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Mood and Global–Local Focus: Priming a Local Focus Reverses the Link Between Mood and Global–Local Processing

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Positive moods promote a focus on the forest (global focus) and negative moods, a focus on the trees (local focus). Is this well-established link fixed or variable? Does it reflect a direct influence of affect, as usually assumed, or is it frequently observed simply because a global perspective is often dominant? If affect serves as information about the value of currently accessible inclinations, and a global focus is generally the default perspective, then the global focus of positive affect and local focus of negative affect might be variable rather than fixed. Two experiments tested this hypothesis using different mood inductions, different tests of global–local focus, and different methods of inducing global and local perspectives. In each, we discovered that positive affect empowered whatever focus was momentarily dominant. Thus, whether individuals in happy moods saw the forest or the trees depended only on which of the two had been primed.

Keywords: mood, emotion, cognitive processing, global–local focus

An important function of affect is its role in regulating cognitive processing (e.g., Simon, 1967). One recurring theme in this literature is that people in positive moods tend to focus on the forest, and those in negative moods focus on the trees. This tendency has been found in a variety of situations. When judging the similarity between a series of geometric figures, people in positive moods tend to base their similarity judgments on the global features of the stimuli more than people in negative moods (Fredrickson & Branigan, 2005; Gasper & Clore, 2002). Similarly, when recalling autobiographical events, people in positive moods, compared with those in negative moods, describe such events using more abstract, global representations (Beukeboom & Semin, 2005, 2006). And in studies of social judgment, they are more likely to use social categories or stereotypes, whereas people in negative moods are more likely to use behavioral information (Isbell, 2004). Most explanations for this link suggest that positive and negative affect are uniquely dedicated to global and local orientations, respectively (see Schwarz & Clore, 2007, for a review). If so, then, the connection between affect and global–local focus should be stubbornly resistant to change—people in positive moods should reliably focus on the forest and those in negative moods on the trees.

In the present research, rather than viewing the link between affect and global–local focus as fixed, we entertained the hypothesis that it may be flexibly responsive to the relative accessibility of a global versus local focus. In exploring this possibility, we began with the idea that positive and negative affect confer positive and negative value on accessible cognitions and inclinations (e.g., Clore & Huntsinger, 2007, 2009). As a result, people in positive moods tend to embrace, and those in negative moods tend to reject, whatever thoughts or processing orientations happen to be accessible at the time. A global focus is frequently a dominant or highly accessible orientation toward incoming information (Bruner, 1957; Kimchi, 1992). Relevant evidence comes from research showing that a tendency to attend to well-structured wholes facilitates the discrimination of individual parts (e.g., the *word superiority effect*, Reicher, 1969; the *configural superiority effect*, Pomerantz, Sager, & Stover, 1977). In past research, then, positive affect may have had its influence by conferring value on this accessible response orientation, rather than by directly sparking a global focus. If this is the case, then experiments that make a local focus more accessible than a global focus should reverse the usual relation between mood and global–local orientation. But if there is a direct connection of some kind between affect and a global–local focus, then varying their relative accessibility should do little to disturb the usual effect.

In two experiments, we explored the possibility that the connection between positive mood and a big picture perspective depends simply on whether that perspective happens to be momentarily accessible in that situation. When a global focus was made accessible, we predicted that participants in positive moods would display a greater global focus than those in negative moods. But when a local focus was made more accessible, we predicted that people in positive moods would display a greater local focus than those in negative moods.

Experiment 1

Method

Participants. Sixty-two participants (35 women) completed the experiment in exchange for course credit.

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Procedure. An experimenter greeted participants and then seated them in front of a computer in individual cubicles. After participants read and signed an informed consent agreement, they were told that the experiment involved several different stages. In the first, they completed an initial computer task that constituted the priming of global–local processing styles described below. They were then told that because the computer task was rather long and exhausting, they would complete a filler task. In this task, following prior research (Schwarz & Clore, 1983), participants were asked to write about a positive or negative event from their past for seven minutes to induce a positive or negative mood. To mask the true purpose of the writing task, participants were told that their essay would be helpful in designing a future study on the experiences of college students. After the mood induction, participants completed the main dependent measure (described below) and several manipulation checks. Participants were then debriefed and thanked for their participation.

Materials.

Global–local priming. A variant of the Navon (1977) task was used, following past research (Derrybery & Reed, 1998; Förster, Friedman, Özelsel, & Denzler, 2006). On each trial, a compound stimulus—a large letter (3 × 3 cm) made up of smaller letters (0.5 × 0.5 cm)—appeared on a computer screen. Each stimulus remained until a participant responded. Four of the composite letters included global targets (e.g., an H made of L's) and four included local targets (e.g., an L made of H's). Participants were instructed to press the "L" key if the letter "L" appeared in the compound stimulus, and press the "H" key if the letter "H" appeared. Following correct responses, the next stimulus appeared after 250 ms. Incorrect responses were met with a sharp beep, and the next stimulus was presented after 1,250 ms. In the global-priming condition, 120 of the trials had global–letter targets, and 30 were local–target trials. In the local-priming condition these frequencies were reversed.[1]

Global–local focus measure. After the mood induction, participants completed another three blocks of 50 local–global trials identical to those described earlier. This time, though, the distribution of global and local target types was equal. If participants attend to the targets in a global fashion, they should be faster to respond on trials in which a target letter appears as the overall shape of the figure and slower on trials in which a target letter appears as the local elements of a figure. The reverse should be true if participants attend to the targets in a local fashion. Thus, a global–local focus score was computed by subtracting the mean response latency on local–target trials from the mean response latency on global–target trials. Higher values indicate a greater global focus.

Mood check. The efficacy of the mood manipulation was assessed via a single question: "How did the writing activity make you feel?" (1 = *very negative* to 9 = *very positive*).

Results

Mood manipulation check. Participants in the positive mood condition reported the writing activity made them feel more positive ($M = 5.81$) than participants in the negative mood condition ($M = 4.30$), $t(52) = 3.18$, $p < .01$.

Global–local focus. The global-local focus scores were analyzed in a 2 (mood) × 2 (focus prime) analysis of variance. Consistent with the hypothesis that affect acts on accessible inclinations, the predicted interaction was significant, $F(1, 50) = 4.43$, $p = .04$, $\eta_p^2 = .08$. Specifically, when a global focus had been primed, positive moods yielded somewhat quicker responses to global targets ($M = 37$, $SD = 58$) than did negative moods ($M = 4$, $SD = 60$), $t(25) = 1.42$, $p = .17$, $d = .56$. When a local focus was induced, this pattern was reversed — positive moods then tended to lead to quicker responses to local targets ($M = -51$, $SD = 68$) than negative moods ($M = -13$, $SD = 61$), $t(25) = 1.55$, $p = .13$, $d = .58$. There was a main effect of focus prime, $F(1, 50) = 9.61$, $p < .01$, $\eta_p^2 = .16$. The absence of even a trend toward a main effect of mood, $F < 1$, $p > .5$ is also consistent with the hypothesis that mood does not have a direct and fixed effect on global-local focus. With respect to the nonsignificance of the simple effects of the predicted interaction, we note that a sample size of 27 cases for each simple effect test produces only a 40% chance of detecting a significant effect even of moderate size. Therefore, Experiment 2 was designed as a conceptual replication to test the reliability and generalizability of our finding.

Experiment 2

In Experiment 2, we employed a different measure of global–local focus, which has been used in prior research (Fredrickson & Branigan, 2005; Gasper & Clore, 2002), a different mood manipulation, and also a different manipulation of global versus local focus. The mood manipulation in this experiment took place before the priming task. We did this to rule out the possibility that the results of Experiment 1 were an artifact of the placement of the mood manipulation after the priming task.

Method

Participants. Seventy-two (36 women) participants took part in this experiment for partial fulfillment of a course requirement.

Procedure. An experimenter greeted participants outside of the experiment room, then led them into the room and seated them in front of a computer. After reading and signing an informed consent agreement, participants were told that during the experiment they would complete a series of computer-based measures and answer some questions about their experiences. Participants were then told that, as part of pretesting for another experiment, they would be listening to one of a series of musical selections. Participants were then randomly assigned to either a positive (Mozart's *Eine kleine Nachtmusik*) or a negative (Mahler's *Adagietto*) mood induction used in previous research (e.g., Niedenthal & Setterlund, 1994).

The experimenter then started the computer program that would guide participants through the rest of the experiment, told them to come get him or her when the computer-based tasks were completed, and left the room. Instructions on the computer told participants to put on a pair of headphones, press

[1] Eight participants were removed from further analyses because they made too many errors or responded too slowly on the minority target letter trials relative to the majority target letter trials during the priming phase.

a combination of keys to start the music, and adjust the volume to a desirable level. The music played for approximately six minutes before the screen advanced to the next stage of the experiment, a lexical-decision task (LDT). Unbeknownst to participants, during this task they were primed with words related to a global or a local focus.

After the LDT, participants completed a measure of global–local focus, a mood manipulation check, and several demographic questions. After they answered these questions, the experimenter then thoroughly debriefed participants via a funneled debriefing procedure (Dulany, 1962) and thanked them for their participation.

Materials.

Global–local priming. During the LDT (10 practice and 60 test trials), participants were instructed to respond with the "5" key if the letter string was a word or the "A" key if it was a nonword. Prior to the appearance of each word or nonword on the screen, participants were exposed to words related to global or local focus for 40 ms each. A forward mask preceded and a backward mask followed each presentation of a word. These were included to minimize the chance that participants would be able to consciously recognize the words. Results of a funneled debriefing revealed that the forward and backward masks served their purpose: no participants reported seeing the words. All stimuli appeared in the center of the computer screen. Words or nonwords remained on the screen until participants provided the correct answer. Incorrect answers elicited a red error message. A total of 12 words were used to prime a local focus (*local*, *distinct*, *different*, etc.) and another set of 12 words were used to prime a global focus (*global*, *together*, *whole*, etc.). The words and nonwords participants responded to during the LDT were unrelated to either a global or local focus.

Global–local focus task. A shortened form of the Kimchi task (Kimchi & Palmer, 1982) was used. In each of 10 trials, participants were asked to choose one of two figures that they thought most similar to a target figure. One of the figures is similar to the global and overall shape of the target figure, whereas the alternative figure is similar to the local, detail feature of the target figure. When a participant chose the figure that matched the overall shape of the target figure, it suggested that the participant had a global focus and vice versa for a local focus. Participants' overall global focus was computed by summing the total number of times participants matched the 10 shapes based on global features. This variable could range from 0, indicating that all matches were based on local features, to 10, indicating that all matches were based on global features.

Mood manipulation check. Participants answered six questions about their feelings while listening to the musical selections (i.e., How good [positive, happy, bad, negative, sad] did you feel while you listened to the musical selection? 1 = *not at all*, to 7 = *very much*). After appropriate recoding, these items were averaged to form a composite measure of positive feelings ($\alpha = .93$).

Results

Mood manipulation check. The mood induction was successful, $t(71) = 4.98$, $p < .0005$. Participants reported feeling more positive while listening to the positive mood induction ($M = 5.73$) than the negative mood induction ($M = 4.50$).

Global–local processing. The measure of global focus was submitted to a 2 (mood) × 2 (prime) between-participants analysis of variance (ANOVA). The predicted interaction was again significant, $F(1, 68) = 10.98$, $p = .001$, $\eta_p^2 = .14$ (Figure 1). When a global focus had been primed, participants in positive moods exhibited a greater global focus than did those in negative moods, $t(34) = 2.56$, $p < .05$, $d = .88$. By contrast, when a local focus had been primed, participants in positive moods displayed a greater local focus than those in negative moods, $t(34) = 2.08$, $p < .05$, $d = .71$. Neither main effect was significant, both Fs < 2.9, ps $> .3$.

Meta-Analysis of Experiments 1–2

In both experiments, the key interaction between induced mood and global–local focus was statistically significant, whereas the significance of the simple effects varied. However, when the two experiments were combined into a meta-analysis, these simple effects proved highly reliable. Thus, when a global focus was made accessible, participants in positive moods displayed a significantly greater global focus than those in negative moods, $d_M = .72$, $z = 2.77$, $p < .01$, and when a local focus was made accessible, participants in positive moods displayed a significantly greater local focus than those in negative moods, $d_M = .64$, $z = 2.48$, $p < .05$.

General Discussion

Two experiments asked whether the effects of happy and sad mood on global–local focus were fixed or variable. With two different methods of perceptual focus priming and two different methods of mood induction, two different tests of attention to the global versus local aspects of visual stimuli showed the same effects. Contrary to what has generally been assumed, no dedicated relationship between affect and global–local focus appeared. Instead, affect acted on whichever orientation was momentarily more accessible. When a global focus was more accessible, positive moods led to a greater global focus than negative moods—replicating past research. But when a local

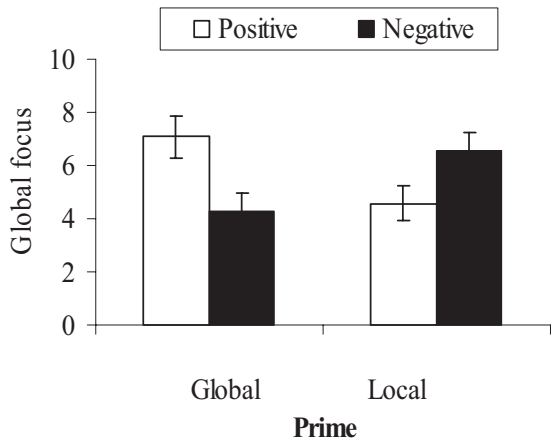

Figure 1. Experiment 2: Global focus as a function of mood and primed processing style (higher values indicate a greater global focus). Error bars represent *SEM*.

focus was made more accessible, this pattern reversed—positive moods led to a greater local focus than negative moods.

Past research had suggested that positive and negative affect led to particular ways of viewing the world. Positive affect appeared to promote a focus on the forest, whereas negative affect led to a focus on the trees (for a review, see Schwarz & Clore, 2007). Explanations for this finding commonly converged on the idea that there may be a dedicated or fixed link between general positive and negative affect and global–local focus. By changing the relative accessibility of a global versus local focus, however, we were able to reverse this often observed phenomenon. Our findings suggest a more general mechanism by which affect regulates cognition—by conferring positive or negative value on whatever thoughts and inclinations are most accessible in the mind at the time (e.g., Clore & Huntsinger, 2007, 2009). In this view, affective reactions are similar to reward in that their effects are not dedicated to promoting only one particular kind of response.

People in negative moods in the present research—especially those in Experiment 2—actively adopted the opposite perceptual focus from that which was primed. A similar pattern of contrast has emerged in other recent research examining the influence of affect on self-validation processes in persuasion (e.g., Briñol, Petty, & Barden, 2007), trait priming (Avramova & Stapel, 2008), pursuit of accessible goals (Fishbach & Labroo, 2007; Huntsinger & Sinclair, in press), and activation of stereotypes (Huntsinger et al., 2010). People in negative moods in this research actively avoided the impact of whatever thoughts and responses happened to be in mind at the moment. To explain this result, we favor the idea that the negative value placed on accessible mental content by negative affect leads to its exclusion from subsequent processing. The current perceptual tasks pit global and local orientations against each other, so that greater relative accessibility of a global orientation necessarily involves a reduced relative accessibility of a local orientation. Hence, to the extent that negative affect confers negative value on the most accessible perceptual orientation, it should be supplanted by responding on the basis of the other option. Thus, consistent with the observed findings, a global focus should result either from having an accessible global orientation empowered by positive affect or a local orientation inhibited by negative affect. Conversely, a local focus should result either from having a primed local focus validated by positive affect or a primed global focus invalidated by negative affect.

Conclusion

Our results concern how affect influences visual processing of the parts and wholes of geometric figures and letters. But we believe they reflect a more general way by which affect regulates cognition (e.g., Clore & Huntsinger, 2009). Rather than instigating specific styles of perceptual or cognitive processing, as is often assumed, affect may instead shape perception and cognition by signaling the value of accessible thoughts and response tendencies. From this view, the influence of affect on perception and cognition is quite flexible and depends on what it happens to take as an object in the moment. This is not meant to imply, however, that we consider this to be the exclusive manner by which affect regulates cognition. As previous research demonstrates, affect may regulate cognition in a number of different ways, even within the same experimental situation (e.g., Wegener & Petty, 2001). Future research is necessary to isolate when affect regulates perceptual focus and cognition more generally by signaling the value of accessible thoughts and responses and when affect exerts its influence in other ways.

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