

Levels of Thought and Levels of Emotion

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I am not talking about unconscious emotions. If we have emotions that never ripple the surface of consciousness, they are beyond the scope of this discussion. I am talking about times when we are aware of emotional feelings, whether or not we can give these feelings a name.

Even for conscious emotional states, I think it is impossible to specify a set of minimal cognitive prerequisites. In some ways it is analogous to the attempt to specify the defining features of mental illness. Some people are delusional but not unhappy, some experience debilitating panic attacks even though they "know" there is nothing to be afraid of, some are racked with physical pain that has no identifiable physical cause. The history of attempts to define insanity in a way that bears some relation to reality is testimony to the futility of seeking necessary and sufficient causes.

Emotional experiences differ enormously in their degree of cognitive involvement. The emotional responses described by Clark Hull and those described by William Shakespeare seem almost incomparable. An ambiguous noise may create a sense of alert wariness, a smile or the sun breaking through the clouds may trigger happiness without analysis, without signification, without thought (Zajonc, 1980). At the opposite end of the spectrum we have Alexei Karamazov, Dorothea Brooke, and Stephen Dedalus navigating in mental worlds of infinite cognitive and emotional complexity, where any simple cognitive components have been transformed almost beyond recognition.

If one defines emotion as beginning at the point of entry into the emotional system, the contributing role of cognition will be less than if emotion is defined as the full-fledged manifestation of an identifiable emotion such as anger or sorrow or pride. Much of the debate about the role of cognition in emotion has been the result of different definitions of the key terms.

My own view, similar to that of several other appraisal theorists, is that usually the process of emotion (and I think of emotion as process) is initiated when one's attention is captured by some discrepancy or change. When this happens, one's state

is different, physiologically and psychologically, from what it was before. This might be called a "state of preparedness" for an emotion, "alert attention," or the beginning of emotion (cf. Ellsworth, 1991; Kagan, 1991, LeDoux, 1989). Whether one considers it the beginning of emotion or some pre-emotional state is largely a matter of semantic preference. Viewing emotion as a process, I have no problem in defining emotion from the moment the process begins. If others prefer to define it as the moment the process results in the crystallization of the emotional (or pre-emotional) experience into a relatively stable emotion that has a name, that's fine with me, although not particularly interesting. It is the process that interests me. The process almost always begins before the name and almost always continues after it. The realization of the name undoubtedly changes the feeling, simplifying and clarifying. Eventually, most human emotion involves cognition most of the time.

If the novel stimulus is easily defined as inconsequential, the physiological response wanes, and the person typically moves out of the emotional system. If not, further appraisals occur.

Appraisal theories (Arnold, 1960; Frijda, 1986; Lazarus, 1991c; Roseman, 1984; Scherer, 1984; Smith & Ellsworth, 1985) typically begin with very simple appraisals as entry points into the realm of emotions: attention or novelty; a primitive sense of pleasure or aversion; a sense of uncertainty or certainty. Further appraisals are progressively more complex: the perception of an obstacle; a sense of control or lack of it; attribution of agency—was the event caused by oneself, someone else, or impersonal circumstances; legitimacy (Roseman, 1984); evaluation of the match between an event and prevailing social norms or one's own personal standards (Scherer, 1984).

One's answer to the question of minimal cognitive prerequisites depends on one's definition of cognition and on one's definition of emotion (as abundantly illustrated by the debate between Zajonc and Lazarus; see Scherer & Ekman, 1984). If sensory information processing is considered cognitive, then most if not all emotions will show some "cognitive" contribution. If one defines cognition as involving conscious propositional analysis, then a larger proportion of emotional experiences will be defined as noncognitive, at least at their onset.

We have found that attention, pleasantness, certainty, anticipated effort or obstacle, and attributions of agency reliably discriminate 13 different emotions, and that appraisals along some of these dimensions are especially important or central for some emotions—uncertainty for hope and fear, and agency for sadness, anger, and guilt, for example (Smith & Ellsworth, 1985; Ellsworth & Smith, 1988). We hypothesize that these appraisals are extremely common in the process of emotion, both within and across cultures. There may be other appraisals that are equally common; we do not claim that our initial efforts have produced an exhaustive list. At least some of these appraisals are associated with characteristic facial movements (Smith, 1989); perhaps all of them have recognizable physical manifestations. There are undoubtedly additional less common appraisals that affect emotion, some that occur in some cultures or classes of individuals but not others (Lutz & White, 1986; Ellsworth, in press), perhaps some that are culturally or individually idiosyncratic.

I think emotion is usually provoked by appraisals (including remembered appraisals) of the environment, and one's self in relation to the environment, and I believe the cognitive dimensions of appraisal we have found are likely candidates for

very general, if not absolutely "necessary" cognitive components. There are, however, some situations that have been proposed as evidence against the proposition that there are any cognitive prerequisites to emotion. I will briefly consider four of these, two red herrings and two that raise real questions about the necessity of cognition for emotion. This list is not exhaustive either.

Two Red Herrings

1. Emotions at the Movies

People scream and gasp at horror movies, cheer when the underdog clobbers the evil power, cry when the lady dies bravely. If you ask people whether what is happening on the screen is really happening, most of them will look at you askance and say, "Of course not!" (The intellectuals will ask what you mean by "real.") Cognitively, they "know" that no one was hurt, that the monster was just a special effect, yet their emotions *seem* real. Their own well-being was never at stake; they do not need to cope with the perils before them; they are sitting in chairs in a comfortable environment surrounded by other people sitting in chairs. How can they be experiencing emotion if they lack the essential cognitive appraisals?

I do not think the emotions evoked by obviously fictional presentations contradict the logic of appraisal theories. One of the essential functions of emotion is to motivate the organism to respond quickly and effectively to environmental threats as they arise. Generally the costs of failing to respond soon enough are far greater than the costs of responding when it is not really necessary. Running away from an imaginary danger or taking needless extra precautions may waste one's time or make one look foolish, but standing there trying to decide whether or not the danger is real can cost one's life. It is far safer for an organism to be calibrated to feel emotion when it is not warranted—to have a hypersensitive system—than it is to have a system that postpones the initiation of emotional processes until there is no question that they are justified. Thus the emotions we feel in the movies are real. The events on the screen trigger processes that are initially identical, or at least highly similar, to those triggered by real events. The "higher cognition" that we are not in danger, that the events are not real, comes into play only after the process has been set in motion, modifying the experience and inhibiting the associated action tendency.

In young children the imbalance between the force of the immediate emotional response and the knowledge that the events on the screen are fictional is even greater. Young children often shout advice to the characters ("Not the *West Wing*! That's where the *Beast* is!"), and sometimes *do* try to run out of the theater when the monster appears. The emotions produced by an emotionally significant stimulus take precedence over the recognition that the stimulus is make-believe.

2. The Zajonc "Feelings Are First" Hypothesis

Likewise, I see no fundamental incompatibility between Zajonc's claim that "preferences need no inferences" and the claims of appraisal theories. The kinds of

preference Zajonc discusses are immediate, automatic approach or avoidance tendencies that can occur even before the object is recognized and named. These preferences seem to correspond quite closely to the very simple appraisal of valence that characterizes several versions of appraisal theory. Nothing in appraisal theory says that an object must be recognized before a sense of pleasure or aversion can be felt.

From my point of view, Zajonc has engaged in extensive study of one of the basic and most important steps in the process, usually (though not necessarily) a very early step. Further appraisals—of obstacles, of control or coping potential, of agency—create emotions that are more differentiated than the simple sense of valence. Zajonc himself is quite clear on this point: “Of course, more complex emotions [more complex than “simple affective polarities”], such as pride, disappointment, jealousy, or contempt obviously require extensive participation of cognitive processes” (Zajonc, Murphy, & Inglehart, 1989).

Two Real Problems

1. Music

Explaining emotional responses to instrumental music is a real problem for appraisal theories, and may be a real threat to the generality of appraisals as elicitors of emotion. Appraisal theories can account for *some* emotional responses to music, as attention and valence certainly occur in listening to music just as they do in responding to other stimuli. The other appraisals that have been proposed—appraisals such as certainty, control, and agency—seem less relevant to music than they are to other kinds of events. Nonetheless, many people report responses to music that are far more elaborate than a simple sense of pleasure or displeasure. Casual research in our laboratory indicates that people can categorize their responses to musical selections as “sad,” “fearful,” “triumphant,” and “happy” with fairly high levels of reliability, and as “angry” with somewhat lower levels. Some subjects, along with many writers (cf. Forster, 1939) struggle to communicate extraordinarily complex emotional “meanings” of musical selections.

I do not think that these responses can be accounted for by appraisals *of the music*; therefore, in this context, stimulus appraisals do not *cause* the emotion. But the same patterns of appraisals may still be *experienced* as part of the emotion, even if their causal role is delayed, muted, or nonexistent. Although I believe that emotions are usually the result of a sequence of appraisals, they are not simply a combination of cognitions. Instead, the appraisals have physiological and experiential correlates (Smith, 1989), which together with the appraisals themselves, *are* the emotional experience. Some of these physiological and experiential sensations may correspond to features of music such as crescendo and decrescendo (as suggested by Tomkins, 1963), staccato and legato, tempo and rhythm, ascending and descending scales. Musical phrases or longer excerpts that mimic the nonverbal, noncognitive aspects of an emotional feeling state may elicit aspects of the emotion itself, then at last the full emotion, including the characteristic appraisals (but not the action tendencies). The

order of events is not the standard order described in the model, and the appraisals are not appraisals of one's own immediate circumstances, of course. Instead they are more generalized appraisals—without specific objects—appraisals of loss and uncontrollability, of uncertainty, or of power and self-agency.

This hypothesis suggests the possibility of cross-cultural commonalities in the ability of certain kinds of music to elicit certain emotionally relevant physiological responses. Alternatively, the emotional response to music and the associated appraisals may be learned within particular cultures. I know of no cross-cultural research on perceptions of the emotional tone of music.

2. Opponent Processes

Richard Solomon (1980) proposed an Opponent Process theory of emotion, in which the termination of one emotion (e.g., joy) automatically brings about the onset of the opposite emotion (e.g., sadness). Solomon's own research was largely concerned with heart-rate acceleration in frightened dogs, followed by pronounced deceleration below baseline when the fear stimulus was removed; the initial arousal was attenuated over many episodes, while the rebound effect was exaggerated. Speculating about the applicability of the theory to humans, he cited studies of novice parachute jumpers who experience a nightmare of panic and near incontinence before their first few jumps, followed by relief, compared to experienced jumpers, who are barely aroused before jumping, but experience an exhilarating "high" after they land.

Research on humans is sparse and usually flawed. Mauro (1988), however, in an elegant series of studies, has provided evidence that opponent "rebound" effects do occur in humans, at least for some emotions, and cannot easily be accounted for by changes in the person's appraisal of the situation. If such rebound effects prove to be reliable, they constitute a second challenge to the generality of appraisal theories, since the second, "rebound" emotion is caused only by the termination of the first and not by any new appraisals.

Let me close with a gentle reminder. Music and opponent processes are problematic for appraisal theories of emotion, but no other theories have done much better. The usual tactic is simply to omit any reference to these embarrassing mysteries, to rule out domains where our theories falter as irrelevant or "beyond the scope of the present paper." Nonetheless, the mysteries *are* the theoretical challenges, and sooner or later must be acknowledged.

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