

## **Pleasure as a sign you can attend to something else: Placing positive feelings within a general model of affect**

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Positive feelings are considered within the framework of a general model of origins and functions of affect. This model treats affect as reflecting the error signal of a feedback loop managing rate of incentive-seeking (and threat-avoidant) behaviour. In this view, positive feelings represent a sign that things are going better than necessary and are presumed to induce coasting. A tendency to coast is seen as facilitating the shift of attention and effort to other behavioural domains, where they may be needed more or where unforeseen opportunities have arisen. Such a function for positive feelings would permit the person both to maintain satisfactory standing with regard to multiple goals and to take advantage of unforeseen opportunities, thus providing adaptive value. Comparisons are made to other recently developed ideas concerning the functions of positive feelings.

What are positive feelings? Do they have a purpose? How do they arise? In this paper I consider these questions from the perspective of the theoretical model of affect proposed by Carver and Scheier (1990; elaborated in Carver & Scheier, 1998, chapters 8 and 9). Several other views share similarities of one sort or another with this one (particularly Higgins, 1996, 1997 and Hsee & Abelson, 1991; see also Clark, Watson, & Mineka, 1994; Cloninger, 1988; Frijda, 1986, 1988; Ortony, Clore, & Collins, 1988; Roseman, 1984). However, for the sake of simplicity, I frame my arguments here in terms of the version with which I am most familiar.

My main points are these: I believe that positive affects constitute important information for the people who experience them (cf. Clore, 1994) and play an important regulating function in the flow of behaviour. In my view, positive

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feelings are readily understood in the framework of at least some general views of emotion. On the other hand, I believe some effects of positive feelings are unexpected and counterintuitive. Finally, although I think the ideas presented here are useful, I do not mean to assert that they account for all consequences of positive affect.

A few words at the outset about the terms “affect”, “feeling”, and “emotion”: Sometimes these terms are used interchangeably (e.g., Isen, 2000), sometimes they are distinguished from each other (e.g., Russell & Feldman Barrett, 1999; Fredrickson, 2001). I focus here on affect, by which I mean the experience of valence, a subjective sense of positivity or negativity arising from an experience (Russell & Carroll, 1999). Although I occasionally use the word “emotion”, it is with that sense in mind. As Frijda (2000) put it: “For many theorists, the essence of emotion is feeling, and notably ‘affect’, here used in the sense of a feeling of pleasure or pain...” (p. 63). I tend to use the word “emotion” less frequently because it often has connotations of physiological change that can accompany hedonic experiences, and I have little to say about those changes.

## CONCEPTUAL BACKGROUND: BEHAVIOUR AND AFFECT

I begin by outlining the general view on behaviour that underlies my position on affect. I believe that behaviour is organised for moving toward desired goals, or incentives, and for avoiding undesired “anti-goals”, or threats. My inclination is to view these approach and avoidance processes in terms of discrepancy-reducing and discrepancy-enlarging feedback loops, respectively (Carver & Scheier, 1998, 1999), although that is certainly not the only way such processes can be viewed.

The idea that behaviour is organised around approaching incentives and avoiding threats is not new (cf. Miller, 1944; Miller & Dollard, 1941). However, it has enjoyed renewed popularity in recent years, in a family of motive theories with roots in neuropsychology and conditioning. A system managing incentive motivation and approach has been postulated, variously called the behavioural activation system (Cloninger, 1987; Fowles, 1980), behavioural approach system (Gray, 1981, 1987, 1994), and behavioural facilitation system (Depue & Collins, 1999). A system managing aversive motivation and withdrawal or avoidance has been called the behavioural inhibition system (Cloninger, 1987; Gray, 1981, 1987, 1994), and withdrawal system (Davidson, 1984, 1992a, 1995, 1998).

A secondary theme of these models concerns affective experience. Specifically, the two motive systems are believed to be the sources of the affect qualities that are relevant to approach behaviour and avoidance behaviour, respectively.

## Affective states and frontal lobe activation

Work that focuses on neural substrates of emotional experience is an important source of support for this latter idea (for reviews see Davidson, 1995, 1998; Davidson & Sutton, 1995; see also Watson, Wiese, Vaidya, & Tellegen, 1999, pp. 829–831). Most of this work examines regional activity (by EEG or functional neuroimaging) in areas of the cerebral cortex in response to affect-inducing stimuli (or individual differences in activation relating to temperamental susceptibility to particular affects).

On the basis of a considerable accumulation of findings, Davidson (e.g., 1992a, 1995, 1998) has argued that portions of the specialised neural substrates for approach and withdrawal (and for affects relevant to approach and withdrawal) are lateralised in the left and right anterior regions of the cerebral cortex, respectively. This general view on behaviour—that approach and withdrawal and concomitant affects are managed by two distinct systems—has much in common with the ideas described in the prior section. However, work on neural substrates of affect links the ideas about neural systems and behaviour explicitly to subjective affective experiences.

## Affect as an indicator of effectiveness in ongoing action

The sources discussed thus far suggest that two distinct systems manage two aspects of behaviour and create affects that are relevant to them. To this I now add Carver and Scheier's (1990, 1998) argument about processes by which affect comes to exist. The general sense of the argument is that certain feedback systems monitor not approach and avoidance actions *per se*, but rather the *effectiveness* of such actions over time. These systems are assumed to take an input signal that corresponds to "rate of progress" and compare it against a reference rate. The "error signal" of these loops (reflecting any discrepancy detected) is manifest subjectively as affective valence. If the rate of progress is below the criterion, negative affect arises. If the rate is high enough to exceed the criterion, positive affect arises. If the rate is not distinguishable from the criterion, no affect arises.

In essence, the argument is that feelings with a positive valence mean you are doing better at something than you need to, and feelings with a negative valence mean you are doing worse than you need to (for more detail, including a review of evidence on the link between this "velocity" function and affect, see Carver & Scheier, 1998, chapters 8 and 9). One implication of this argument is that the affective valences that might potentially arise regarding any given action domain should fall along a bipolar dimension. That is, for a given action, affect can be positive, neutral, or negative, depending on how well or poorly the action is going.

On the other hand, the idea that there are distinct approach and avoidance systems (and thus distinct approach and avoidance behaviours) suggests the basis for a difference. Specifically, affects may differ as a function of which system—approach versus avoidance—is managing the behaviour and thus underlies the affect. Both approach and avoidance have the potential to induce positive feelings (by doing well); both also have the potential to induce negative feelings (by doing poorly). But doing well at moving *toward an incentive* is not quite the same as doing well at moving *away from a threat*. Thus, the two positives may not be quite the same, nor the two negatives quite the same.

Based on this line of thought, and drawing on insights from Higgins and his collaborators (e.g., Higgins, 1987, 1996), Carver and Scheier (1998) argued for two bipolar affect dimensions (Figure 1). One dimension relates to the system that manages approach of incentives, the other to the system that manages avoidance of or withdrawal from threat (see also Carver, 2001). The approach related dimension ranges (in its “purest” form) from such affects as elation, eagerness, and excitement to sadness and dejection. The avoidance related dimension relating to the latter system ranges (in its “purest” form) from fear and anxiety to relief, serenity, and contentment.<sup>1</sup>

### Affect and action

This view treats the systems that regulate action and affect as a simultaneously functioning two-layered array (Carver & Scheier, 1998, 1999). The layers are analogous to position and velocity controls in a two-layered engineering control system (Clark, 1996). Such an organisation permits high response speed while minimising oscillation (thus not impairing accuracy; Carver & Scheier, 1998, p. 144). There is reason to believe the simultaneous functioning of two layers of control has the same effects on human behaviour. A person with very reactive emotions overreacts and oscillates behaviourally; a person who is emotionally nonreactive is slow to respond even to urgent events. A person whose emotional reactions are between the two extremes responds quickly but without undue overreaction and oscillation.

Earlier, I described affect as reflecting the error signal of a loop that takes rate of progress as its input. The output thus would be an adjustment in rate of progress. What does it mean to adjust rate of progress? Consider the case of inadequate progress—being behind. Sometimes adjusting to being behind

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<sup>1</sup> Let me note explicitly that Figure 1 ignores several further issues. With respect to approach, for example, it does not distinguish between eagerness and satisfied basking (both of which are approach-related and positive, but which clearly differ both in the subjective experience and in what phase of approach they are most likely to occur). Nor does it incorporate frustration or anger, which are also approach-related affects (cf. Harmon-Jones & Sigelman, 2001). Although these and other issues are important, they are beyond the scope of this article (for broader treatment see Carver, 2002).

Approach process	Avoidance process
<p>Doing well (+)   Elation, eagerness</p> <p style="text-align: center;">↑ (neutral)</p> <p>Doing poorly (-)   Sadness, depression</p>	<p>Doing well (+)   Relief, calmness</p> <p style="text-align: center;">↑ (neutral)</p> <p>Doing poorly (-)   Fear, anxiety</p>

**Figure 1.** Two behavioural systems and poles of the affective dimensions held by Carver and Scheier (1998) to relate to the functioning of each. In this view, approach processes yield affective qualities of sadness or depression when progress is very poor; they yield such qualities as eagerness, happiness, or elation when progress is very high. Avoidance processes yield anxiety or fear when progress is very poor; they yield relief, calmness, or contentment when progress is very high. (Adapted from C.S. Carver and M.F. Scheier, *On the self-regulation of behavior*, Copyright 1998, Cambridge University Press. Used with permission.)

means, literally, going faster. But the rates of many behaviours of interest to personality-social psychologists are manifested in choices among actions, even *programmes* of action. For example, increasing rate of progress on a work assignment may mean deciding to spend a weekend working rather than boating. Increasing the rate of “kindness” may mean choosing to initiate an action that reflects kindness. Thus, adjustment in rate must often be translated into other terms, such as concentration or reallocation of time and effort.

Despite this complexity in implementation, it should be clear that action and velocity systems are seen here as working in concert. Both are involved in the flow of action, though they influence different aspects of the action. Thus, this view assumes explicit links between behaviour and affect.

### A CLOSER LOOK AT POSITIVE FEELINGS

The model just described has a number of implications for positive feeling. One has already been touched on, concerning diversity among positive affects. Positive feelings might be seen as equivalent, in the sense that all are positive. But this model distinguishes among positive feelings according to the class of action within which they emerge. Some positive feelings arise while pursuing incentives—feelings such as eagerness, happiness, joy. Other positive feelings

arise in the context of escaping or avoiding threats—feelings such as relief, calmness, and tranquility. These sets of feelings are both positive in valence, but in other ways they differ. There is also evidence linking them uniquely to the two classes of experience just mentioned—attainment of an incentive versus avoidance of a threat (e.g., Higgins, Shah, & Friedman, 1997, study 4).

Sometimes two sets of positive feelings roughly equivalent to these are differentiated by the fact that one set has higher activation, the other has lower activation (Fredrickson, 1998; Russell, 1980; Russell & Carroll, 1999; Watson & Tellegen, 1999). Although this may be descriptively accurate, I think it misses the point. I do not think that a feeling of being calm turns into a feeling of being happy or eager by the addition of a nonspecific activation. I think that the activation involved in eagerness arises very specifically from the engagement of an approach system.

### Consequences of construing affect as arising from a feedback process

The idea that affect reflects the error signal from a comparison process in a feedback loop has some counterintuitive implications, which are key to everything else I will say here. If affect reflects the error signal in a feedback loop, affect therefore is a signal to adjust rate of progress. This would be true whether the rate is above the mark or below it—that is, whether affect is positive or negative.

For negative feelings, this model is intuitive. Negative feelings point to a rate that is too low. The first response to negative feelings usually is to try harder. (I disregard here the possibility of giving up effort and quitting the goal, though that possibility clearly is important—Carver, 2002; Carver & Scheier, 1998.) If the person tries harder—and assuming more effort (or better effort) increases the rate of intended movement—the negative affect diminishes or ceases.

What is counterintuitive concerns positive feelings. In this view, positive feelings arise when things are going better than they need to. But they still reflect a discrepancy (albeit a positive one), and the function of a feedback loop is to minimise discrepancies. Thus, the system “wants” to see neither negative nor positive affect. Either quality (deviation from the standard in either direction) would represent an “error” and lead to changes in output that would eventually reduce it.

This view argues that people who exceed the criterion rate of progress (i.e., who have positive feelings) will reduce subsequent effort in this domain. They are likely to “coast” a little (cf. Frijda, 1994, p. 113)—not necessarily stop, but ease back such that subsequent rate of progress returns to the criterion. The impact on subjective affect would be that the positive feeling is not sustained for very long. It begins to fade. The fading may be particularly rapid if the

person turns from this activity to another domain of behaviour (Erber & Tesser, 1992).<sup>2</sup>

Let me be clear that the responses just described—expending greater effort to catch up, and coasting—are presumed to be specific to the goal domain to which the affect is attached. Usually (although not always), this is the goal that underlies the creation of the affect (for exceptions see Schwarz & Clore, 1983). We do not argue that positive affect creates a tendency to coast *in general*, but rather a tendency to coast with respect to this specific activity.

### Cruise control model

This arrangement has functional properties that resemble those of a car's cruise control. Cruise control works like this: You come to a hill, which slows you down; the cruise control responds by feeding the engine more fuel, which brings velocity back up. You come over the crest of a hill and roll downhill too fast; the system decreases the fuel, which gradually drags velocity back down.

The model we have proposed for affect has several things in common with this. If a person is going too slowly toward a goal, negative affect arises. The response is to feed more effort, trying to enhance performance, which then removes the negative affect. If a person is going faster than needed, positive affect arises. The person then diminishes effort—coasts—which removes the positive affect, although not necessarily right away.

The analogy is intriguing in part because both sides of it incorporate an asymmetry in the consequences of deviating from the set point. That is, in a cruise control system and in behaviour, going too slow calls for the investment of greater effort and resources. Going too fast calls only for cutting back on resources. That is, the cruise control simply reduces the fuel—it does not engage the brake. Thus, if the hill is steep, the car may exceed the cruise control's set point all the way to the valley below. Similarly, people experiencing positive feelings do not usually invest resources to dampen the feelings (although there are special cases—Martin & Davies, 1998). They simply pull back temporarily on the resources devoted to the domain in which the affect has arisen. Depending on the circumstances, the positive feelings may be sustained for a long time, as the person coasts down the subjective analogue of the hill. Eventually, though, the withdrawal of resources would cause the positive affect to diminish. Under normal circumstances, then, the system would prevent great amounts of pleasure, as well as great amounts of pain.

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<sup>2</sup>This is not the same point as the concept of “hedonic treadmill” (Brickman & Campbell, 1971), in which a given attainment loses its ability to create positive affect because people adapt to it (see also Kahneman, 1999). That phenomenon involves a longer-term process of resetting the reference value to a higher setting (for further discussion see Carver & Scheier, 2000).

## Coasting

The idea that positive affect leads to coasting, which would eventually result in reduction of the positive affect, strikes some people as unlikely at best. Many believe that pleasure is instead a sign to continue what one is doing or even to immerse oneself in it more deeply (cf. Fredrickson, 2001; Messinger, 2002). On the other hand, the latter view creates something of a logical bind. If pleasure increases engagement in the ongoing activity, leading thereby to more pleasure and thus more engagement, when and why would the person would ever cease that activity?

The notion that positive feelings induce coasting may seem unlikely, but we are not the only ones to have suggested such a thing. In discussing joy, Izard (1977) wrote: “If the kind of problem at hand requires a great deal of persistence and hard work, *joy may put the problem aside before it is solved* . . . If your intellectual performance, whatever it may be, leads to joy, the joy will have the effect of *slowing down performance* and removing some of the concern for problem solving. This change in pace and concern may postpone or in some cases eliminate the possibility of an intellectual or creative achievement . . . If excitement causes the ‘rushing’ or ‘forcing’ of intellectual activity, a *joy-elicited slowing down* may be exactly what is need to improve intellectual performance and creative endeavor” (p. 257, emphasis added). More recently, Izard and Ackerman (2000) wrote, “Periodic joy provides *respite from the activity* driven by intense interest” (p. 258, emphasis added).

Does positive affect lead to coasting? I am not aware of data that bear unambiguously on the question (though see Mizruchi, 1991, for suggestive evidence). To do so, a study must assess coasting with respect to the same goal as underlies the affect. Many studies have created positive affect in one context and assessed its influence on another task (e.g., Isen, 1987, 2000; Schwarz & Bohner, 1996). Those who conduct such studies typically work hard to make the two contexts appear unrelated. In earlier writings (e.g., Carver & Scheier, 1998), I interpreted one such study (Melton, 1995) as support for the coasting hypothesis, but that was erroneous on my part. Because the target performance was on a task unrelated to the one on which the affect arose, the finding does not bear on the hypothesis; nor do other studies using dual-context paradigms. The question seems to remain open.

## Coasting and multiple concerns

One reason for scepticism over the idea that positive affect induces coasting is that it is hard to see what reason could there possibly be for people to have built-in a process that limits—and even reduces—positive feelings. We believe a basis for the adaptive value of such a tendency lies in the fact that people have multiple concerns (Carver & Scheier, 1998; Frijda, 1994). Given multiple

concerns, people usually do not optimise their performance on any one of them, but rather “satisfice” (Simon, 1953)—do a good enough job on each to deal with it satisfactorily.

A tendency to coast virtually defines satisficing regarding that particular goal. A tendency to coast would also foster satisficing regarding a set of several goals. That is, if progress toward goal attainment in one domain exceeds current needs, a tendency to coast in that domain (satisficing) would make it easy to shift to another domain, at little or no cost. This would help ensure satisfactory goal attainment in the other domain and ultimately across multiple domains.

Continued pursuit of the present goal without let-up, in contrast, has potential adverse consequences. Continuing a rapid pace here may sustain positive affect here, but by diverting resources from other goals it also increases the potential for problems elsewhere. This would be even more true of an effort to *intensify* the positive affect, as doing so would entail further diverting resources from other goals. Indeed, a single-minded pursuit of yet-more-positive feelings in one domain can even be fatal, if it results in the disregarding of threats looming elsewhere.

A pattern in which positive feelings lead to easing back and an openness to shifting focus would minimise such adverse consequences. Note that this view does not *require* that people with positive feelings shift goals. It simply holds that openness to a shift is a potential consequence—and a potential benefit—of the coasting tendency. This pattern would, however, begin to account for why people do eventually turn away from what are clearly pleasurable activities.

A provocative finding, in this regard, is that smiling infants who are engaging in face-to-face interactions with their mothers periodically avert their gazes from their mothers, then stop smiling. The infants are more likely to do this (and avert their gaze longer) when they are smiling intensely than when the smiles are less intense (Stifter & Moyer, 1991). This pattern hints that their happiness creates an openness to shifting focus, or at least a tendency to coast with respect to the interaction with mother, letting the affect diminish before returning to the interaction.

The line of argument just outlined begins to implicate positive feelings in a broad function within the organism: Shifting from one goal to another as focal in behaviour. Let us take a closer look at this function.

### PRIORITY MANAGEMENT AS A KEY ISSUE IN SELF-REGULATION

Simon (1967) pointed out that an entity pursuing many goals needs a way to rank them for pursuit and a mechanism to change the rankings as necessary. Most of our goals are largely out of awareness at any given moment. Only the one with the top priority has full access to consciousness. Sometimes events that occur during the pursuit of that top-priority goal create problems for a second

goal that has lower priority. Indeed, the mere passing of time sometimes creates a problem for the second goal, because the passing of time may be making its attainment less likely. If the second goal is important, emerging problems for its attainment need to be registered and taken into account. If the situation evolves enough to seriously threaten the second goal, some mechanism is needed for changing priorities, so that the second goal replaces the first one as focal.

Simon (1967) reasoned that emotions represent calls for reprioritisation. He suggested that emotion arising with respect to a goal that's out of awareness eventually causes people to interrupt their behaviour and give that goal a higher priority than it had. The stronger the emotion, the stronger is the claim being made that the unattended goal should have higher priority than the presently focal goal. The affect is what pulls the out-of-awareness into awareness. (Simon did not address negative affect pertaining to the focal goal, but the same principle seems applicable: Negative affect in that case seems to be a call for even greater investment of resources and effort in that focal goal.)

Simon's analysis is applied easily to negative feelings such as anxiety. If you are following driving instructions that take you into a dangerous part of town, the focal goal is getting to your destination. Anxiety that arises concerns a second issue—a threat to your safety. If you promised your spouse you would go to the post office this afternoon and you have been too busy to go, the creeping of the clock toward closing time can cause an increase in anxiety—concerning the second issue of an angry spouse. Anxiety arises when a threat is coming closer, whether the threat comes from ongoing action (e.g., entering a bad area of town) or through the passage of time. The greater the threat, the stronger the anxiety, and the more likely it is that the anti-goal it stems from will rise in the priority list until it comes fully to awareness and becomes itself the focal influence on behaviour.

### Positive feelings and reprioritisation: Theory

Simon's discussion of shifting priorities focused on cases in which a nonfocal goal demands a higher priority and *intrudes* on awareness. By strong implication, his discussion dealt only with negative affect. However, there is another way priority ordering can change: The currently focal goal can *relinquish its place*. Simon noted this possibility obliquely, by noting that goal completion results in termination of pursuit of that goal. However, he did not consider the possibility that an unattained goal might also yield its place in line.

Consider the possibility that positive feelings represent a cue regarding reprioritisation, but a cue to *reduce* the priority of the goal to which the feeling pertains. This construal appears to do no violence to the sense of Simon's scheme. Rather, it simply suggests a functional symmetry between affects of opposite valences. Positive affect regarding avoidance (relief or tranquility) indicates that a threat has dissipated, no longer requires much attention, and can

assume a lower priority. Positive feelings regarding approach (happiness, joy) indicate that an incentive is being attained. If it has *been* attained, effort can cease, as Simon noted. If it is not yet attained, the affect is a signal that you could temporarily put this goal aside—that is, that this goal can assume a lower priority.

If a focal goal diminishes in priority, what follows? In principle, this situation is less directive than is the case of increasing priority of a nonfocal goal (which is very specific about what goal should receive attention). What happens next in this situation depends partly on what else is waiting in line; it depends partly on whether the context has changed in any important way while you were busy with the focal goal. That is, opportunities sometimes appear unexpectedly. People often put aside their plans to take advantage of such unanticipated opportunities (Hayes-Roth & Hayes-Roth, 1979; Payton, 1990). It seems reasonable that people should be most prone to shift goals at this point if something else needs fixing or doing (regarding a next-in-line goal or a newly emergent goal) or if an unanticipated opportunity for gain has appeared.

Sometimes, the next item in line is of fairly high priority in its own right. Sometimes, the situation has changed and a new goal has emerged for consideration. On the other hand, it is often the case that nothing has changed enough to present a new goal for serious consideration, and that no goal waiting in line is pressing. If so, *no change in goal would occur*, because the downgrade in priority of the now-focal goal does not take it below the priorities of the salient alternatives. Thus, positive feeling does not *require* that there be a change in direction. It simply sets the stage for such a change to be more likely.

Given the nature of the argument being made, it seems to follow that when the priority of the focal activity drops there ensues a scanning for potential next actions (cf. Vallacher & Kaufman, 1996). Such scanning would use information about goals waiting in line, but also information from the environment. Without the latter, there would be no chance to recognise and act on unexpected opportunities. Such scanning would seem to entail, in part, a broadening of attentional focus.

### Evidence that positive affect promotes shifting to areas in need of repair

Aspects of the preceding line of reasoning have a good deal in common with ideas recently proposed about circumstances under which people do and do not engage in self-esteem-protective behaviour. Maintaining self-esteem is an important human goal (e.g., Tesser, 1988). When people are in good moods, however, self-esteem-enhancement becomes less likely (Tesser, Crepaz, Collins, Cornell, & Beach, 2000). Tesser et al. argued from this that self-esteem maintenance follows the principle of satisficing: It does not happen all the time. As

long as the self-image is above a threshold of positivity, there is no effort to build it higher. Only if it falls below the threshold is effort engaged to prop it back up (cf. Reed & Aspinwall, 1998).

This line of argument, although specific to self-evaluation maintenance, is consistent in theme with my position on coasting and shifting as a way of satisficing with respect to multiple concerns. The effects Tesser et al. discussed appear very much like the behaviours of people who are doing well enough for the time being with respect to one important goal (self-esteem), and are free to turn to something else that might benefit from their attention.

Indeed, a variety of other evidence appears to fit the idea that positive feelings make people more open to alternate goals, particularly desired goals that seem threatened. Trope and Neter (1994) had participants completed two ostensibly unrelated sessions. The first involved inducing positive affect or not. In the second session, participants took a social sensitivity test and were told they performed well on two parts of it but poorly on a third. They then indicated their interest in reading more about their performances on the various parts of the test. Positive-mood participants showed more interest in the part they had failed than did controls. I see this as indicating that the positive feeling (arising from a behavioural context unrelated to the target task) rendered people more open to fixing a problem that needed fixing—the poor performance on the target task.

Trope and Pomerantz (1998) conceptually replicated this effect. In a first session participants experienced either success or failure. In an ostensibly unrelated second session they were offered feedback about their ability to attain life goals that varied in self-relevance. The feedback would pertain to either self-assets or self-liabilities. After success, self-relevance of the goal related to greater interest in feedback about self-liabilities pertaining to that goal.

Reed and Aspinwall (1998) also conceptually replicated the effect. Participants completed a measure on which they had an opportunity to affirm their kindness (or a control measure). They then had an opportunity to read information that either asserted or discounted a potential health threat from caffeine. The key finding occurred among participants who were high caffeine users, and thus had the greatest reason to be threatened by the threat-assertion. The prior affirmation of positive self-image (kindness) made these persons more open to the information about how caffeine poses a health threat.

These studies all represent cases in which people confronted a personally relevant situation that was in need of repair. Other research has created situations in which someone else needed help. A substantial body of research shows that people in good moods are more willing to help another than are people who are in less good moods (Isen, 1987, 2000). In my view, this reflects a tendency to fix a salient problem. It has also been found that people who know that helping would make them feel depressed were less likely to help if they were in good moods than if not (Isen & Simmonds, 1978). My interpretation of this is that

helping in this case would be fixing a problem for someone else at the expense of creating a problem for yourself. It thus is less likely.

Another illustration of the tendency to take care of salient problems comes from subsidiary analyses in a study by Isen, Rosenzweig, and Young (1991). Third-year medical students were to determine which of six hypothetical patients most likely had cancer, on the basis of nine pieces of information about each. Subsidiary analyses found that participants who had had a success on an unrelated task were more likely to go beyond the assigned task (deciding which patient had cancer) to considering probable diagnoses of the other patients and potential treatment plans.

### Psychological resource models

Effects such as these have contributed to the emergence of the view that positive experiences represent psychological resources. Trope and Pomerantz (1998) wrote that experiences such as a success or a positive mood often serve as means to other ends, rather than as ends themselves. Reed and Aspinwall (1998) suggested that positive self-beliefs and experiences (e.g., self-affirmation) act as resources that permit people to confront problematic situations such as health threats (see also Aspinwall, 1998; Isen, 2000; Tesser et al., 2000; for even broader resource models see Hobfoll, 1989; Muraven & Baumeister, 2000).

This line of thought is not quite the same as the one that underlies the position I am taking, but some of its connotations are very similar. The end result of either line of thought is that when the present situation seems to be in reasonably good shape in the focal domain (via a success, or a self-affirmation, or recall of good times, or positive feelings), the person is more likely to take on a salient problem in another domain.

Although the findings just described are consistent with this line of reasoning, most of those studies were conducted to investigate self-protective tendencies in particular, rather than shifts in goal or task. My line of reasoning holds that such shifts should be observable for a wide range of alternate activities, rather than just those related to self-improvement, health maintenance, helping, or the like (although repairing problems for oneself would certainly be very high priority targets for such shifts).

### Opportunistic shifting

On the other hand, the idea that positive feelings act as psychological resources need not be limited to cases in which resources allow people to turn to problems or threats. For example, secure infant attachment is widely seen as a resource that promotes exploration (Bowlby, 1988). Such a view also seems implicit in Fredrickson's (1998) position that positive feelings promote play.

The idea that positive affect serves as a resource for exploration resembles in some ways the idea that positive feelings open people to noticing and taking

advantage of emergent opportunities, to being distracted into enticing alternatives (i.e., to opportunistic behaviour). There is some evidence consistent with this idea. Kahn and Isen (1993) reported studies in which people had opportunities to try out choices within a food category. Those in whom positive affect had been induced switched among choice alternatives more than did controls. Isen (2000, p. 423) interpreted this as indicating that positive affect promotes “enjoyment of variety and a wide range of possibilities”, which seems almost a description of opportunistic foraging.

Another source of evidence worth brief mention, although there are also reasons to view it with caution, is the behaviour of persons in manic or hypomanic states. Mania is characterised by positive feelings, and also by a high degree of distractibility (American Psychiatric Association, 1994). This pattern is consistent with the idea that the positive feelings render these persons especially susceptible to cues indicating opportunities for gain that lie outside the framework of their current goal pursuit.

## FURTHER COMPARISONS

A variety of people have taken positions on the phenomena discussed in this article that differ from the position I am taking. I close this paper with a few more comparisons between views.

### Positive affect broadens attention

Drawing on a review by Derryberry and Tucker (1994), Fredrickson (1998) suggested that positive emotions cause (among other things) a broadening of attentional focus. This is in opposition to the effects of negative emotions such as anxiety and anger, which narrow attention. It is generally believed that the narrowing of attention by negative emotions occurs in order to process selectively information regarding the threat at hand. But why would positive feelings broaden attention?

Fredrickson (1998) proposed that the broadening of attention is a reflection of a more diverse broadening of cognitive and behavioural responses, which facilitate actions that have valuable long-term consequences. Positive feelings can lead to exploration and play (which presumably reflect a broadened attentional focus), and these activities lead to development of both intellectual resources and physical skills, which have survival value. Sharing pleasure with another person creates a social bond, which also has survival value. Fredrickson argued that such side-effects of the broadening of cognitive and behavioural responses (including but not limited to broadening of attention) confer adaptive advantage, resulting in the retention of genes that support such tendencies.

I would not quarrel with the value of the outcomes on which Fredrickson focuses. However, I do not think it necessary to appeal to those indirect and longer-term consequences to find a reason why positive affect might broaden

attention. As argued earlier, a simpler reason derives from the core organismic function of priority management.

Negative affects such as anxiety and anger narrow attention because they point to a specific threat or problem to be resolved. Resolving that problem requires focusing on the domain of the problem to the relative exclusion of other things—thus narrowing attention. My view of why positive affect would broaden attention follows from my argument that positive affect induces an openness to considering possibilities other than the goal currently being pursued. Positive affect means there is *no* problem here requiring attention, thereby freeing the person to turn elsewhere, to where there may be a need for repairs or an unexpected opportunity.

Thus, my view of the adaptive value of broadening of attention derives from its immediate consequences. A broadening of focus helps people notice deficiencies (e.g., evidence of self-liabilities—cf. Trope & Pomerantz, 1998—a lack of food in the cupboard, the need to replace a burned out tail-light). Noticing and doing something about small deficiencies can help avoid larger problems later on. This would seem to be an adaptive advantage. Broadening of focus also facilitates detection of unexpected opportunities (e.g., a fruit tree or freshwater spring you did not know about, an unadvertised sale at Macy's). The ability to notice, and take advantage of, unforeseen opportunities (in the relative absence of threat) would also seem to confer a basic adaptive advantage.

### Cognitive benefits from positive affect

The idea that positive feelings broaden attention is one aspect of a more general argument that positive feelings facilitate diverse cognitive functions (see Isen, 2000, for review). Some of the findings of that literature appear to be interpretable in terms of broadening of attention per se—an enhanced openness to possibilities. For example, the finding that people in good moods make creative, divergent, and unusual associations seems compatible with such a view (Isen, 2000), as does the finding that good moods enhance performance on secondary tasks (Bless et al., 1996).

However, not all the findings of this literature are that simple. Isen (1987, 2000) has argued that positive affect promotes seeing unusual ways in which information can be fitted together and applied, aspects of ideas not otherwise noticed. She believes positive affect induces elaboration of material in memory, yielding better and faster decisions. Positive affect may help people recognise both similarities and differences, and may enhance the ability to take other people's perspectives. Isen (2000) reviewed a great many studies in which positive mood created in one context enhanced performances in other contexts, characterising the effects as a group as showing increased cognitive flexibility. Although some of the findings seem readily interpreted as reflecting broadened

attention, not all do (see Isen, 2000, for mechanisms she believes underlie the effects).

On the other hand, that literature also has resonances to points made in this article regarding the kind of goals people in positive moods adopt. I raised two possibilities. One possibility was seizing on unanticipated opportunities for gain. This possibility is fully consonant with Isen's model, though her construal might differ from mine. Isen would note that positive affect makes positive information more accessible and readily processed; thus the emergent opportunity may be more apparent to the person who is in a good mood. She would also likely say that pursuit of a new opportunity helps maintain the positive mood, and she regards mood maintenance as a key motive.

The second possibility I raised is that people may turn to a domain where a problem of some sort exists. At first glance this seems contrary to Isen's model, because such a shift seems to conflict with the desire to maintain the positive mood. Isen says, however, that people will turn to thinking about negative material "if doing so is useful or necessary" (Isen, 2000, p. 423). Doing so appears to be useful or necessary when it will forestall or eliminate a problem. Isen views this turning to the negative as reflecting increased cognitive flexibility. I see it instead as a reflection of satisficing for diverse goals. Yet, just as in the preceding paragraph, our views predict the same shift.

As noted earlier, this literature is one in which positive affect is created in one context and its effects are measured in another. This raises two questions. If positive feelings arose in one context and the person remained in the same context, would there still be increased creativity and cognitive flexibility? If so, would such a finding create a problem for the principles I have advocated?

The passage quoted earlier in the article from Izard (1977) suggests that such beneficial effects would indeed still occur. However, the same passage simultaneously suggests a tendency to coast with respect to the goal being pursued. Indeed, Izard appeared to argue that something about the easing back of effort actually works to the benefit of creativity. The possibility that both phenomena—coasting and enhanced cognitive flexibility—derive from positive feelings, in mutually supportive ways, surely deserves further attention.

### Positive feelings in emotion-general theories

A final issue I want to raise is whether positive feelings can be understood meaningfully in the context of broad-scale, general theories of emotion. Fredrickson (1998, 2001) has argued that they do not fit well in such theories and therefore should be treated separately. However, her conclusion seems to rest in part on her equating "broad-scale" theory with "discrete-emotions" theory (e.g., Izard, 1977; Levenson, 1994, 1999). In the latter, each emotion has a specific function and is linked to a specific action tendency. In a strong version

of this viewpoint, a specific action readiness is virtually a defining feature of an emotion.

Although negative feelings such as fear and anger fit that view easily, many positive feelings do not. As Fredrickson pointed out, Frijda (1986) linked contentment to *inactivity*. He described joy as aimless—a readiness to take up whatever behavioural possibility presented itself (a depiction that is quite consistent with the position taken here). Fredrickson (1998) concluded from this lack of specific action readiness that emotion-general theories are not helpful in dealing with positive feelings.

It appears, however, that that conclusion applies only if emotions are defined as incorporating *specific* action readinesses. Not every view of emotion has such a requirement. The view I take is intended to bear on “emotions in general”, analysing feelings by reference to the functioning of two broad regulatory systems (Carver, 2001; Carver & Scheier, 1998; see also Cacioppo, Gardner, & Berntson, 1999; Davidson, 1992b; Watson et al., 1999). The affects addressed by this view range widely, including happiness and relief but also such feelings as fear, guilt, sadness, frustration, and anger (Carver, 2002; Harmon-Jones & Sigelman, 2001). Some of these affects relate to specific kinds of action readiness, others relate to *diffuse* kinds of action readiness. Although diffuse, the latter pertain to functions that are critical to a multitasking entity—ceasing one activity and choosing a good candidate to pursue next. In short, I believe that general models of emotion address positive as well as negative emotions in meaningful ways. In the long run, we have to fit the pieces together into an integrated model of human functioning. I do not think it is too soon to be trying to do so.

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