiveness, respectively. However, whereas Sanna et al. (2010) show that people are more altruistic when their construal level fits the description of the altruistic behavior, our findings suggest that peoples’ empathic concern is generally enhanced when they adopt a detailed and concrete processing style.

Importantly, we are not suggesting that level of construal is driving the effects in our studies. Rather, we see level of construal as a further important psychological variable that is correlated with processing styles (just as regulatory focus and power) and that impacts on (dis)similarity focus (Förster, 2009). Indeed, Liberman and Förster (2009) found temporally, spatially, and socially close (versus distant) events to narrow (respectively to broaden) perceptual scope in the Navon-letter-task. There is also evidence testifying to a relation between regulatory focus and level of construal that seems to be related to processing styles evoked: when people are in a prevention (promotion) focus their goals are construed more concretely (abstractly) and imagined in the more proximal (distant) future (Pennington & Roese,

2003). Overall, level of construal, with its relation to distance, perceptual scope, and concreteness versus abstractness of representations is a further psychological variable that deserves attention in future studies on empathic concern.

Although it would be beyond the scope of this article to discuss all further moderators here, we like to direct the interested reader to Förster and Dannenberg (2010), who give an exhaustive overview of other variables triggering global versus local processing and that may stipulate future research on empathy. Below we turn to discussing one of them, namely, mood, as it seems relevant in light of our findings.

Limitations

In our experiments, empathy was measured with the IRI (Davis, 1980), and this self-report measure leaves open the question of whether the increase in empathic concern under detailed compared to abstract processing translates into actual behavior. To be sure, other research has demonstrated IRI scores to relate to behavioral indicators of empathy. For example, while low scores on the IRI are related to offending behavior (for a meta-analysis see Jolliffe & Farrington, 2004) and abusive parenting (Francis & Wolfe, 2008), high IRI scores are related to social support provision in couples (Devoldre, Davis, Verhofstadt, & Buysse, 2010), volunteering for telephone help-lines (Paterson, Reniers, & Vollm, 2009; see also Unger & Thumhuri, 1997), and helping victimized schoolmates (Gini, Albiero, Benelli, & Altoè, 2007). Still, given the lack of behavioral measures in the present experiments, future research should clarify whether or not our reasoning also holds for behavioral indicators of empathic concern.

A second limitation may be seen in us not having considered mood. The careful reader might thus speculate that a prevention focus or low power induced anxiety or negative arousal in participants (i.e., a mediation of detailed and concrete processing by negative moods; Gasper, 2004; Gasper & Clore, 2002). However, four reasons bring us to question this conjecture. First, our initial experiment manipulated participants’ perceptual scope, which has not been shown to induce moods. Second, our regulatory focus manipulation has not been reported to affect mood, nor has mediation of moods with respect to detailed versus abstract processing styles or a (dis)similarity focus been reported (Förster, 2009; Förster & Higgins, 2005; Friedman & Förster, 2001; Sassenberg et al., 2007). For our power manipulations systematic mood differences were neither detected (Förster, 2009; Smith & Bargh, 2008; Smith & Trope, 2006; Schmid Mast et al., 2009). Third, the material used in Experiment 3 was carefully pre-tested for valence (see Schmid Mast et al., 2009). Finally, a recent meta analysis found mood effects on processing styles only for very strong, arousing moods (Baas, De Dreu, & Nijstad, 2008), which have not been reported concerning our subtle manipulations. Still, we concede that strong arousing affect *might* have an effect on processing style as positive affect broadens conceptual scope, and the reverse is true for negative affect (e.g., Baas et al., 2008; Gasper & Clore, 2002; Isen, 2000; Isen, Daubman, & Nowicki, 1987; Tyler & Tucker, 1982; for a review see Friedman & Förster, 2010). Further research should thus examine whether strong negative affect via detailed processing style facilitates empathic concerns.

Coda

To sum up, our results provide original evidence that an easy and simple way of getting people to experience compassion and pity for others and to feel tender and protective toward the less fortunate entails having them adopt a detailed, concrete processing style. If indeed this readiness to show compassion is matched by social behavior, helping and, more generally, pro-social behavior in interpersonal and intergroup contexts may be facilitated when people are brought to focus on the trees rather than on the forest.

Acknowledgments

The research was supported by Grant ARC06/11-337 from the Communauté Française de Belgique (second and third authors) and by a grant as Chargé de recherches du F.R.S. - FNRS (first author). We thank Marianne Schmid Mast for the priming materials used in Experiment 3.

References

- Allport, G. W. (1968). The historical background of modern social psychology. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology*. Reading, MA: Addison-Wesley.
- Baas, M., De Dreu, C. K. W., & Nijstad, B. A. (2008). A meta-analysis of 25 years of mood-creativity research: Hedonic tone, activation, or regulatory focus? *Psychological Bulletin*, 134, 779–806.
- Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger Syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, 34, 163–175.
- Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer*. Hillsdale: Erlbaum.
- Batson, C. D. (2009). These things called empathy: Eight related but distinct phenomena. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 3–16). Cambridge, MA: MIT Press.
- Batson, C. D., O'Quin, K., Fultz, J., Vanderplas, M., & Isen, A. M. (1983). Influence of self-reported distress and empathy on egoistic versus altruistic motivation to help. *Journal of Personality and Social Psychology*, 45, 706–718.
- Blairy, S., Herrera, P., & Hess, U. (1999). Mimicry and the judgment of emotional facial expressions. *Journal of Nonverbal Behavior*, 23, 5–41.
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology*, 10, 85.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multi-dimensional approach. *Journal of Personality and Social Psychology*, 44, 113–126.
- de Waal, F. B. M. (2008). Putting the altruism back into altruism: The evolution of empathy. *Annual Review of Psychology*, 59, 279–300.
- Decety, J., & Jackson, P. L. (2004). The functional architecture of human empathy. *Behavioral and Cognitive Neuroscience Reviews*, 3, 71–100.
- Decety, J., & Moriguchi, Y. (2007). The empathic brain and its dysfunction in psychiatric populations: Implications for intervention across different clinical conditions. *BioPsychoSocial Medicine*, 1, 22–65.
- Devoldre, I., Davis, M. H., Verhofstadt, L. L., & Buysse, A. (2010). Empathy and social support provision in couples: Social support and the need to study the underlying processes. *The Journal of Psychology*, 144, 259–284.
- Dimberg, U., Thunberg, M., & Elmehed, K. (2000). Unconscious facial reactions to emotional facial expressions. *Psychological Science*, 11, 86–89.
- Dovidio, J. F., Johnson, J. D., Gaertner, S. L., Pearson, A. R., Saguy, T., & Ashburn-Nardo, L. (2010). Empathy and intergroup relations. In M. Mikulincer & P. R. Shaver (Eds.), *Prosocial motives, emotions, and behavior* (pp. 393–408). Washington, DC: American Psychological Association.
- Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology*, 51, 665–697.
- Eisenberg, N., & Strayer, J. (1987). *Empathy and its development*. New York: Cambridge University Press.
- Farrow, T., & Woodruff, P. W. (2007). *Empathy in mental illness and health*. Cambridge: Cambridge University Press.
- Fiske, S. T. (1993). Controlling other people: The impact of power on stereotyping. *The American Psychologist*, 48, 621–628.
- Förster, J. (2009). Relations between perceptual and conceptual scope: How global versus local processing fits a focus on similarity versus dissimilarity. *Journal of Experimental Psychology: General*, 138, 88–111.
- Förster, J., & Dannenberg, L. (2010). GLOMO^{SVS}: A systems account of global versus local processing. *Psychological Inquiry*, 21, 175–197.
- Förster, J., Friedman, R. S., Özelsel, A., & Denzler, M. (2006). Enactment of approach and avoidance behavior influences the scope of perceptual and conceptual attention. *Journal of Experimental Social Psychology*, 42, 133–146.
- Förster, J., & Higgins, E. T. (2005). How global versus local perception fits regulatory focus. *Psychological Science*, 16, 631–636.
- Förster, J., Liberman, N., & Kuschel, S. (2008). The effect of global versus local processing styles on assimilation versus contrast in social judgments. *Journal of Personality and Social Psychology*, 94, 579–599.
- Förster, J., Özelsel, A., & Epstude, K. (2010). How love and lust change people's perceptions of relationship partners. *Journal of Experimental Social Psychology*, 46, 237–246.
- Francis, K. J., & Wolfe, D. A. (2008). Cognitive and emotional differences between abusive and non-abusive fathers. *Child Abuse & Neglect*, 32, 1127–1137.
- Friedman, R., & Förster, J. (2001). The effects of promotion and prevention cues on creativity. *Journal of Personality and Social Psychology*, 81, 1001–1013.
- Friedman, R., & Förster, J. (2010). Implicit affective cues and attentional tuning: An integrative review. *Psychological Bulletin*, 136, 875–893.
- Galinsky, A. D., Magee, J. C., Ines, M. E., & Gruenfeld, D. H. (2006). Power and perspectives not taken. *Psychological Science*, 17, 1068–1074.
- Gallup, G. G. (1982). Self-awareness and the emergence of mind in primates. *American Journal of Primatology*, 2, 237–248.
- Gasper, K. (2004). Do you see what I see? Affect and visual information processing. *Cognition & Emotion*, 18, 405–421.
- Gasper, K., & Clore, G. L. (2002). Attending to the big picture: Mood and global versus local processing of visual information. *Psychological Science*, 13, 34–40.
- Giacomantonio, M., De Dreu, C. K. W., Shalvi, S., Sligte, D., & Leder, S. (2010). Psychological distance boosts value-behavior correspondence in ultimatum bargaining and integrative negotiation. *Journal of Experimental Social Psychology*, 46, 824–829.
- Gini, G., Albiero, P., Benelli, B., & Altoè, G. (2007). Does empathy predict adolescents' bullying and defending behavior? *Aggressive Behavior*, 33, 467–476.
- Guinote, A. (2008). Power and affordances: When the situation has more power over powerful than powerless individuals. *Journal of Personality and Social Psychology*, 95, 237–252.
- Hatfield, E., Cacioppo, J. T., & Rapson, R. (1994). *Emotional contagion*. Cambridge: Cambridge University Press.
- Higgins, E. T. (1997). Beyond pleasure and pain. *The American Psychologist*, 52, 1280–1300.
- Hodges, S. D., & Wegner, D. M. (1997). Automatic and controlled empathy. In W. Ickes (Ed.), *Empathic accuracy* (pp. 311–339). New York: Guilford Press.
- Hoffman, M. L. (1981). The development of empathy. In J. P. Rushton, & R. M. Sorrentino (Eds.), *Altruism and helping behavior: Social, personality, and developmental perspectives* (pp. 41–63). Hillsdale: Erlbaum.
- Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice*. New York: Cambridge University Press.
- Ickes, W. E. (1997). *Empathic accuracy*. New York, NY: Guilford.
- Isen, A. M. (2000). Some perspectives on positive affect and self-regulation. *Psychological Inquiry*, 11, 184–187.
- Isen, A. M., Daubman, K. A., & Nowicki, G. P. (1987). Positive affect facilitates creative problem solving. *Journal of Personality and Social Psychology*, 52, 1122–1131.
- Jolliffe, D., & Farrington, D. P. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and Violent Behavior*, 9, 441–476.
- Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). *Power, approach, and inhibition*. Lewis, M. (1999). Social cognition and the self. In P. Rochat (Ed.), *Early social cognition* (pp. 81–98). New York, NY: Lawrence Erlbaum.
- Liberman, N., & Förster, J. (2009). The effect of psychological distance on perceptual level of construal. *Cognitive Science*, 33, 1330–1341.
- Macrae, C. N., & Lewis, H. L. (2002). Do I know you? Processing orientation and face recognition. *Psychological Science*, 13, 194–196.
- Meltzoff, A. N., & Moore, M. K. (1992). Early imitation within a functional framework: The importance of person identity, movement, and development. *Infant Behavior & Development*, 15, 479–505.
- Navon, D. (1977). Forest before trees: The precedence of global features in visual perception. *Cognitive Psychology*, 9, 353–383.
- Paterson, H., Reniers, R., & Vollm, B. (2009). Personality types and mental health experiences of those who volunteer for helplines. *British Journal of Guidance & Counselling*, 37, 459–471.
- Pennington, G. L., & Roese, N. J. (2003). Regulatory focus and temporal distance. *Journal of Experimental Social Psychology*, 39, 563–576.
- Preston, S. D., & de Waal, F. B. M. (2002). Empathy: Its ultimate and proximate bases. *The Behavioral and Brain Sciences*, 25, 1–72.
- Pulos, S., Elison, J., & Lennon, R. (2004). The hierarchical structure of the Interpersonal Reactivity Index. *Social Behavior and Personality*, 32, 355–359.
- Rankin, K. P., Kramer, J. H., & Miller, B. L. (2005). Patterns of cognitive and emotional empathy in frontotemporal lobar degeneration. *Cognitive and Behavioral Neurology*, 18, 28–36.
- Rumble, A. C., Van Lange, P. A. M., & Parks, C. D. (2010). The benefits of empathy: When empathy may sustain cooperation in social dilemmas. *European Journal of Social Psychology*, 40, 856–866.
- Sanna, L. J., Lundberg, K. B., Parks, C. D., & Chang, E. C. (2010). Think and act globally, think and act locally: Cooperation depends on matching construal level in social dilemmas. *Journal of Experimental Social Psychology*, 46, 1126–1129.
- Sassenberg, K., Jonas, K. J., Shah, J. Y., & Brazy, P. C. (2007). Why some groups just feel better: The regulatory fit of group power. *Journal of Personality and Social Psychology*, 92, 249–267.
- Schmid Mast, M., Jonas, K., & Hall, J. A. (2009). Give a person power and he or she will show interpersonal sensitivity: The phenomenon and its why and when. *Journal of Personality and Social Psychology*, 97, 835–850.
- Schooler, J. W. (2002). Verbalization produces a transfer inappropriate processing shift. *Applied Cognitive Psychology*, 16, 989–997.
- Singer, T., Seymour, B., O'Doherty, J. P., Stephan, K. E., Dolan, R. J., & Frith, C. D. (2006). Empathic neural responses are modulated by the perceived fairness of others. *Nature*, 439, 466–469.
- Smith, P. K., & Bargh, J. A. (2008). Nonconscious effects of power on basic approach and avoidance tendencies. *Social Cognition*, 26, 1–24.
- Smith, P. K., & Trope, Y. (2006). You focus on the forest when you're in charge of the trees: Power priming and abstract information processing. *Journal of Personality and Social Psychology*, 90, 578–596.
- Smith, P. K., Wigboldus, D. H. J., & Dijksterhuis, A. (2008). Abstract thinking increases one's sense of power. *Journal of Experimental Social Psychology*, 44, 378–385.
- Spreng, R. N., McKinnon, M. C., Mar, R., & Levine, B. (2009). The Toronto Empathy Questionnaire: Scale development and initial validation of a factor-analytic

- solution to multiple empathy measures. *Journal of Personality Assessment*, 91, 62–71.
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, 110, 403–421.
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, 117, 440–463.
- Tyler, S., & Tucker, D. M. (1982). Anxiety and perceptual structure: Individual differences in neuropsychological function. *Journal of Abnormal Psychology*, 91, 210–220.
- Unger, L. S., & Thumhuri, L. K. (1997). Trait empathy and continuous helping: The case of voluntarism. *Journal of Social Behavior and Personality*, 12, 785–800.
- Van Dulmen, A. M., & Bensing, J. M. (2002). Health promotion effects of the physician–patient encounter. *Psychology, Health & Medicine*, 7, 289–300.
- Van Kleef, G. A., Oveis, C., van der Löwe, I., LuoKogan, A., Goetz, J., & Keltner, D. (2008). Power, distress, and compassion: Turning a blind eye to the suffering of others. *Psychological Science*, 19, 1315–1322.
- Zahn-Waxler, C., Radke-Yarrow, M., & King, R. A. (1979). Child-rearing and children's prosocial initiations toward victims of distress. *Child Development*, 50, 319–330.