

Chapter 9

Affective Coherence: Affect as Embodied Evidence in Attitude, Advertising, and Art¹

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Existence precedes and rules essence.

Sartre, J.P. (1943) *Being and Nothingness*

In this chapter, we review behavioral research connecting affective embodiment and evaluative cognition. We argue that affect and belief exist in a dynamic relationship. Evaluative beliefs elicit affective experience, and affective experience provides data for evaluative conception. We propose that such reciprocal relationships exist because emotions are, in part, embodiments of evaluation. That is, emotions exist when the same goodness or badness is represented simultaneously in multiple systems. Indeed, emotion is arguably nothing but the co-occurrence of evaluation in thought, feeling, physiology, expression, and so on. The embodied nature of some of these representations makes evaluative beliefs especially compelling. Thus, in contrast to a mere idea that something may be good or bad in some way, an emotion is an embodied commitment to such a reality.

Our general research program focuses on the idea that embodied affective reactions act as critical information for making judgments, guiding cognitive processing, and selecting events to remember. However, in this chapter we focus on how such embodiment serves to validate or invalidate evaluative beliefs. We also suggest that the impact of an idea in art often

depends on its ability to elicit embodied reactions, that is, its ability to move people.

The experience of emotion has two discriminable components – valence and arousal (Barrett, this volume; Russell, 2003). In turn, these components are embodied representations of value and importance (Clore & Schnall, 2005). The embodiment is evident not only in the experience of affective feelings but presumably also in the neurochemistry upon which such experiences rest. For example, valence might be marked by dopamine release (Knutson, Adams, Fong, & Hommer, 2001) and arousal by adrenaline production (e.g., Cahill & McGaugh, 1998). If so, such biochemical and experiential events are both parts of an embodied understanding of the world. They represent what people care about, including what people hope for, sacrifice for, and vote for, as well as what they crave, cry over, regret, and are embarrassed by.

Even everyday decisions are made on the basis of anticipated emotion (Baumeister, Vohs, & Tice, 2006). We decide on one course of action rather than another because some portion of relevant affect or emotion is elicited at the prospect of taking that path. Thus, we imagine that we will be pleased at having chosen a particular option. We choose investments that seem likely to yield reward and unlikely to lead to disappointment. We choose partners that seem likely to make us happy and effective, vacations that appear to offer more enjoyment than hassle, and restaurants that we believe will be enjoyable and satisfying. We choose whether to have a medical procedure based on whether we anticipate being glad we did so in the long run. Thus, although thinking may be for acting, action itself is motivated by embodied perceptions and anticipations of the good, the bad, and the important.

Embodied Validation of Beliefs

In this section, we examine one cognitive consequence of being moved. We propose that affective reactions function as validation or invalidation of evaluative cognitions. Just as

people rely on their sensory experiences of seeing and hearing as evidence about reality, embodied experiences of affect can also be a source of evidence. The difference is that whereas sensory experiences are relevant to *descriptive* beliefs, affective experiences concern *evaluative* beliefs. In both cases, experience generally trumps cognition. Thus, if one believes it to be sunny but opens the door to find rain, the belief about sunshine quickly vanishes. Similarly, if one believes that eating cheesecake is bad but, on seeing a moist piece of cheesecake, experiences the idea of eating cheesecake as good, experience may again trump belief. Interestingly, the compelling experience in the latter case is self-generated rather than sensory.

Being Moved

The problem of embodiment can be seen as part of a larger mind-body problem and a larger problem of understanding. For example, psychotherapists discern whether clients understand the meanings of the insights they verbalize by noting whether they appear appropriately moved; whether their bodies, manners, and intonations register the implications of what they have said. An observation basic to our goal in this chapter is that just as others' affective expressions inform us about them, our own subjective experiences of affect inform us about ourselves. However, because we ourselves produce our affective reactions, one might reasonably ask why we need to be informed.

Of course, the answer is that like many other psychological processes, emotional appraisals take place largely outside of awareness. Thus in some respects, we are "strangers to ourselves" (Wilson, 2002). As a result, we accept that people can meaningfully ask themselves, "Who am I?" and in other ways seek self-knowledge. Therefore, people may find it useful to be informed by their embodied, affective reactions that they have encountered something good or bad. Indeed, we have argued that many evaluative judgments are made essentially by asking ourselves, "How do I feel about it?" (Schwarz & Clore, 1988).

Decision-making too is apparently largely unconscious. Thus, Wegner (2002) argues that the belief that decisions arise from conscious deliberation is an illusion resulting from the fact that the mind both decides and produces relevant conscious experiences at the same time. A conviction that our conscious deliberations are the source of our decisions is therefore difficult to escape. But however compelling, such subjective experiences may not be the critical factor. Indeed, when making decisions, people often simply ruminate about alternatives until one of them announces itself as the right choice. In this view, the subjective experience of one alternative as particularly desirable is a reflection of having decided unconsciously. Of course, it is still we who decide, but our conscious deliberations may not be where the action is.

Especially for big decisions, we expect to be informed by our affect. When choosing a spouse or buying a house, people expect their decision to be accompanied by embodied evidence. If one is lucky, one might be able to justify one's choice by the experience of having instantly fallen in love with the person, apartment, college, or pair of shoes that one chooses. Such an experience confers great legitimacy on one's decision because we accept that affective feelings are embodied information about what people want, like, and value.

In fact, we rely so much on embodied affect as a source of information that its absence can also be informative. For example, a recent book by model and actress Brooke Shields (2005) described her experience of becoming a mother. As she held her new daughter, whose birth was the realization of a life-long dream, she was devastated to discover that she felt nothing at all. The baby in her arms seemed like an alien object. The absence of feelings of intimacy and nurturance, so basic to motherhood, suggested to her that she was a shallow and worthless person. She even considered suicide. Only after treatment for postpartum depression did the appropriate, embodied experiences arise to validate her more positive beliefs about herself. This process of embodied invalidation and

validation of beliefs about the self has been the subject of recent research in our laboratory, as described in the next section.

The Cognitive Costs of Affective Invalidation

Affective Certainty

In one series of studies (Tamir, Robinson, & Clore, 2002), we examined the idea that embodied affective reactions could serve as data for people's theories about themselves. As a source of affective cues, we induced a happy or sad mood in individuals who had indicated that they believed themselves to be either high or low in trait positive affect, as measured by an extraversion scale. In each case, we found that whether a person's momentary feelings helped or hurt their cognitive performance depended on whether the feelings supported or conflicted with their beliefs about being a happy or unhappy person.

The mood induction procedure involved listening to happy (Mozart) or melancholy (Mahler) music. Participants then responded as quickly as possible to words (e.g., pain, failure, praise, gifts) by indicating whether a word referred to something desirable or undesirable. Decisions were faster when state and trait affect were both positive or both negative than when they differed. By itself, being happy conferred no advantage, regardless of whether it was trait or state happiness. In fact, individuals viewing themselves as generally unhappy were faster when also unhappy in the moment. The critical factor was then not the affect but its congruence with evaluative beliefs.

Tamir et al. (2002) interpreted their results as demonstrating the benefits of "affective certainty," which allowed participants to devote themselves fully to the task at hand. In contrast, affective uncertainty appeared to have saddled them with a secondary task, which slowed their reactions. This account is compatible with the general idea that affective experience can serve as evidence for affective beliefs.

Affect-as-Evidence

The "affect-as-evidence" hypothesis (Clore & Gasper, 2000) holds that self-generated experiences of affect might serve as evidence of evaluative beliefs, just as sensory experiences routinely serve as evidence for descriptive beliefs about the world. For people who believe themselves to be happy individuals, feeling happy would provide evidence for that belief. For those who believe themselves to be unhappy persons, feeling unhappy would provide belief confirmation. The Tamir et al. (2002) results suggest that such confirmation leads to faster decisions.

One alternative possible result for these experiments would have been for trait positive and negative affect to have made respondents especially sensitive to similarly valenced feelings (Gray, 1970, 1981). A second possibility would have been for a positive and negative mood to activate positive and negative concepts in memory, leading to faster reactions to similarly valenced stimuli (Bower, 1981; Isen, 1984; Forgas, 1995). Neither of these patterns emerged. Instead, in keeping with the "affective certainty" hypothesis proposed by Tamir et al. (2002), trait-state congruence led to faster processing of all stimuli. According to that hypothesis, when embodied affect does not match affective beliefs about the self, the person is left with an epistemic problem, which may interfere with ongoing processing.

In subsequent research, we examined further the idea that incongruence between affect and cognition has cognitive costs, and that affective reactions that are congruent promote cognitive effectiveness. This research expanded the question by examining memory, rather than reaction time, as a measure of cognitive efficiency, as described in the next section.

Affective Coherence

"Affective coherence" refers to the compatibility of affective concepts and embodied experiences, and is believed to facilitate ongoing cognitive processing (Centerbar, Schnall, Clore, & Garvin, in press). In contrast, "affective incoherence" (incompatibility between

conceptual and embodied affect) should interfere with cognitive efficiency and fluency of processing. The conditions of affective coherence should tend to induce “affective certainty” and show effects similar to those observed by Tamir et al. (2002). Five experiments examined recall of a story about a series of happy and sad events that are recounted by the main character. The story consisted of happy events, such as “getting a bicycle for his birthday,” and sad events, such as “the day his dog died.” In each experiment, before reading the story participants completed a sentence unscrambling task designed to prime happy or sad concepts. Only the sources of the embodied affective cues differed across experiments. In one experiment, we induced mood by having participants listen to happy or sad music. In other experiments, such affective cues came from having participants contract the facial muscles involved in smiling or frowning. And in yet other experiments, they engaged in approach or avoidance actions by gently pulling up or pushing down on a desktop.

The results were the same in all experiments. When mood, facial expressions, or actions were appropriate to the valence of the primed cognitions, overall memory for the story was superior. When such embodied cues were incompatible with the valence of the primed happy or sad thoughts, memory suffered. Again, as in the reaction time data of Tamir et al. (2002), the effect was general, not specific to positive or negative items of information. Thus, the ability to remember well depends partly on the degree to which one’s current embodied affect agrees with one’s current evaluative thoughts.

Similar results can be found in the emotion regulation literature. For example, Richards and Gross (2000) showed emotionally evocative film clips and asked some participants to inhibit any emotional expression. They found impaired memory in these individuals, and concluded that affective suppression hurts performance. However, such suppression also involves a mismatch between affective beliefs (about the

film) and affective expressions of the same type as those examined above. Hence, the cognitive costs that appear to be due to the suppression of emotion could be due to the incongruence between emotional beliefs and neutral expressions, a possibility that has yet to be examined.

Enactment

The hypothesis that there are costs to disagreeing with oneself turns out to have wide applicability. Other relevant data come from studies employing the Implicit Association Test (IAT) (Greenwald, McGhee, & Schwartz, 1998). In such studies, people’s verbally expressed beliefs about their attitudes (explicit attitudes) can be compared to behaviorally expressed attitudes (enacted attitudes). Evidence of the cost of disagreement between belief-based and enacted attitudes comes from a study of implicit versus explicit measures of erotic orientation (Vargas, 2004).

The study involved exposure to photographs of same and opposite sex individuals and both belief-based and enacted (IAT) measures of how appealing participants found them. Vargas (2004) found that individuals whose explicit and implicit reactions to the pictures disagreed had elevated somatic symptoms and a reduced sense of well-being when compared to those whose concrete behavior (enacted attitudes) agreed with their beliefs about themselves (explicit attitudes). Here again, disagreeing with oneself appears to carry costs.

Compatible results come from other studies assessing explicit and implicit self esteem (Robinson, Vargas, & Crawford, 2003). In these studies, disagreement between reported beliefs about oneself (explicit self esteem) and behavioral reactions to the self on the IAT was associated with being in a worse mood. This was true both in a laboratory assessment and when affect was assessed over time as part of a daily diary study. Even for individuals with low esteem, having their low esteem beliefs confirmed by enactments of low esteem on the IAT left them feeling marginally better than

having such beliefs disconfirmed. These experiments suggest that disagreement between believed and enacted attitudes can be costly emotionally as well as cognitively. It should be noted that we do not know to what extent these respondents developed an awareness of the attitudes they were enacting as they responded to the IAT. Therefore, we cannot be sure that the effects depended on the cognitive costs of affective uncertainty. However, people apparently often do experience some IAT conditions as harder than others and see their enactments as attitudinally disclosing. Indeed, Monteith, Voils, and Ashburn-Nardo (2001) used such experiences on the IAT as a guilt induction to promote compensatory responses.

Other supportive data are less exclusively about embodiment, but are nevertheless noteworthy because they show the importance of agreement between general beliefs about oneself and concrete, experiential, or episodic data. As part of a formalized interview, investigators of attachment (e.g., Allen & Land, 1999) often ask adolescents to express their general beliefs about their relationship with their parents. In addition, they ask the adolescent for specific examples that would support their belief. It turns out that being unable to recall concrete instances that would support the adolescents' abstract beliefs about having a good or bad relationship with their mothers or fathers is a powerful predictor of bad life outcomes (drug use, teen pregnancy, truancy). The investigators suggest that problems in everyday coping become magnified when children lack validation in the form of readily recallable experiences for such core beliefs as whether or not their parents love them.

Summary

The data reviewed in this section concerned the congruence between general beliefs and specific embodiments, enactments, and experiences. They showed that incongruence has negative effects on decision speed, memory performance, and feelings of happiness, as well as on specific life outcomes. Our interpretation emphasized the idea that embodied cues that are incongruent with evaluative cognitions may be

experienced as disconfirmation of those cognitions, creating an epistemic load that hinders performance. However, a question that arises is whether there is also evidence for the reverse, that is, is there evidence that cognitions accompanied by congruent embodied cues are more credible or powerful, rather than their incongruence making them less credible or powerful? Evidence comes from two sources. The first is evidence that congruence can influence how compelling or effective information is in a marketing context. The second consists of evidence of attitudinal effects from engaging in affectively coherent approach-avoidance action.

Affect-Confirmation

Do embodied affective cues that are believed to serve as evidence for evaluative cognitions have any discernable impact on the effectiveness of such cognitions? Experiments by Adaval (2001) induced mood by having participants spend several minutes writing a description of a happy or sad personal experience. Afterward, they considered positive and negative information about various consumer goods and rated the appeal of the various products and their willingness to purchase them. Adaval discovered that when participants experienced affective feelings of the same valence as the positive or negative information they were considering about a product, that information then carried greater weight in the final judgments. She concluded that the embodied affective cues appeared to serve as confirmation or disconfirmation of the information. Her "affect-confirmation" interpretation is thus similar to the related proposals of "affect-as-evidence" (Clore & Gasper, 2000) and "affect certainty" (Tamir et al., 2002). Each of these hypotheses proposes that self-produced, affective reactions can provide evidence for, confirm, or increase confidence in affect-congruent beliefs.

In addition to increasing the confidence that one has in congruent information, what else might follow from the experience of coherence

between body and mind? To the extent that body and mind are on the same page, we might expect what is in the mind to be processed with greater fluency. And because processing fluency has been shown to be inherently positive (Winkielman & Cacioppo, 2001), we might expect that mind-body coherence should result in more positive attitudes toward stimuli that are processed fluently. We review evidence on this point next.

Approach-Avoidance Action and Affect

In a series of experiments, Centerbar and Clore (2006) examined the effects of engaging in arm flexion (as in approach) and arm extension (as in avoidance) while processing liked and disliked stimuli. The idea was that approach should be a motivationally congruent action toward liked objects and avoidance should be a motivationally congruent action toward disliked objects. In addition to validating the attitude toward the object, as shown in Centerbar et al. (2006), congruent actions should promote processing fluency and hence liking.

The experiment consisted of viewing novel stimuli (Chinese ideographs) that had been rated for attractiveness. As each ideograph was shown on a computer screen, a participant either pressed gently down on a tabletop (arm extension) or up from the bottom of the tabletop (arm flexion). Subsequent evaluations of the ideographs showed that when such approach or avoidance action was motivationally congruent with initial liking for a particular ideograph, liking for that ideograph increased. When the action and liking for the object were motivationally incongruent, liking decreased. We infer that engaging in action that was motivationally congruent with the value of a particular ideograph increased the fluency with which that ideograph was processed, and engaging in action that was motivationally incongruent decreased the fluency with which that ideograph was processed. As a result, fluently processed ideographs received a small boost in liking relative to those processed with greater difficulty. These results are

therefore consistent with Winkielman and Cacioppo's (2001) finding that processing fluency is affectively positive (for further discussion of perceptual fluency, see Schwarz & Clore, 2007).

Note that we previously cited Adaval's (2001) finding in which embodied validation of product beliefs in a consumer context conferred greater weight on those beliefs in purchase decisions. In view of that finding, should we have expected more disliking (rather than more liking) when the enactment of avoidance confirmed participants' dislike for certain ideographs? The answer is no, because Adaval found that the embodied confirmation of negative product beliefs changed only their weighting and not their value. Hence, we did not expect an enactment of avoidance to make disliked ideographs more negative. Rather, the experience of fluency from affective coherence (both from avoiding disliked ideographs and from approaching liked ideographs) was expected to add a small positive value, making both seem slightly more likable, which is what was found. The obtained effect is analogous to what Higgins (2000) has referred to as "value from fit." It is worth noting that the effect was (and was expected to be) small, so that its impact was apparent only for mildly unappealing ideographs.

Summary

The similarity of results across repeated studies (Centerbar & Clore, 2006) indicated that there is positive value in affective coherence. Specifically, positive value increased, as indicated by increased liking, when enactments of approach validated pre-existing liking. Importantly, the same increase in liking appeared when enactments of avoidance validated perceptions of lack of appeal. Thus, the increase in value is one of affective coherence, which in this case was the experience of having one's initial liking or disliking confirmed by finding oneself engaging in motivationally congruent actions.

The phenomena under consideration concern the role of embodied and enacted reactions as evidence for evaluative cognitions and beliefs. Whereas sensory data can validate descriptive beliefs, we cannot see, hear, or touch the goodness or badness that is the content of evaluative beliefs. Instead, evidence must be self-generated in the form of our own affective feelings, expressions, and actions. Such embodied reactions do not in turn need verification, as the compelling nature of such reactions make them the data of choice.

The discussion has focused on embodiment as data for cognition rather than on cognition as embodied. Before proceeding, it is important to clarify the implications of these results for the larger idea of embodied cognition. On the one hand, they support the hypothesis that embodiment plays a critical, epistemic role. But on the other, they also show constraints on how we should think about embodiment, the issue to which we turn next.

Implications for Embodied Cognition

An important conclusion of the experiments just reviewed (Centerbar & Clore, 2006) was that, contrary to popular belief, enactment by itself did not affect attitude. The role of enactment was to confirm or disconfirm existing perceptions and cognitions of value. This point is of great relevance for achieving a viable conception of embodied cognition.

Discussions of embodiment and social psychology (e.g., Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005; Smith & Semin, 2004) invariably begin by citing findings of direct links between action and affect. For example, Smith and Semin (2004, p. 26) state that:

Consistent with the embodiment assumption, recent work in social psychology... underlines the close connections of attitudes to sensori-motor systems and therefore to our bodies. For instance... horizontal or vertical head movements... (Wells & Petty, 1980) and... flexion and extension of the upper arm... influence evaluative judgments (e.g., Cacioppo, Priester, & Berntson, 1993).

Expositions of the simulation view have also highlighted these findings as prime evidence for embodiment (e.g., Niedenthal et al., 2005). In this section, we review evidence suggesting that the inferences we psychologists usually draw from these studies may need reconsidering. First, we examine the impact of approach-avoidance action on attitudes toward Chinese ideographs, revisiting a study described in the previous section.

Do Actions Cause Attitudes?

The research on the effect of approach-avoidance actions on the liking of ideographs discussed previously (Centerbar & Clore, 2006) was adapted from the often-cited research by Cacioppo et al. (1993). In an elegant series of studies, Cacioppo and colleagues found that engaging in approach (arm flexion) or avoidance (arm extension) created rudimentary attitudes toward novel stimuli (Chinese ideographs). The paper is admirably thorough and careful. Nevertheless, we revisited the issue, and happened onto an interesting discovery, as described previously. When one takes into account differences among the ideographs in how appealing they are, one finds that rather than acting directly, such action interacts with the value of the object being approached or avoided.

Using Cacioppo et al.'s (1993) original ideographs, we found that the effect of approach-avoidance action depended completely on the initial liking of the ideographs. Thus, the increase in liking as a result of the approach action and the decrease in liking from the avoidance action held only for ideographs that were initially liked. For ideographs that were initially disliked, the results were reversed so that approach reduced liking and avoidance created liking. Also, in response to neutral ideographs, approach and avoidance had no effects on liking. Thus, the attitudinal effect does not lie in the actions themselves.

The original results of Cacioppo et al. (1993) appear to have resulted from a sample of ideographs that were more liked than disliked, so that on balance approach had positive and

avoidance had negative effects. Our results thus expand on their initial findings and suggest that Heider (1958) may have been correct when he observed that approach-avoidance motions may not have any affective implications out of context. It appears that the attitude effect arises not from approach-avoidance action itself but from the congruence between the liking implied by the action and pre-existing liking. The affective coherence of engaging in actions that validate one's attitude is a positive experience that creates liking, whereas the affective incoherence of engaging in actions that invalidate one's attitude is a negative experience that creates dislike.

The notion that motor action requires context to acquire meaning and have impact is intended to be highly general. The argument is that in our search for compelling examples of embodiment in cognition, we may be insufficiently attentive to the fact that the meaning of actions, like that of other psychologically significant stimuli, is embedded, situated, and emergent (Smith & Semin, 2004). This point is illustrated for expressive action in an additional series of studies.

Expression and Affect

To examine the effects of expressive action on affect, a series of experiments varied the context in which expressive actions were observed or enacted (Tamir, Robinson, Clore, Martin, & Whitaker, 2004). The findings confirmed the idea that expressive actions can contribute to affective reactions, but in none of the experiments was the influence direct. In each, the direction of the effect depended again on the context in which it appeared.

For example, one set of experiments assessed the affective influence of shaking one's head while processing information, in a manner similar to what Wells and Petty (1980) had done in their classic experiments. Specifically, participants engaged in head shaking as they watched a short film and then indicated their reactions to the characters. One of the films showed an interview with a convict who had

murdered a young girl in a psychotic delusion. In the film, the convict argues that he is perfectly fine and should be set free. Head shaking while watching the psychotic killer assert his harmlessness increased the angry feelings of participants' and increased their tendencies to see him as responsible for his actions. However, the very same head shaking action produced the reverse effect when the film showed a pregnant young heroin addict explaining her sad situation. Head shaking in that context increased viewers' sympathy rather than their anger. It acted like a form of agreement about the sadness of her plight, rather than as an impetus to blame. The effects of this expressive action were therefore totally contingent on the context, rather than being direct and context-independent. Another study in this series examined the effects of brow tension on decisional confidence. Again, the effects reversed depending on the contextual variable that was manipulated.

In an essay entitled, "Of Men and Mackerels," Dijksterhuis, Bargh, and Miedema (2000) proposed that expressive effects have automatic and invariable effects on affect, judgment, and behavior. They maintained that expressive cues have fixed influences that people can minimize only by exercising conscious control. To assess this claim, Tamir et al. (2004) presented smiles subliminally during a competitive game. Despite the fact that the smiles were presented unconsciously, flashing them during the scoring of participants' performances resulted in positive feelings and beliefs that they had performed well. Conversely, flashing the subliminal smiles during the scoring of their opponents' performance resulted in negative feelings and beliefs on the part of participants that they had not done very well.

The results again indicate that expressions do not have fixed, invariable, effects. Moreover, this result was obtained despite the fact that participants' lack of awareness of the smiles would have prevented them from engaging in the type of cognitive control that had been hypothesized as necessary to counter the obligatory link between expression and affect.

Instead, the results show that the affective influences of the smiles depended on the context in which they appeared.

Earlier theorizing by Zajonc and Markus (1984) had suggested a “hard interface” between muscular responses and affect that did not involve cognitive processing. However, our own results were more consistent with proposals by Darwin (1872/1965), who emphasized that expressions amplify emotions. He did not hold that expressions cause emotions, as some have assumed. Thus, we concur with Tamir et al. (2004) in the conclusion that emotions emerge not from the muscles but from the mind.

In summary, the expressive action studies (Tamir et al., 2004) and the approach-avoidance action studies (Centerbar & Clore, 2006) lead to similar conclusions. They expand the important findings of Wells and Petty (1980) and of Cacioppo et al. (1993) to show the sometimes hidden role of context. In both, the same actions had opposite consequences when the mental context was altered. If these results are any guide, we should expect that embodied meaning, no less than lexical meaning, depends on the context in which it appears. The results are consistent with an emphasis on the situated nature of social cognition (Smith & Semin, 2004), whether embodied or not, and they are inconsistent with views that assume that embodied stimuli have direct and unmediated effects (e.g., Dijksterhuis et al., 2000; Zajonc & Markus, 1984).

A similar analysis can be applied to related results, including those from the clever and often cited study by Strack, Martin, and Stepper (1988). In this study, participants held a pencil in their mouths as they viewed cartoons. By varying whether the pencil was held by the lips or the teeth, participants contracted muscles that either facilitated or inhibited a smile. They found that flexing the muscles involved in smiling increased enjoyment of cartoons. The experiment thus showed that expressions can intensify affect but not, as often assumed, that they create affect. That is, they showed that in the context of looking at cartoons, smiling increases

enjoyment, not that such muscle action has a direct or context-free impact on affect. The data are not evidence for a hard interface, but they are important evidence that engaging in affect-congruent action can validate or intensify affective meaning.

Evaluative Embodiment in Everyday Life

We have presented evidence of some detrimental effects of incongruent bodily cues and some positive effects of congruent bodily cues. The positive effects included greater impact of verbal information when accompanied by congruent embodiment (Adaval, 2001), and increased liking of visual stimuli when participants engaged in approach during positive stimuli and avoidance during negative stimuli. This effect was believed to result from more fluent processing during preference-congruent action (Centerbar & Clore, 2006).

These experiments involved the promotion of particular evaluative beliefs by manipulating congruent embodiments. Similar attempts at influence are frequently encountered in everyday life. For example, banks have traditionally been large buildings with stone columns and great stone facades that give the impression of solidity and safety. Bankers presumably created such impressive structures in hopes that the physical solidity of massive stone structures would provide compelling, experiential evidence for the abstract idea of financial solidity. Subsequently, when the safety and solidity of banks was generally assumed, the architecture changed accordingly to send a new message. Thus, neighborhood branches of modern banks have eliminated the formality of steps and columns and the coldness of marble and granite to emphasize accessibility, openness, and friendliness. But the process is the same. Architecture is chosen to embody, and hence to validate in the subjective experiences of potential customers, whatever ideas about the bank are promoted in advertising. In this way, they seek (literally) to achieve a concrete representation of a desired brand image.

A technique readily apparent in government buildings and memorials is to use physical elevation to elicit the idea of greatness. Thus, the Lincoln Memorial is an imposing structure atop many stone steps. Lincoln himself is rendered in an enormous, awe-inspiring statue intended to reflect our national beliefs about his greatness. Congress too is housed in an impressive building with many steps to convey the high calling of the legislature. In courtrooms too, judges are elevated physically so that our experiences of their physical elevation might validate beliefs in their elevated judgment. The importance of elevation can perhaps be appreciated by imagining judges rendering their decisions from the depths of a pit instead of from an elevated bench.

Of course, the world of advertising is full of attempts to instill experiences relevant to whatever beliefs advertisers are employed to promote. Advertisers generally try to convey claims and create validating experiences within the same brief ad. Using music, images, and film techniques that have no actual bearing on the product itself, advertisers seek to elicit excitement, feelings of elegance, purity, sensuality, or whatever affect the product message requires. If successful, experiences are generated that are instinctively compelling so that they function as evidence for the belief being promulgated. A potential benefit of this process for product producers is that once the desired beliefs about the product have been validated in this way, it may no longer be necessary for actual experience with the product itself to provide such validation.

Research

A series of studies has examined such embodied and experiential analogies in the laboratory. One set of experiments examined the experience of lightness and darkness as a universal metaphor for goodness and badness, and whether it might facilitate the processing of evaluative concepts. The experiments involved the presentation on a computer screen of evaluative words in light- or dark-colored fonts (Meier, Robinson, & Clore, 2004). The

participants' task was to classify the words as positive or negative as quickly as possible. In many experiments, it was clear that evaluations could be made more rapidly when positive words appeared in a bright font and negative words appeared in a dark font compared to the reverse pattern. Moreover, the rapid stimulus presentations and response times involved suggested that, at least in the context of making evaluations, the facilitation and interference effects were more or less automatic.

A second series of experiments examined a related physical metaphor for evaluation – vertical location (Meier & Robinson, 2004). In these studies, words were evaluated as positive or negative after they were presented either at the top or the bottom of a computer screen. The results showed faster evaluations when positive words appeared at the top and negative words appeared at the bottom than when the words and positions had the reverse pattern. Together, these studies indicate that physical analogies for goodness and badness, in the form of lightness versus darkness and of high versus low elevation, promote fluent processing of affectively congruent cognitions compared to affectively incongruent cognitions.

Embodiment in Art

An approach to characterizing emotion, which may be useful in thinking about art, sees emotion as an affective state (Clore & Ortony, 2000). The “affect” part simply means that emotions are about evaluation, but the “state” part implies that emotions involve multiple systems that simultaneously register the same thing. An emotion then emerges when multiple evaluative representations are too similar to keep track of separately and too different to combine. The resulting multidimensional representation is an emotional state. Such emergence occurs only as the information from multiple sources coheres. Something analogous seems to operate in some works of art. Both emotions and artistic forms that trade in emotions involve multiple modes of evaluation. Thus, poets employ connotation, imagery, metaphor, symbol,

repetition, and rhythm to create a single experience in readers (Perrine, 1956). With economy of language, the poet seeks multiple, partially redundant ways to represent themes both cognitively and experientially. Through multimodal representations of the same idea at the same time, ineffable but compelling experiences may be created.

One of the things that graphic artists frequently do is to use lightness, darkness, and vertical location (the dimensions examined in the studies described previously) as well as other physical metaphors to instill their conceptualization in people's experiences. The power of artists' ideas often depends on whether their portrayal, depiction, or enactment is effective in eliciting embodied reactions in audiences. We have suggested that doing so may require multiple, partially redundant representations. Of course, each additional elaboration of the theme that is attempted carries with it the risk of inadvertently creating some affective incoherence, which would dissolve the emergent state. In the next section, we turn to Renaissance art for examples of successful attempts to use art to create emotional experiences. In addition, we consider an example in which Leonardo da Vinci also knowingly created incoherence in the service of inducing embodied involvement in viewers of his work.

Perspective in Renaissance Art

From the 4th to the 14th century or so, the Byzantine style of painting generally involved two-dimensional depictions that lacked any sense of depth. Painters depicted formalized spiritual themes with flat, archetypal figures. They were typically rendered rigidly, symmetrically, without depth or proper proportions, and without expression or individuality.

Beginning with Giotto, figures in later works became more rounded and realistic, and were often engaged in action. They were more likely to be expressive, to look directly at the viewer, and to be painted with shadows and depth. One of the great advances of Italian

Renaissance art (1300–1500) was the development of perspective to create a sense of depth.

In contrast to earlier flat representations, Renaissance painters were capable of pulling viewers into the scenes they painted, giving them greater potential to elicit affective reactions appropriate to the themes of adoration and awe they sought to depict. In addition, because perspective involves an infinite vanishing point, it also served as a religious metaphor for the abstract infinity of God. As commented by Kubovy (1986), "Perspective often enabled the Renaissance artist to cast the deeply religious contents of his art in a form that could produce in the viewer spiritual effects that could not have been achieved by any other formal means." (Part XI, p. 4).

The research described previously (Meier et al., 2004; Meier & Robinson, 2004) found a relationship between people's evaluative inclinations and both the lightness of color and the vertical position in which something appears. The development of perspective allowed Renaissance and later Baroque painters to exploit this relationship. The technique is abundantly evident on the walls and ceilings of Italian churches, cathedrals, and museums. Painting in perspective enabled viewers to look up through clouds and the ascending angels to radiant holy figures. The arms and legs and the drape of their garments give the feel of these figures rising upward to grace and light. Surely for believers and pilgrims of the time, even more than for us, they were inspiring. Of course, there were also paintings of the damned, showing them descending into the darkness of the lower depths. The viewer can thus experience the elevation and lightness of the good and the lowering and darkening of the bad, even though both are simply paint applied to flat surfaces. In that context, the power of perspective lay in its ability to create embodied experiences consistent with ideas about the glory and sweetness of the good and the pain and dread of the bad. The embodied affective experiences engendered by this new technique presumably served to validate the

evaluative ideas depicted, so that perspective became a powerful tool of persuasion.



One particularly interesting application of the “good-is-up” principle can be seen in Leonardo da Vinci’s fresco, “The Last Supper.” The work shows ample use of perspective techniques, which da Vinci understood and promulgated in written advice to artists of his day. He said a cardinal principle was that to be convincing, the center of projection where everything converges must be at the viewer’s eye. However, Kubovy (1986) points out that in this famous fresco, da Vinci violated his own principle. An analysis of the work shows clearly that the center of projection was not the viewer’s eye but a point 15 feet above the viewer. According to Kubovy (1986), this violation of principle was motivated. To accommodate to the center of projection above them, viewers are forced to adopt an elevated perspective. Being forced to consider the painting from a higher perspective means that viewing it is quite literally an uplifting experience (to learn more, see <http://webexhibits.org/arrowintheeye>).



In this section, we proposed that art is one domain in which an effort is often made to induce the body to aid the mind in a manner similar to that proposed in the embodiment hypothesis. An emotional cycle presumably characterizes some artistic projects such that an artist’s horror at war or a poet’s experience of love impels them to create works that elicit related responses both to convey an idea and to validate it. The driving force would seem to be a symbiosis between ideas represented in mind and body. Paintings from the Italian Renaissance were used as examples of attempts to create embodied responses that realized abstract ideas about good, evil, divinity, and infinity.

Affective Accounting

This concluding section proposes a particular set of conditions that may underlie the process whereby multiple sources of affect and evaluative meaning converge and become potent. Much of our work looks at how people succeed and fail in emotional bookkeeping (Schwarz & Clore, 1983). For example, in depression one’s negative affect becomes unaccountable. With no clear cause in view, the affect becomes promiscuous, attaching itself to anything and everything. The source of any experience may be clear when experienced by itself, but the experience may become less accountable when two causes produce similar experiences at the same time.

This process is evident in the domain of visual experience. In vision, different but highly redundant images are presented by the two eyes. Our eyes move together so that the images that are projected are almost, but not quite, the same. Indeed, they are so similar that visual accounting fails. It is impossible to keep books on which eye is contributing which image. As a result, we see an emergent three-dimensional image rather than separate, flat images from each eye. We see objects in hologram-like reality as both eyes provide parallel but slightly different images of the same thing. Presumably, such emergence reflects the fact that it is computationally simpler to see one object as “out there” rather than keeping track of two highly redundant sensory streams.

A related principle appears to operate when we apprehend more than one type of goodness or badness simultaneously emanating from a single object. According to one theory of emotion (Ortony, Clore, & Collins, 1988), there are three different types of affect – being pleased at outcomes, approving of actions, and the liking of objects or their attributes. These reflect the appraisals of outcome desirability, the praise-blameworthiness of actions, and the appeal of objects. Finally, these appraisals emanate from different sources of evaluation – goals, standards, and tastes. Specific emotions are then elaborations of these three types of good. The important point for the present purpose is that the three types of affect and evaluation are incommensurate. That is, although utility, morality, and beauty (examples of the three sources of value) are all good, it is not possible to add them up in any sensible way. Something that manifests all three is simply experienced as something unaccountably, multidimensionally wonderful. Consider a political leader whose policies are good in a utilitarian sense, who also engages in admirable actions, and who is additionally handsome and well-spoken. Such a figure may command a degree of loyalty that none of these attributes by themselves would have elicited, in part because of the difficulty of keeping straight what aspects of our experience of goodness comes from what source. As a

result, the leader may be experienced as transcendently good.

Through a similar process, people fall in love, not only because their beloved helps in the satisfaction of their goals, but also because they may be seen as excellent or admirable in some way and because they may seem beautiful or handsome. The emergent experience of their goodness becomes, in fact, beyond accounting. Falling in love thus renders some people inarticulate, whereas it inspires others to poetry. Both reactions may flow from the same impossibility of sorting out which aspects of one’s fascination with the other are accounted for by which aspects of their goodness.

There are many such emergent experiences that may arise for similar reasons. Thus, the experience of nostalgia may be one in which one experiences oneself in the present remembering something in the past, feeling at once the immediacy of a sweet memory of an event at the same time that one is experiencing the sadness of its distance in time. Similarly, an intimate conversation or romantic encounter may seem important not only because it may be intense, but perhaps also because one constructs from the visual, verbal, and nonverbal feedback from the other a model of their experience at the same time that one entertains one’s own view. To the extent that partial redundancy blurs clear accounting, a joint experience may emerge. The process is also seen in an operatic duet or a string quartet. Rather than hearing only music from separate players, a new entity emerges in one’s experience that transcends their individual contributions. In the interpersonal situation, such convergence may be experienced as a vital entity that is somehow more than each person’s input. Couples often point to such experiences as the moment in which they fell in love. Are such experiences illusions? Perhaps no more so than three-dimensional images are illusions.

Failures of emotional accounting, just like those of visual accounting, allow one to experience multiple facets of the same person, place, or event at the same time. In the emotional case, the different sources of good are

incommensurate. They must remain separate but because they emanate from the same entity and are apprehended at the same time, no such separate accounting is possible. As a result, a multifaceted new entity with all of the incommensurate but redundant features is experienced as one emergent reality, the whole of which seems greater than the sum of its parts – which, of course, it is.

Conclusions

We started this chapter with Sartre’s famous dictum, “Existence precedes and rules essence.” Like Sartre, we have argued for a situated view of psychological reality (see also Smith & Semin, 2004). In this view, the meaning of abstract ideas lies ultimately in how they are situated, instantiated, and exemplified. We focused in particular on evaluative ideas and their affective embodiment. We noted that when accompanied by affective reactions, they are made believable and persuasive because such affect indicates one’s commitment to the evaluation being entertained. Indeed, because they involve multiple systems, emotions have been viewed (Clore & Gasper, 2000) as commitments to particular realities. For example, once angry, one is no longer entertaining the possibility of injustice; rather, anger is an embodied commitment to the apparent reality of injustice. In related ways, all types of affective embodiments, including feelings, expressions, and actions can serve as evidence that makes persuasive the belief that one has encountered something good or bad.

In this chapter, we made eight basic points, which may be summarized as follows:

1. Embodied and enacted affective reactions can function to validate or invalidate evaluative cognitions. Specifically, the valence component of affect can provide evidence of evaluative ideas and the arousal component provides evidence of their importance. Especially when making big decisions, people expect to be informed by their affect, and the absence of supporting affect may be distressing and lead to unstable decisions.

2. When embodied affective cues do not match current evaluative beliefs, the person may be left with an epistemic problem, which can then interfere with ongoing processing. Consistent with this “affect-as-evidence” view, Tamir et al. (2002) found slower reaction times among individuals whose momentary affective feelings were incongruent with their general affective beliefs about themselves. For example, people who thought of themselves as unhappy individuals performed better when they were sad than when they were happy. Other studies (Centerbar et al., in press) showed poorer memory performance when embodied affect (expressions, feelings, actions) did not match primed happy or sad concepts.

3. Evidence of the generality of these proposals came from research using the IAT. Failures of affective enactments on the IAT to confirm explicit evaluations were shown to result in elevated symptoms and lowered mood. Attachment research (e.g., Allen & Land, 1999) also finds poorer life outcomes among adolescents whose specific, episodic memories fail to support their general evaluative beliefs about their relationships with their parents. Again, affective coherence was important independent of the positive or negative nature of the affect and evaluation involved.

4. We proposed that congruent embodied cues should make congruent cognitions more credible or powerful. In studies of consumer preference (Adaval, 2001) and approach-avoidance motor action (Centerbar & Clore, 2006), congruence between evaluative cognitions and embodied and enacted affective cues made the cognitions potent.

5. The impact of expressions and enactments of affect turn out to depend on the context in which they appear. Despite appropriate cautions by the authors, discussions of embodied cognition invariably cite studies of facial expression (Strack et al., 1988), head nods (Wells & Petty, 1980), and approach-avoidance action (Cacioppo et al., 1993) as evidence of direct and unmediated effects of motor action on affect and attitude. However, research varying

the context of these enactments (Centerbar & Clore, 2006; Tamir et al., 2004) has shown that such interpretations are unwarranted. The conclusions are consistent with an emphasis on the situated nature of social cognition (Smith & Semin, 2004) and inconsistent with views that assume that embodied stimuli have direct and unmediated effects (e.g., Dijksterhuis et al., 2000; Zajonc & Markus, 1984).

6. The promotion of evaluative beliefs through congruent embodiments can be seen in public architecture where the evaluative implications of light and dark colors and elevated physical locations are employed in the design of monuments and public buildings. The world of advertising too is full of attempts to instill experiences relevant to the beliefs to be promoted. Laboratory research was presented showing faster reactions when the evaluative meanings of words were supported by appearing in light or dark fonts (Meier et al., 2004) or by appearing on the top or bottom of a computer screen (Meier & Robinson, 2004).

7. The research presented can be interpreted as evidence of the costs of embodiment and enactment that is incongruent with evaluative beliefs. For evidence of possible benefits of congruent embodiment, we turned to art. We suggested that the power of poems, paintings, and plays often depends on eliciting embodied reactions that are congruent with the ideas being purveyed. The use of perspective in Renaissance and Baroque painting illustrates one way of fostering experiences of elevation and awe when depicting religious scenes. Kubovy (1986) argued that Leonardo da Vinci knowingly created incoherence by making the perspective in his fresco, “The Last Supper,” converge above viewers to create visual and hence spiritual elevation.

8. We concluded by noting that artistic and commercial exploitation of these principles ultimately rests on a failure of affective accounting. We have only one window on our affective experiences, making it impossible to keep straight which part of our affective reactions comes from which source (Schwarz &

Clore, 1983). One’s experience can transcend the individual components when their partial redundancy makes appropriate experiential bookkeeping impossible, as when listening to an operatic duet or a string quartet. We argued that this difficulty contributes to all sorts of profound experiences, including art, religious revelation, political loyalty, and romantic love.

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