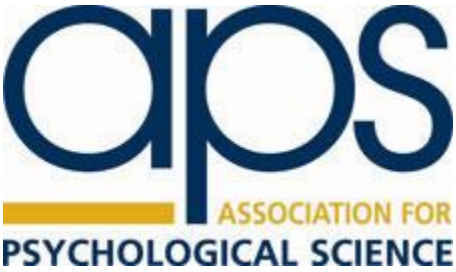

Research Article

ATTENDING TO THE BIG PICTURE: Mood and Global Versus Local Processing of Visual Information

Karen Gasper[1] and Gerald L. Clore[2]

[1]*The Pennsylvania State University and* [2]*University of Virginia*

Abstract—*Two experiments employed image-based tasks to test the hypothesis that happier moods promote a greater focus on the forest and sadder moods a greater focus on the trees. The hypothesis was based on the idea that in task situations, affective cues may be experienced as task-relevant information, which then influences global versus local attention. Using a serial-reproduction paradigm, Experiment 1 showed that individuals in sad moods were less likely than those in happier moods to use an accessible global concept to guide attempts to reproduce a drawing from memory. Experiment 2 investigated the same hypothesis by assessing the use of global and local attributes to classify geometric figures. As predicted, individuals in sad moods were less likely than those in happier moods to classify figures on the basis of global features.*

Feelings can influence the way people think about their world. Positive mood is associated with using stereotypes (Bodenhausen, Kramer, & Susser, 1994), scripts (Bless et al., 1996), and expectations (Isbell, 1999), whereas negative mood is associated with greater accuracy (Alloy, Abramson, & Viscusi, 1981), lower false positive recognition (Bless et al., 1996), and resistance to heuristic error (Gasper, 1999). Sometimes these mood effects are viewed as biases in judgment or disruptions in processing. Increasingly, however, psychologists are adopting a functional view of affect (e.g., Damasio, 1994; Forgas, 1995; Salovey & Mayer, 1990). For example, the affect-as-information approach (Schwarz & Clore, 1983, 1988, 1996) sees affective feelings as consciously accessible information from ongoing, nonconscious appraisals. Recent versions of this approach (e.g., Clore & Gasper, 2000; Clore, Wyer, et al., 2001; Wyer, Clore, & Isbell, 1999) also propose that in task situations, cues from happy and sad moods may be experienced as information that promotes attention to global and local information, respectively. In this article, we report two experiments investigating this *levels-of-focus* hypothesis. Before elaborating this hypothesis, we discuss the affect-as-information approach.

The general approach assumes that feelings guide processing when they are experienced as information relevant to the task at hand. Although positive feelings usually confer positive value and negative feelings confer negative value, the object of value depends on what is in mind at the time. What is in mind during cognitive tasks may include the beliefs, expectations, and inclinations that are most accessible. If so, then on such tasks, affective feelings may be experienced as information about the value of such accessible information, with positive affect promoting greater reliance on accessible information than negative affect does.

To test these ideas, Bless et al. (1996) examined mood effects on recognition memory for a story about a couple going out to dinner. They found that participants in happy moods tended to rely on the accessible knowledge (i.e., the restaurant script) to organize and remember the story more than individuals in sad moods did. Individuals in sad moods focused instead on the incoming information about specific behaviors. Presumably, these results were due to the ambient feelings of mood being misattributed to the task and experienced as information about the appropriateness of relying on accessible knowledge (e.g., the script). In related research, this informational hypothesis was tested by including conditions that made it clear that feelings were irrelevant to the task at hand. Under those conditions, mood effects were invariably eliminated or reversed, implicating the information value of the affective cues as the critical factor in them. Such reversals have been found for the effects of mood both on judgment (e.g., Gasper & Clore, 1998, 2000; Schwarz & Clore, 1983) and on performance (e.g., Dienes, 1996; Isbell, 1999; Sinclair, Mark, & Clore, 1994).

An implication of this research that has not been previously tested concerns the role of mood in global versus local processing. Research indicates that focusing on global rather than local stimuli is usually the dominant, accessible strategy. In visual perception research, Navon (1977) showed that global features take precedence over local features, so that focusing on the forest is a more accessible strategy than focusing on the trees. Similarly, Fiske and Taylor (1991) concluded that attending to global, general information is a normative, and hence accessible, strategy. If positive feelings are experienced more than negative feelings as informing individuals that the accessible strategy is sufficient, and the global strategy is generally highly accessible, then positive feelings should foster more global processing than do negative feelings. A second reason to expect such a link comes from action identification theory. Vallacher and Wegner (1987) showed that after a success, individuals are likely to describe their actions in terms of general goals. And after encountering an obstacle, individuals are likely to describe their actions in terms of specific, detailed goals. These findings also are consistent with the idea that positive affect promotes a more global focus than does negative affect. Therefore, the levels-of-focus hypothesis (Clore, Wyer, et al., 2001) proposes that affective feelings, when experienced as task-relevant information, should influence the extent to which information is processed at a global versus local level. This general association between affect and level of focus also is implied by other formulations maintaining that positive moods should be associated with information integration (Isen, 1987), with reliance on general as opposed to detailed information (Schwarz, 1990), and with the use of general knowledge structures (Bless & Fiedler, 1995).

We investigated the levels-of-focus hypothesis in two experiments that involved visual information processing. The first experiment examined whether mood would play a role in one of Bartlett's classic memory experiments. Using his method of serial reproduction, Bartlett (1932) found that global schemas were used to interpret and reconstruct previous experience. For example, he showed participants a drawing of an African shield, which they were later asked to draw

Address correspondence to Karen Gasper, The Pennsylvania State University, Department of Psychology, 437 Moore Building, University Park, PA 16802; e-mail: kxg20@psu.edu.

from memory. Their drawings were then shown to other participants, who subsequently tried to reproduce them from memory. These reproductions were then given to a third group to draw, and so on. Beneath the original drawing (see Fig. 1) was written, "portrait d'homme" ("portrait of a man"). Bartlett found that over trials, the drawings were gradually assimilated to the schema of a face, a global concept made accessible by the title of the picture. This task illustrates how global information can guide processing and help reconstruct memory. Bartlett's paradigm allowed us to study the relative emphasis that people give to global cognitive concepts and local perceptual details. If affect is experienced as information about one's initial orientation to the task, then positive feelings should lead to a greater focus on the global schema than negative feelings do. Thus, reproductions of this drawing should become increasingly facelike if participants are in positive moods because their attention will be guided by the global concept "portrait," but reproductions should look less facelike if participants are in negative moods because their focus will be on perceptual details of the drawing.

EXPERIMENT 1

Method

Participants

Fifty-six men, 51 women, and 1 respondent who did not indicate his or her sex participated in the experiment for credit toward a course requirement.

Materials and procedure

After an introductory period, respondents wrote about a personal life event that had made them feel either "happy and positive" or "sad and negative" (Schwarz & Clore, 1983). The purpose of asking for descriptions of life events was disguised in a cover story about obtaining information about personality. After 9 min, the experimenter stopped the participants and told them that they were going to see a drawing and should "figure out what the picture is and what it means." Respondents studied the drawing for 15 s, completed miscellaneous questionnaires for 8 min (a delay), and then attempted to reproduce the drawing from memory.

Each session included 3 to 9 participants who were randomly assigned to one of 18 (9 happy, 9 sad) drawing chains. The experiment was run until all 18 groups had at least 6 participants in them. The first person in each group saw a drawing of an African shield with the title "portrait d'homme." In a later session, a person saw that first person's attempt at a reproduction, and then in the next session the next person saw that person's reproduction, and so on until there were six reproductions, all in the same mood condition.

Subjective ratings. Without being able to refer to any of the drawings, participants made several ratings of their drawings from memory using a scale ranging from 0 (*does not describe it*) to 10 (*perfectly describes it*). They rated how much their drawing looked like a *face* (three items; $\alpha = .80$), how well they recalled the *title* (two items; $r = .52$), and whether the drawing was in an abstract or realistic *style* (three items; $\alpha = .60$). Respondents also rated their drawing for how well they had recalled the details, how difficult it had been to draw, how close it was to the drawing that they had seen, and how many details they had added and deleted. Finally, they were asked how "happy and positive" and "sad and negative" they had felt writing their stories, on a scale ranging from 0 (*not at all*) to 7 (*very*).

Objective ratings. Objective ratings of each drawing on five dimensions were obtained from at least three trained raters who were blind to condition. Drawings were randomized for rating. The ratings used a scale from 0 (*not at all*) to 10 (*exactly*) and were highly reliable. The dimensions rated and the degree of agreement among raters were as follows: (a) For the *original* dimension ($\alpha = .96$), raters answered the question, "Overall, how much does the picture look like the original picture?" (The raters compared the picture to the original drawing.) (b) For the *face* dimension ($\alpha = .98$), the following questions were *z*-scored and averaged together: "How much does the picture resemble a face?" "Does the picture contain an eyelike structure?" and "Does the picture contain a mouthlike structure?" (c) For the *title* dimension ($\alpha = .99$), the question was, "How close is the wording on the picture to the original wording?" (d) For the *complexity* dimension ($\alpha = .88$), raters answered, "How complex is the drawing?" (e) Finally, the pictures were organized by drawing groups, and each was rated for the extent to which it looked like the drawing immediately prior to it in the chain (the *prior* dimension; $\alpha = .93$).

Results

The data were analyzed at the group level using a series of 2 (mood: happy vs. sad) × 6 (drawing position) analyses of variance (ANOVAs), with drawing position as a repeated measures variable.

Mood check

The mood manipulation was effective. Participants felt more positive (Ms = 4.65 vs. 2.16), $F(1, 16) = 32.25$, $p < .001$, and less negative (Ms = 1.61 vs. 4.70), $F(1, 16) = 108.94$, $p < .001$, after writing about a happy event than after writing about a sad event.

Objective ratings

Analyses of the ratings made by coders showed that mood affected the drawings as predicted. Compared with individuals in sad moods, those in happy moods organized their drawings in terms of the global schematic concept suggested by the title (see Table 1). Their drawings were more likely to contain schema-relevant details, such as the title (Ms = 3.16 vs. 0.95), $F(1, 16) = 5.79$, $p < .05$, and facial features (Ms = 0.38 vs. −0.38), $F(1, 16) = 4.39$, $p = .05$.

Across the six reproductions in each group, the drawings generally lost details. They began to look less like the original, $F(5, 80) = 31.28$, $p < .001$; were less likely to contain the title, $F(5, 80) = 19.43$, $p < .001$; became less complex, $F(5, 80) = 10.61$, $p < .001$; and looked more like the drawing preceding them, $F(5, 80) = 2.99$, $p < .05$.

As predicted, these trends differed by mood. Sad-mood drawings became less facelike with successive reproductions, $F(5, 80) = 3.68$, $p < .01$, whereas happy-mood drawings did not, $F < 1$. Also, compared with happy-mood drawings, sad-mood drawings looked less like the original drawing (Ms = 2.59 vs. 4.37), $F(1, 16) = 10.72$, $p < .01$, and less like the immediately prior drawing in the chain (Ms = 6.40 vs. 7.33), $F(1, 16) = 8.28$, $p < .05$. This finding was particularly true near the beginnings of the chains; toward the ends of the chains, when drawings became simplified, the drawings of individuals in sad moods showed an increasing tendency to resemble the immediately prior drawings, $F(5, 80) = 2.19$, $p < .07$ (see Table 1).

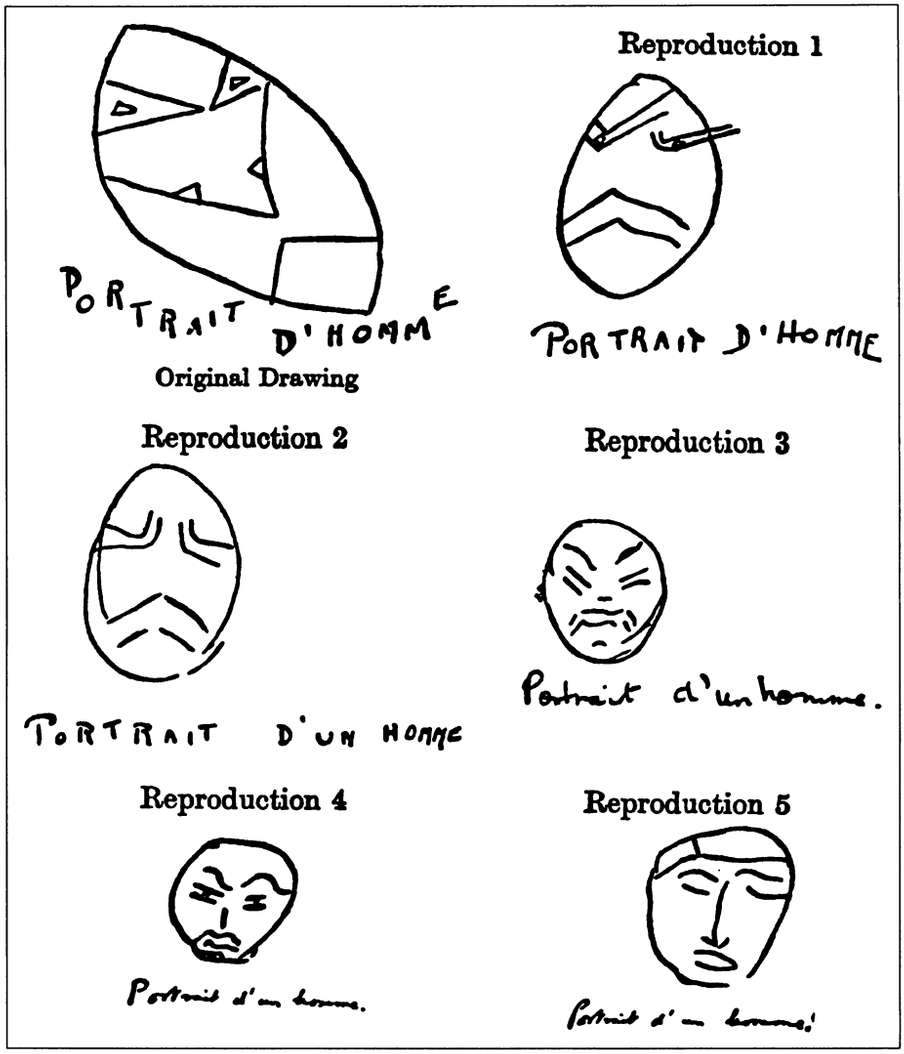

Fig. 1. A sample of serial reproductions of a drawing from memory. From *Remembering: A Study in Experimental and Social Psychology*, by F.C. Bartlett, 1932, pp. 175–176. Copyright 1932 by Cambridge University Press. Reprinted with permission.

Subjective ratings

Participants' ratings of their own drawings produced similar results. Over trials, the drawings looked less like faces, $F(5, 80) = 2.95$, $p < .01$, and were less likely to contain a title, $F(5, 80) = 16.11$, $p < .001$. Planned contrasts revealed that the extent to which the pictures degraded depended on mood (see Table 1). As the number of reproductions increased, sad-mood drawings lost their global features and looked less facelike, $F(5, 80) = 3.81$, $p < .01$. In contrast, drawings of participants in happy moods retained the global features and facelike appearance ($F < 1$). Also, sad participants were less likely than happy participants to recall the title that provided the schema (Ms = 3.67 vs. 5.00), $F(1, 16) = 5.23$, $p < .05$. In general, mood influenced subjective ratings that were relevant to the global schema of the pictures (face and title ratings) but not ratings relevant to the aschematic (i.e., style, all ps $> .29$) aspects of the pictures.

Although mood influenced the content of the pictures, it had no effects on reports of ability or motivation to reproduce the pictures. Ratings of details recalled and task difficulty were influenced only by drawing position, $F(5, 80) = 2.73$, $p < .05$, and $F(5, 80) = 6.35$, $p < .01$, respectively. The three ratings that reflected faithfulness of the reproductions were also influenced only by drawing position: for similarity to the prior drawing, $F(5, 80) = 5.82$, $p < .01$; for details added, $F(5, 80) = 4.63$, $p < .01$; and for details deleted, $F(5, 80) = 7.22$, $p < .01$. (See Table 2.)

Discussion

This experiment examined the effect of mood on memory for an abstract drawing that suggested a facial schema. Consistent with predictions, the results indicate that compared with individuals in happier moods, those in sadder moods were less likely to rely on the global information suggested by the title and form of the picture. Consequently, they drew pictures that were less like the original, less like a face, and less likely to contain the title. Such differences were apparent in both objective and subjective ratings and became greater in later

Table 1. *Average objective and subjective ratings by mood and drawing position in Experiment 1*

Rating dimension and mood	Overall	Drawing position 1	2	3	4	5	6	Significance
Objective ratings								
Original								
Happy	4.37**	6.55	4.99	4.23	4.09	3.19	2.99	***
	(1.96)	(1.87)	(1.99)	(1.87)	(0.89)	(1.61)	(1.24)	
Sad	2.59	5.75	3.74	2.19	1.84	1.14	0.87	***
	(2.25)	(2.13)	(1.92)	(1.51)	(1.43)	(1.02)	(0.87)	
Face								
Happy	0.38*	0.43	0.39	0.31	0.42	0.46	0.27	n.s.
	(0.85)	(0.41)	(0.63)	(0.85)	(0.99)	(1.10)	(1.11)	
Sad	−0.38	0.01	0.01	−0.44	−0.42	−0.77	−0.69	**
	(0.94)	(0.88)	(0.92)	(0.94)	(1.00)	(0.88)	(0.95)	
Title								
Happy	3.16*	7.56	4.09	3.67	1.63	1.02	1.02	***
	(4.04)	(4.30)	(4.72)	(4.15)	(2.32)	(2.09)	(2.09)	
Sad	0.95	5.14	0.33	0.19	0.00	0.00	0.00	***
	(2.57)	(4.29)	(1.00)	(0.58)	(0.00)	(0.00)	(0.00)	
Prior								
Happy	7.33**	6.55	6.63	7.44	7.57	7.98	7.82	n.s.
	(1.62)	(1.72)	(1.85)	(1.22)	(1.48)	(0.83)	(2.15)	
Sad	6.40	5.75	5.33	6.06	7.28	6.63	7.34	+
	(1.83)	(2.13)	(1.54)	(2.21)	(1.34)	(1.48)	(1.60)	
Subjective ratings								
Face								
Happy	5.50 n.s.	5.85	5.59	5.26	6.30	4.70	4.96	n.s.
	(2.44)	(2.42)	(2.15)	(2.13)	(2.91)	(2.64)	(2.54)	
Sad	4.78	5.67	6.37	5.89	4.07	3.30	3.37	**
	(2.75)	(2.34)	(2.29)	(1.97)	(2.39)	(3.66)	(2.44)	
Title								
Happy	5.00*	8.00	5.89	5.33	4.33	3.83	2.61	***
	(3.04)	(2.44)	(1.45)	(2.00)	(3.69)	(3.15)	(2.43)	
Sad	3.67	8.44	4.17	2.72	3.11	2.78	0.78	***
	(3.21)	(1.33)	(2.65)	(2.54)	(2.43)	(2.55)	(1.72)	

Note. Standard deviations are in parentheses. The objective face ratings are based on *z*-scored data. Asterisks in the overall-mean column indicate a significant main effect of mood. The last column indicates whether the planned comparison for the effect of drawing position within each mood condition is significant. Data for complexity and style are not shown because ratings on these dimensions were not significantly influenced by mood and drawing order.
$+p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

reproductions. Moreover, mood generally affected the content of the drawings, but not the complexity of the drawings or participants' beliefs about their ability to reproduce the pictures.

These results are consistent with the hypothesis that affective feelings influence the kind of information to which one attends (Clore, Gasper, & Garvin, 2001; Clore, Wyer, et al., 2001; Wyer et al., 1999). However, there are alternative possible accounts. Most other explanations assume that mood has its effects by influencing the amount of processing. Capacity explanations assume that happy moods activate a larger network of associations than sad moods, thereby reducing the resources available for effortful processing (Mackie & Worth, 1989; Worth & Mackie, 1987). Motivational explanations assume that participants avoid expending effort on tasks that are not enjoyable in order to maintain their currently happy state (Isen, 1987; Wegener, Petty, & Smith, 1995). Alternatively, the information provided by positive affect may signal that one's goal has already been achieved (Martin, Ward, Achee, & Wyer, 1993) or that further processing is unnecessary (Clore, Schwarz, & Conway, 1994). Thus, compared with sadder moods, moods that are more positive might lead to reduced processing by decreasing the capacity, the motivation, or the apparent necessity for further processing.

The current results are more consistent with hypotheses about global-local attention than with hypotheses about amount of processing. The results provide no evidence that sad affect elicited more extensive processing than did positive affect. Participants in sadder moods did not have superior recall of the picture, produce more complex drawings, or demonstrate better overall performance than those in happier moods. In fact, their drawings looked less like the original than those of happy participants.

This pattern suggests that negative affect inhibited a global focus. Consequently, sad participants did not use the global schema to help reconstruct the image. In contrast, more positive affective feelings re-

Table 2. *Average effect of drawing position on participants' impressions about the task in Experiment 1*

	Drawing position					
Rating dimension	1	2	3	4	5	6
Details recalled	2.28	2.83	2.78	3.17	3.72	3.11
	(2.99)	(3.47)	(3.42)	(4.08)	(4.48)	(2.31)
Difficulty	4.94	4.72	3.56	3.06	1.44	2.11
	(2.31)	(2.78)	(2.23)	(2.69)	(1.58)	(2.11)
Similarity to prior drawing	5.44	5.83	6.78	7.72	7.89	7.94
	(1.95)	(1.98)	(2.02)	(1.49)	(2.05)	(1.70)
Details added	2.56	3.06	1.72	1.44	0.67	1.39
	(2.09)	(1.83)	(1.78)	(1.46)	(0.84)	(1.85)
Details deleted	4.67	4.56	2.61	3.44	1.39	1.83
	(1.85)	(2.68)	(1.54)	(2.66)	(1.33)	(1.95)

Note. Standard deviations are in parentheses. On all these measures, there was a significant effect for drawing position.

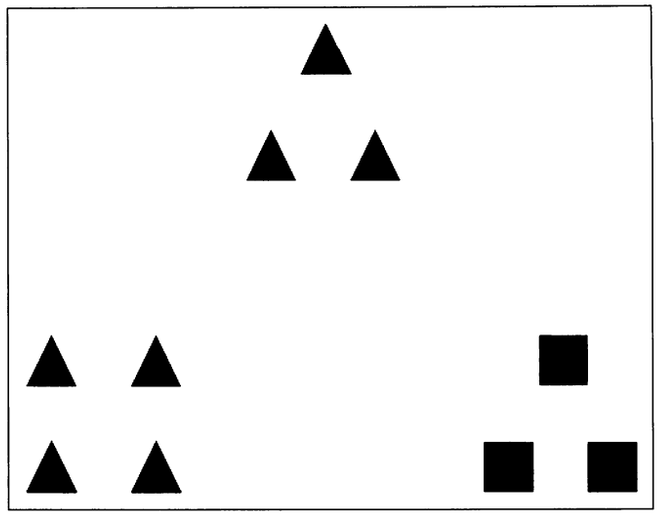

Fig. 2. Sample item from the global-local focus test (Kimchi & Palmer, 1982, p. 526). Reprinted with the permission of R. Kimchi.

sulted in a focus on global aspects, because participants relied on the title and form of the drawing as a guide. The stimuli that individuals focused on, however, also differed along a variety of other dimensions. For instance, individuals in happy moods also focused on the lexical aspects more than those in sad moods, and perhaps this explains their apparent focus on global features. To rule out such alternative explanations, we conducted a second experiment that examined whether the same pattern of results could be obtained with stimuli for which the global and local aspects were more similar.

Experiment 2 employed a task in which the same objects were sometimes the global and sometimes the local stimulus (Kimchi & Palmer, 1982). Participants saw an overall shape (e.g., a triangle) made up of smaller geometric figures (e.g., triangles). Their task was to indicate which of two other figures (e.g., a square made of triangles or a triangle made of squares) was more similar to this target figure (see Fig. 2). To the extent that mood influences attention to global versus local aspects of stimuli, individuals in sad moods should be less likely than those in happier moods to match figures based on the overall global shape of the target and more likely to match figures based on the smaller, local, constituent figures.

EXPERIMENT 2

In this experiment, we investigated the levels-of-focus hypothesis by asking participants to rate whether a target object was more similar to an object that matched its global, but not local, aspects or one that matched its local, but not global, aspects. This task differed from that in Experiment 1 in that it did not involve exerting effort to remember the image. Also, because the global versus local role of the geometric figures was varied experimentally, that was the only attribute on which the stimuli differed.

We included a neutral-mood condition, in addition to happy- and sad-mood conditions. The affect-as-information hypothesis predicts that positive affect promotes reliance on responses that are accessible or normative. Research suggests that people generally tend to be in positive moods (Diener & Diener, 1996). Moreover, the research indicating that attention to global information is a dominant response was conducted on participants in neutral moods. These two findings coupled together led us to expect that the neutral-mood responses would differ more from sad-mood responses than from happy-mood responses.

Method

Participants

Thirty-one men and 38 women participated in the experiment for credit toward a requirement in their introductory psychology class.

Materials and procedure

The mood-induction procedure was similar to that used in the first experiment, but with the addition of the neutral-mood condition. In the neutral condition, participants wrote about an "average, normal, typical weekday." After writing for 9 min, participants received the shape task. On each trial, they had to indicate which of two comparison figures was more similar to a target figure (see Kimchi & Palmer, 1982). Each figure could be viewed from either a global or a local perspective (see Fig. 2). Each object was either a square or a triangle (global form) made up of smaller squares or triangles (local forms).

For each of 24 trials, participants indicated whether a target figure was more similar to a group of objects that matched its global shape or to a group of objects that matched its local components. The global forms fit into a 32-mm square, and the local forms into either an 8-mm square or a 10-mm square. Analyses revealed that the sizes of the stimuli did not influence the results. The forms were combined to make 12 combinations that were presented twice, to counterbalance whether the local match appeared on the right or the left.

After the shape task, participants completed irrelevant tasks for about 8 min. Then they indicated the extent to which they were currently experiencing various feelings, using a scale ranging from 0 (*not at all*) to 4 (*extremely*). These ratings formed measures of positive affect (α = .89: happy, glad, joyous, excited, elated, pleasant, and enthusiastic) and negative affect (α = .84: unhappy, afraid, anxious, sad, unhappy, nervous, unpleasant, depressed, and frustrated). Respon-

dents also rated how writing about the personal life event made them feel, on a scale ranging from 0 (*very negative*) to 10 (*very positive*). Additionally, they answered the following questions on a scale ranging from 0 (*not at all*) to 10 (*always*; 5 = *half of the time*): "When you did the shape task, to what extent did you say that the shapes go together based on the overall similarity in the form of the pictures (a square of triangles goes with a square of squares)?" and "To what extent did you match the shapes based on the individual elements in them (a square of triangles goes with a triangle of triangles)?"

Results

Mood-manipulation check

According to the self-reports, writing about the life event made individuals in the negative-mood condition feel less positive than those in the positive- and neutral-mood conditions (*M*s = 4.00 vs. 6.67 and 6.05), $F(1, 66) = 19.56$, $p < .001$. The measures of positive and negative affect showed the same pattern. A 3 (mood) × 2 (valence of affect) ANOVA, with valence of affect being a repeated measure, revealed that individuals in the positive- and neutral-mood conditions tended to report more positive than negative affect compared with those in the negative-mood condition (M_{diff} = 0.29 and 0.69 vs. −0.19), $F(1, 66) = 3.29$, $p = .07$.

Shape task

The number of times that participants matched the shapes on the basis of their global form rather than their local details was calculated. As predicted, individuals in negative moods were less likely than individuals in positive or neutral moods to use the global form as a basis for matching the objects (*M*s = 11.76 vs. 15.88 and 15.35), $F(1, 66) = 4.05$, $p = .05$. Participants' self-reports indicated that they also accurately perceived the basis of their choices. Participants in sad moods reported basing their choices less on the global forms than did participants in positive moods (*M*s = 5.36 vs. 7.00), $F(1, 66) = 3.52$, $p < .07$. They also reported basing their choices more on the local details than did individuals in positive moods (*M*s = 4.88 vs. 3.08), $F(1, 66) = 4.09$, $p < .05$.

GENERAL DISCUSSION

These two experiments indicate that individuals in sad moods are less likely to see the forest and more likely to see the trees than individuals in happier moods. Specifically, when affective feelings are experienced as task relevant, they appear to guide whether one adopts a global or a more local focus. Experiment 1 examined this issue by varying mood in a replication of Bartlett's (1932) classic study of constructive memory. The details of an ambiguous drawing were assimilated to the global schema of a human face more by people in happier than by those in sadder moods. This pattern was confirmed in a second experiment in which geometric figures were categorized by their global shape more by people in manipulated and resting happy moods than by those in sad moods.

It should be noted that participants in the neutral-mood condition of Experiment 2 rated their mood as quite positive and showed a global focus similar to that of participants in the positive-mood condition. Prior research indicates that the average resting mood of most people is quite positive (Diener & Diener, 1996). Thus, the fact that both groups reported elevated positive affect and both engaged in global focus supports the idea that the information provided by positive affective cues, whether resting or manipulated positive affect, fosters global processing.

The results are consistent with the levels-of-focus hypothesis (Clore, Gasper, & Garvin, 2001; Clore, Wyer, et al., 2001), which proposes that when affect is experienced as task-relevant information, positive affect privileges global, category-level attention more than does negative affect. In contrast, the results do not appear to reflect differing amounts of processing. The more extensive processing often assumed to be associated with sad mood should not have influenced the classification of geometric figures (Experiment 2), nor the tendency to inhibit incorporation of schematic information (Experiment 1). These data are consistent with previous research indicating that in task situations, affect may provide information about the value of accessible beliefs and inclinations. Moreover, the results extend this logic to show that such affective information also influences global versus local visual processing.

Supporting evidence for the informational interpretation of such processing effects comes from previous studies that manipulated the apparent information value of the induced feelings (e.g., Dienes, 1996; Isbell, 1999; Sinclair et al., 1994). For example, Isbell (1999) showed that individuals in happy moods used global stereotypes, whereas those in sad moods focused more on specific behaviors, when forming impressions of a character in a story. However, when the true cause of the participants' feelings was made salient before they read the story (undermining the information value of their feelings), the effects of mood were reversed, suggesting that the effects were mediated by the apparent informativeness of mood-based feelings.

Although the current experiments are some of the first to illustrate the effects of state affect on global versus local processing, similar results have been reported for trait affect. Basso, Schefft, Ris, and Dember (1996) found that global classification was positively associated with trait happiness and optimism, and negatively correlated with trait depression and anxiety. Derryberry and Reed (1998) also found that attention to local details was associated with trait anxiety in threat-oriented situations. Thus, situational and chronic affect might influence these processes via similar mechanisms. The results suggest that positive and negative affective cues make different, but perhaps equally important, contributions to information processing. For example, positive affect might elicit attention to the larger meaning of poetry, music, and art, whereas negative affect might focus attention on the meter of the poetry, the rhythm of the music, and the texture of a brush stroke. The findings suggest that one's perception of novel stimuli involves an interplay of both local and global attention that is guided by positive and negative affective reactions.

Acknowledgments—This research was supported by National Science Foundation Grant SBR 96-01298, National Institute of Mental Health Grant MH 50074, and a John D. and Catherine T. MacArthur Foundation Grant (32005-0) to the Center for Advanced Study in the Behavioral Sciences. We thank Margaret Kosman, Angela Scarpaci, Carrie Grady, Nerissa Beltran, Matt Gelsthorpe, Sarah Oschack, Adam Joncich, Irene Piven, Diana Risotto, Sarah Riley, and Rachel Malis for assistance in data collection and coding.

REFERENCES

Alloy, L.B., Abramson, L.Y., & Viscusi, D. (1981). Induced mood and the illusion of control. *Journal of Personality and Social Psychology, 41*, 1129–1140.

Bartlett, F.C. (1932). *Remembering: A study in experimental and social psychology.* Cambridge, England: Cambridge University Press.

Basso, M.R., Schefft, B.K., Ris, M.D., & Dember, W.N. (1996). Mood and global-local visual processing. *Journal of the International Neuropsychological Society, 2*, 249–255.

Bless, H., Clore, G.L., Schwarz, N., Golisano, V., Rabe, C., & Wölk, M. (1996). Mood and the use of scripts: Does happy mood really lead to mindlessness? *Journal of Personality and Social Psychology, 71*, 665–679.

Bless, H., & Fiedler, K. (1995). Affective states and the influence of activated general knowledge. *Personality and Social Psychology Bulletin, 21*, 766–778.

Bodenhausen, G.V., Kramer, G.P., & Susser, K. (1994). Happiness and stereotypic thinking in social judgment. *Journal of Personality and Social Psychology, 66*, 621–632.

Clore, G.L., & Gasper, K. (2000). Feeling is believing: Some affective influences on belief. In N. Frijda, T. Manstead, & S. Bem (Eds.), *Emotions and beliefs* (pp. 10–44). New York: Cambridge University Press.

Clore, G.L., Gasper, K., & Garvin, E. (2001). Affect as information. In J.P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 121–144). Mahwah, NJ: Erlbaum.

Clore, G.L., Schwarz, N., & Conway, M. (1994). Affective causes and consequences of social information processing. In R.S. Wyer & T.K. Srull (Eds.), *Handbook of social cognition* (2nd ed., pp. 323–341). Hillsdale, NJ: Erlbaum.

Clore, G.L., Wyer, R.S., Dienes, B., Gasper, K., Gohm, C., & Isbell, L. (2001). Affective feelings as feedback: Some cognitive consequences. In L.L. Martin & G.L. Clore (Eds.), *Theories of mood and cognition: A user's guide* (pp. 27–62). Mahwah, NJ: Erlbaum.

Damasio, A.R. (1994). *Descartes' error: Emotion, reason and the human brain.* New York: Grosset/Putnam.

Derryberry, D., & Reed, M.A. (1998). Anxiety and attentional focusing: Trait, state and hemispheric influences. *Personality and Individual Differences, 25*, 745–761.

Diener, E., & Diener, C. (1996). Most people are happy. *Psychological Science, 7*, 181–185.

Dienes, B.P.A. (1996). *Mood as information: Affective cues for cognitive processing styles.* Unpublished doctoral dissertation, University of Illinois, Urbana.

Fiske, S.T., & Taylor, S.E. (1991). *Social cognition.* New York: McGraw-Hill.

Forgas, J.P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117*, 39–66.

Gasper, K. (1999). *How thought and emotional awareness influence the role of affect in processing: When attempts to be reasonable fail.* Unpublished doctoral dissertation, University of Illinois, Urbana-Champaign.

Gasper, K., & Clore, G.L. (1998). The persistent use of negative affect by anxious individuals to estimate risk. *Journal of Personality and Social Psychology, 74*, 1350–1363.

Gasper, K., & Clore, G.L. (2000). Do you have to pay attention to your feelings in order to be influenced by them? *Personality and Social Psychology Bulletin, 26*, 698–711.

Isbell, L.M. (1999). *Beyond heuristic information processing: Systematic processing in happy and sad moods.* Unpublished doctoral dissertation, University of Illinois, Urbana-Champaign.

Isen, A.M. (1987). Positive affect, cognitive process, and social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 203–253). San Diego: Academic Press.

Kimchi, R., & Palmer, S.E. (1982). Form and texture in hierarchically constructed patterns. *Journal of Experimental Psychology: Human Perception and Performance, 8*, 521–535.

Mackie, D.M., & Worth, L.T. (1989). Processing deficits and the mediation of positive affect in persuasion. *Journal of Personality and Social Psychology, 57*, 27–40.

Martin, L.L., Ward, D.W., Achee, J.W., & Wyer, R.S. (1993). Mood as input: People have to interpret the motivational implications of their moods. *Journal of Personality and Social Psychology, 64*, 317–326.

Navon, D. (1977). The forest before trees: The precedence of global features in visual perception. *Cognitive Psychology, 9*, 353–383.

Salovey, P., & Mayer, J.D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality, 9*, 185–211.

Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E.T. Higgins & R.M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 527–561). New York: Guilford Press.

Schwarz, N., & Clore, G.L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45*, 513–523.

Schwarz, N., & Clore, G.L. (1988). How do I feel about it? The informative function of affective states. In K. Fiedler & J. Forgas (Eds.), *Affect, cognition and social behavior: New evidence and integrative attempts* (pp. 44–62). Toronto, Ontario, Canada: C.J. Hogrefe.

Schwarz, N., & Clore, G.L. (1996). Feelings and phenomenal experiences. In E.T. Higgins & A. Kruglanski (Eds.), *Social psychology: A handbook of basic principles* (pp. 433–465). New York: Guilford Press.

Sinclair, R.C., Mark, M.M., & Clore, G.L. (1994). Mood-related persuasion depends on (mis)attributions. *Social Cognition, 12*, 309–326.

Vallacher, R.R., & Wegner, D.M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological Review, 94*, 3–15.

Wegener, D.T., Petty, R.E., & Smith, S.M. (1995). Positive moods can increase or decrease message scrutiny: The hedonic contingency view of mood and message processing. *Journal of Personality and Social Psychology, 69*, 5–15.

Worth, L.T., & Mackie, D.M. (1987). Cognitive mediation of positive affect in persuasion. *Social Cognition, 5*, 76–94.

Wyer, R.S., Clore, G.L., & Isbell, L. (1999). Affect and information processing. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 31, pp. 1–77). New York: Academic Press.

(RECEIVED 3/8/00; REVISION ACCEPTED 3/17/01)