

THE NATURE OF EMOTION

Fundamental Questions

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Question 3: What is the Function of Emotions?

Why Emotions Are Felt

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One afternoon in 1989 a gunman fired a semi-automatic assault rifle into a Stockton California schoolyard killing five children. A year later the parents of one of the slain girls was interviewed on PBS radio. In the year since the tragedy the lives of this southeast Asian couple had come to a halt. The father spent most of his time simply lying in bed looking at a picture of his daughter, and each day the couple watched a videotape of their child at play.

In contrast to the complete immersion of this couple in their grief, consider the behavior of victims of physical or sexual abuse who often grow up thinking as little as possible about their unfortunate experiences and telling no one. Pennebaker (1991), for example, has studied a number of individuals who experienced distressing events about which they had never expressed themselves. Typical of these is an account of a young man physically abused by his stepfather (p. 29):

... his stepfather had physically abused him starting when he was fourteen and continuing about three years. ... he refused to tell his mother for fear of tearing the family apart. During the abusive periods, Jimmy experienced intense migraine headaches. At age seventeen, Jimmy attempted suicide and was hospitalized.

I shall argue that a primary function of emotion is to provide information (Schwarz & Clore, 1983). Emotions supply information to others through distinctive facial and vocal expressions and to oneself through distinctive thoughts and feelings. From this perspective, whether the expression of emotion is functional or dysfunctional depends on what it does to the information value of the accompanying affective experience. The previous examples suggest that both the expression and inhibition of emotion can be dysfunctional. The continual expression of grief by the parents of the murdered girl and the complete silence of abused individuals may lead to equally poor coping. Whether one thinks about a traumatic event constantly or tries to avoid it, the accompanying emotional reactions can cease to belong to a specific time,

place, and circumstance. When the experience is cognitively unconstrained, that is, when it is no longer clearly tied to a specific object, it may color the judgment of any situation to which it might appear relevant.

The affective experience of the parents of the murdered girl became unconstrained because they maintained an overt state of grief and mourning over a long period of time. But the private affective experience of the victims of abuse may also become unconstrained. Refusing to talk to others about emotional events does not keep one from thinking about them. And, indeed, refusing to think explicitly about the event does not keep representations of it from being activated in memory and having affective consequences (Wegner, 1989). By not thinking about the event, the resulting affective cues may be diffuse and ill defined, so that the range of things to which they can be attributed is potentially broad. The abuse victim, for example, may carry feelings of resignation, conflict, and anxiety everywhere; as a result, instead of being a reaction to a specific past event, these feelings become part of everyday experience, judgments, and decisions.

I am proposing, then, that whether the feedback from emotional experience provides information or misinformation depends on how one parses one's experience. For emotions to be functional requires not only that one feel them but that the feelings convey discriminative information. This same idea is suggested by a simple experiment reported by Martin (1986). Subjects initially engaged in a task in which emotional thoughts and feelings were activated. Later, they read an evaluatively ambiguous description of a person and rated how much they liked him. The results showed that subjects' perceptions of the ambiguous person were biased by their prior affective experience. Subjects whose happy thoughts and feelings had been activated saw him more positively than did subjects entertaining sad thoughts.

Such affective phenomena are frequently reported, but Martin's experiment is especially interesting because he was also able to control them. A simple instructional manipulation governed whether or not a prior affective experience contaminated their later judgments. After the initial affective task, Martin told one group that they were completely finished with that task (Completed Condition), while he told another group that they would return to that task in a minute (Interrupted Condition). The effect of this instruction was to cause the interrupted group to keep their affective experience on-line, so that it contaminated their subsequent judgment. By contrast, the completed task group was able to mentally punctuate their affective experience so that the prior and subsequent experiences were kept distinct, and the usual contamination of judgment did not occur. The experiment nicely shows that whether an affective experience contaminates subsequent judgments depends critically on how one mentally parses one's experience.

Pennebaker (1991) reports in his studies of people who kept their traumatic experiences secret that when they related their experience to someone else, dramatic changes in their anxiety and arousal sometimes resulted. When one expresses the circumstances of one's distress to another, the act of framing that distress into a communication may make the associated affective reactions more likely to be seen as part of a particular time, place, and circumstance. Conversely, not talking about the event may keep the person from separating the emotional experience from subsequent

experiences. The resulting affective cues then seem potentially relevant to anything and everything, resulting in contaminated judgments.

These proposals about the effects of expressing and inhibiting emotion rest on a particular view about the function of emotion. According to the affect-as-information view (Schwarz and Clore, 1983; 1988), a primary function of emotion is to provide information about how a situation has been appraised. This information is conveyed internally by emotional experience. It serves as data for judgment and decision-making processes (Carver & Scheier, 1990; Clore, 1992) and also for reordering processing priorities (Clore, Schwarz, & Conway, in press; Schwarz, 1990; Simon, 1967). I will now discuss these two emotional consequences.

Emotion and Judgment

Like rose-colored glasses, emotional states color one's perception of the world. Just about anything is judged more positively when one is happy and more negatively when one is sad. These are among the most reliable affective phenomena. They are readily observable in everyday life as well as in the laboratory (e.g., Isen, Shalke, Clark, & Karp, 1978; Forgas & Bower, 1988). In a typical experiment, subjects watch an emotionally involving film or are induced by some other means to experience a mild emotional state. Afterward they engage in tasks that involve judgments of some kind. For example, Gallagher and Clore (1985, May) found that frightened subjects overestimate the risks of various accidents, crimes, and diseases, while angry subjects make exaggerated judgments of blame.

Irrationality. One's response to an angry or frightening situation depends in part on judgments about how blameworthy someone's actions seem or how threatening a situation appears. But a primary source of information for such judgments (especially in unfamiliar situations) is the intensity of one's own feelings of anger or fear. The affective system allows one to respond rapidly and seems generally adaptive, but it is also subject to certain errors. The problem is that one cannot generally discriminate between reactions to the situation in question and similar feelings of irritation or anxiety that are left over from prior situations or are induced by being reminded of similar events. As a result, emotional situations sometimes escalate. Already irritated individuals who are frustrated can become furious, and already anxious individuals who are frightened can become panicked. Emotions are believed to make people irrational. In hindsight, intense reactions may seem unjustified because, by then, the background cues of irritation or anxiety that fueled the reaction may no longer be present. Because people's judgments depend in part on how they feel in the moment, affective cues from extraneous sources can provide misinformation.

This is perhaps a good place to note another source of irrationality associated with emotion, one that is due to the other major function of emotion—the reordering of processing priorities. Emotions guide one's attention to things that are relevant to goals and concerns that are implicated in the emotional situation (Simon, 1967). Such processes ensure that what appears most important is attended to first. However, giving exclusive priority to emotionally relevant concerns means that one can quite

literally lose perspective. Acting as though one's momentarily active goals are the only concerns of importance can lead to excess. Later, in the context of other concerns, one may feel that one has been shortsighted. In the course of an argument, for example, winning may seem of overriding importance, but, afterward, one may judge that winning was too expensive in terms of sacrificing other goals, such as maintaining good social relations. Again, a highly functional aspect of the emotional processing system can be seen to have problematic side effects.

Misattributions. Although the processes I have described can lead to excesses, the use of momentary affective feedback would seem to be utterly essential in a self-guided system with its own motivations. Such feedback is especially important in human judgment. The incorporation of affect into judgment is such a smooth and seamless process that it is generally difficult to isolate the processes involved. One way we can study these processes is in experiments that focus on people's attributions for their feelings.

In one attribution study, students responded to a life-satisfaction interview on either cold and rainy or warm and sunny spring days (Schwarz & Clore, 1983). Respondents were happier on warm, sunny days than when it was cold and rainy, and they judged themselves to be more satisfied with their lives. In some cases, however, the interviewer mentioned the weather in order to make this true cause of respondents' feelings salient. When the external cause of their feelings was made apparent in this way, subjects' life-satisfaction ratings were immune to mood effects. Those who attributed their feelings to the weather did not see them as an indication of life satisfaction. The act of making the weather salient did not change subjects' moods, but only how they diagnosed the associated feelings. The moods of the rainy day respondents were still negative, but those feelings were not used in making judgments of life satisfaction.

Moods Versus Emotions. Many studies on the effect of emotion on judgment, including the one just described, employ general moods rather than specific emotions. The reason is that the processes are easier to study with moods than with emotions. Both are affective states, but emotions generally have a specific object and are usually briefer in duration, while moods usually have less salient causes and last longer. The importance of this fact is that studies of affect and judgment generally depend on implicit misattributions, and such misattributions and judgment biases are more common when the true cause of one's state is vague and remote than when it is clear and immediate. But our primary interest in judgment bias is simply that it offers a chance to observe the inner workings of the usual, unbiased process of affective judgment. The interface between feeling and judgment is the same, whether based on correct or incorrect implicit attributions.

Applications of Affect-as-information Principles. The principles we learn from the study of emotion and judgment represent only a formalization of what is already well known among those engaged in persuasion, seduction, or sales, and perhaps also by those skilled at resisting persuasion, seduction, and sales. Romance, for example, often depends on the inability (or the disinclination) of partners to separate their experience of alcohol, soft lights, or music from their experience of the exciting

attributes of a partner. Outcomes ranging from buying encyclopedias to religious conversions can depend heavily on whether or not one confuses reactions to the mellifluous voice of a persuader with reactions to the content of a message. And one of the oldest advertising strategies is to encourage male consumers to confuse their interest in an alluring female model with their interest in the product she is associated with.

A moment's reflection makes these familiar strategies transparent. But they are so universal and so effective because people routinely turn to their feelings for information when making judgments and decisions. If this were not the case, advertisers, politicians, and suitors would probably not go to such lengths to elicit feelings in others and encourage their misattribution. Analogous processes are also apparent in other social practices. Judges in courtrooms, for example, are elevated on a high platform so that the experience of physically looking up to the judge merges with the experience of psychologically looking up to this person as an authority. In a related vein, banks were traditionally housed in large stone buildings with massive classical columns, presumably so that one's experience of the bank's physical solidity could be easily confused with assumptions about its financial solidity. I am not suggesting that the sense of solidity and the experience of looking up to someone are emotions; indeed they are not. The point is that the experience of emotion shares with these other experiences informational properties that we routinely integrate into judgments and decisions, and that producing such information and conveying it via affective experience is the central business of emotion.

Direct Versus Indirect Effects. The explanation of emotional effects on judgment—that emotions affect judgment because people routinely use even minimal affective cues in their ongoing judgments and decisions—is quite different from the explanations traditionally offered for how we change attitudes and judgments. Social psychologists have long assumed that influences on judgment are mediated by changes in beliefs about the object of judgment, or in the weights attached to those beliefs (e.g., Anderson, 1971; Fishbein & Ajzen, 1975). This same assumption has also been made more recently by social cognition researchers. During the last decade or so, social cognition research has been preoccupied with problems of how information about people is represented, stored, and retrieved (Wyer & Srull, 1984). As attention turned toward the effects of mood and emotion on judgment, a natural tendency was to appeal to this same framework and assume that mood effects on judgment are also indirect. Thus, it has been generally assumed that the influence of mood is on how something is represented or on what part of the representation is retrieved (e.g., Bower, 1981; Isen, 1984). The affect-as-information hypothesis, by contrast, hypothesizes that mood and emotion have *direct effects* instead of, or in addition to, such *indirect effects* (Clore, 1992).

We can view the difference between these approaches by considering how one might make the kinds of judgments for which experiential information is clearly relevant. How, for example, does one answer such questions as "How do you like your lunch?" Traditional models of judgment imply that one would proceed by identifying the ingredients, looking up the stored liking values for each ingredient, and then integrating these values into a judgment of how much one likes the dish. A

more modern social cognition view would have us categorize the dish as, say, lasagna, look up the stored value for lasagna, and then answer accordingly—"I must like my lunch because it is lasagna, and I know I like lasagna." Such an account seems to be missing something. Surely liking also reflects information from the direct experience of tasting the lasagna as well as indirect influences from the retrieval of previously stored knowledge about lasagna.

A similar process also presumably underlies other on-line affective appraisals. If asked, for example, how much we like a person we have only recently met, we are likely to formulate an answer by bringing the person to mind and noting any resulting affective reactions. Often we may not be able to say why we like or dislike the individual because we may have made the judgment without accessing reasons—we may have simply read the affective cues in our momentary experience and used that information directly. We can test various predictions from this view. For example, the direct, or informational, hypothesis (Schwarz & Clore, 1983) predicts that emotion enters the equation at the judgment stage instead of solely at the encoding stage (Clore, Parrott, Schwarz, & Wilkin, 1990). This hypothesis also predicts that mood affects subjects' evaluations independently of their representation of the object of judgment (Schwarz, Robbins, & Clore, 1985, May).

The evidence discussed so far suggests that positive and negative affective states tend to influence evaluative judgments. The ease with which these affective biases can be shown implies that people may frequently base their judgments and decisions directly on how they feel at the moment, and that one of the important functions of emotion involves the information provided by feelings for making judgments and decisions. But this assertion also has important implications for other influences on judgment, including the role of emotional experiences other than feelings (e.g., emotional thoughts), and the role of other feelings that are not emotional (e.g., feeling certain, feeling confused).

Nonfeeling Components of Emotion

Emotions involve not only distinctive feelings but also distinctive thoughts. The jealous lover not only feels longing, fear, and anger but also finds himself conjuring up images of the loved person in the arms of another, entertaining depressing thoughts about himself, and considering extreme plans of action (Parrott, 1988). Like his feelings, the experience of these thoughts provides information to the lover about the nature and seriousness of his situation. These products of unconscious mental computation often appear as if from nowhere. If they occur in the right place and at the right time, they may affect judgments very much as feelings do.

Recent studies confirm that the attributional processes responsible for mood effects on judgment also operate when primed thoughts affect judgment. Whether primed thoughts influence judgments or not depends on whether one experiences them as a reaction to the object of judgment (Clore & Parrott, 1991). Merely activating a concept is not sufficient for ensuring that judgment and recall will be influenced in the direction of a primed concept. Priming requires subtlety because it depends on misattribution.

Several recent studies have tested this hypothesis explicitly. They show that when priming manipulations are subtle (Strack, Schwarz, Bless, Kubler, and Wanke, 1990) or when subjects experiencing blatant priming are distracted (Martin, Seto, and Crelia, 1990), the presence of a primed thought in consciousness is likely to be misattributed as a reaction to the object of judgment. But if reminded of a subtle priming manipulation, or if not distracted after a blatant priming manipulation, subjects are likely to discount the relevance of any primed thoughts they encounter so that they have no effect on judgment.

Nonemotional Feelings and Judgment

I have discussed the informational value of affective feelings and affective thoughts, but the same can be said for nonaffective feelings. The term "feeling" is often assumed to refer to affective feelings, but this need not be the case. Many of the most common feelings are not affective. For example, when we say we feel "hungry," "tired," or "dizzy," we are not referring to emotions but to bodily feelings or feedback about our bodily state. Similarly, when we say we feel "certain," "confused," or "surprised," these are not emotional feelings but what might be called "cognitive feelings" or feedback about our state of knowledge. The same feedback processes that govern the role of affective feeling in evaluative judgments also turn out to govern the role of these nonaffective feelings in nonevaluative judgments (see Clore, 1992). Thus, when asked if we want to eat lunch, we might consult our feelings of hunger for decision-relevant information. Similarly, in an argument, we may consult our feelings of certainty as a source of information about whether to continue to press our point. As in the case of affective thoughts and feelings, whether one's judgment is influenced by nonaffective feelings that are present depends on what they are implicitly attributed to. For example, subjects were more likely to believe that they understood a poem when the feelings of uncertainty they experienced were attributed to a prior experimental manipulation than when they saw them as part of their reaction to the poem (Clore & Parrott, 1994). Thus, the informational or feedback function characteristic of emotional feelings and thoughts is also a central function of other nonemotional experiences.

Emotion and Processing Implications

I have focused on the implications of emotions for judgments (cognitive content), but they also have implications for how problems are solved (cognitive style). In recent years much has been written about the cognitive eliciting conditions of emotions (e.g., Ortony, Clore, & Collins, 1988; Roseman, 1984; Smith & Ellsworth, 1985). But attention is just beginning to be devoted to the cognitive output of emotion. It appears, however, that positive and negative affective experiences cue different processing styles. These have been studied primarily by inducing positive and negative moods (Clore, Schwarz, & Conway, 1994; Schwarz, 1990). The usual finding is that positive affect leads subjects to engage in more heuristic processing. Individuals in positive affective states are more likely to use stereotypes, scripts, schemas, and other

other organizing information and less prone to focus on the details of the information available. Subjects experiencing sad affect are more likely to engage in systematic processing, to be analytical, and to focus more on the presented details.

Recent results show, for example, that: happy subjects are more likely to (1) recall information consistent with applicable stereotypes and schemas (Forgas & Moylan, 1991; Bodenhausen, 1993), (2) cluster information more in recall (Bless, Hamilton, & Mackie, 1990), (3) make decisions faster and more efficiently (Isen & Means, 1983), (4) engage in more creative problem-solving (Isen, 1984), and (5) form more inclusive categories from lists of items (Isen, 1987). Sad subjects, on the other hand, are more likely to: (1) discriminate between strong and weak arguments in a persuasive message (Bless, Bohner, Schwarz, & Strack, 1990), (2) estimate correlations more accurately (Sinclair & Marks, 1992), and (3) solve syllogisms better than happy subjects (Melton, in press).

Such findings suggest that emotion influences cognitive processing, perhaps in very fundamental ways. Positive affect appears to encourage unconstrained, heuristic processing, sometimes with creative results, while sad affect seems to foster a focus on more controlled, systematic processing.

The best explanation for these processing differences is not yet clear. Schwarz (1990) suggests that the information provided by positive and negative affect activates different kinds of procedural knowledge. Another possibility, also based on the affect-as-information hypothesis, is that the processing effects of emotion are really judgment effects in disguise (Martin, Ward, Achee, & Wyer, 1993). That is, when we experience positive affective cues, we may interpret them as an affirmative answer to implicit questions about the viability of whatever responses we activated. As a result, any incipient responses, including unusual or novel ones, are more likely to be retained and less likely to be rejected, so that happy individuals appear more creative. Similarly, negative affect may provide a negative answer to questions about the viability of incipient responses, so that sad subjects reject more potential answers and therefore appear more analytical and discriminating.

Emotion and Behavior

Before leaving this question, we might make some comment about the relationship between emotion and behavior, since the function of emotion presumably has something to do with action. Emotional states may involve a number of processes that facilitate action in a general way without priming any particular behavior. It is easy to imagine that emotion involves changes in arousal, in blood distribution, in muscle tension, and so on. To the extent that these or related changes occur, the organism might be prepared to engage in action more quickly or forcefully. It seems less plausible, however, that emotions in humans involve activation of motor programs for particular actions.

Nevertheless, it is common to assume that fear involves behavioral tendencies to escape, that anger involves activation of aggressive responses, that shame involves tendencies to hide, and so on. But these links are probably more indirect than is generally assumed. Such words as "behavior," "response," and "action," even when

qualified by such words as "tendencies," "readinesses," or "inclinations," imply that specific muscle groups and motor circuits are activated when one is angry, fearful, or ashamed. Such claims suggest, rather implausibly, that one's legs are programmed to run when afraid, one's arm is programmed to hit when one is angry, or one's hands are programmed to cover one's face when ashamed. Of course emotions such as fear do involve a redistribution of blood from the viscera to the large muscles, and such effects would presumably enable one to engage in rapid action or extreme exertion. But such general activation is not at all the same thing as a specific action tendency or a motor program.

Fewer conceptual problems arise if one assumes that the direct effects of emotions are motivational rather than behavioral. One can achieve more agreement about the likely goals of angry, fearful, or ashamed persons than about their likely behaviors. It seems clear enough, for example, that fear involves a desire to avoid harm or loss, but not at all clear whether achievement of this goal would necessitate selling one's stocks, listening to the weather report, or running away. Thus, the immediate effects of emotion may be more mental than behavioral.

Summary

Emotional organisms are information-processing organisms. Emotions emerge from information processing and feed information back into the same system. Sources of emotions are the continual appraisals that take place as the organism moves through its world. The output of emotions is information conveyed by distinctive thoughts, feelings, and expressions. This experiential output serves as input to moment-to-moment judgment and decision making (Clore, 1992; Schwarz, 1990). It informs the individual about the results of unconscious computations concerning the significance of events for one's concerns. Thus informed, the individual can then allocate resources appropriately (Simon, 1967).