

Affective Judgments, Common Sense, and Zajonc's Thesis of Independence

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Zajonc (1980) argued that, contrary to what is commonly believed, an affective judgment about a stimulus may be independent of the cognitive processes through which we know what that stimulus is. The evidence Zajonc offered (the exposure effect in the absence of recognition) does not entail this claim. An example of the sort of experiment that could do so is offered. When carried out, however, this study indicated the opposite: An affective judgment about a stimulus depended on how it was cognitively interpreted. We argue that what is commonly believed in this area is presumptively correct: Affective judgments about a stimulus depend on whatever information is possessed about that stimulus.

According to common sense, how much you value something depends on what you think it is, and how much you like someone depends on what you know about him. But then, common sense can be wrong. R. B. Zajonc (1980), in a provoking, much-discussed (e.g., Baars, 1981; Birnbaum, 1981; Holyoak & Gordon, 1984; Lazarus, 1981, 1984; Mandler, 1984; Mellers, 1981; Seamon, Brody, & Kauff, 1983; Slife, 1981), and thoroughly interesting article, challenged such seemingly self-evident truths. Instead, Zajonc argued, "affective judgments may be fairly independent of, and precede in time, the sorts of perceptual and cognitive operations commonly assumed to be the

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basis of these affective judgments. Affective reactions to stimuli are often the very first reactions of the organism" (Zajonc, 1980, p. 151).

Zajonc's (1980) challenge raises a fundamental question for any theory of affective judgments. If the common assumption is correct, then a theory of affective judgments can be built on what is known about perceptual and cognitive operations. If Zajonc is correct, however, a theory of a different kind would be called for. Zajonc has begun work on this conceptual task by postulating that affective judgments stem from an affect system at least partially separate from perceptual and cognitive operations. Indeed, Zajonc speculates that even the stimulus features that influence the affect system differ from the features that influence perceptual and cognitive operations.

In this article, we reexamine Zajonc's thesis of independence. We critically discuss the logic of his argument and the evidence he offered. We also report the results of a study designed to uncover an instance of independence, and offer a statement on what now seems to us reasonable to believe about the relationship of affective judgments to cognition.

AFFECTIVE JUDGMENTS

The words *emotional* or *affective* apply, to varying degrees, to an ill-defined, broad, and heterogeneous aggregate of phenomena (Fehr & Russell, 1984). To which affective phenomena did Zajonc claim his thesis applies? Specifically excluded were such reactions as surprise, anger, or guilt. To characterize what were included, Zajonc used such phrases as "feeling," "preference," "affective judgment," "affective reaction," "liking," "evaluation," and "hot cognition." But in defining his terms, he confined his article "to those aspects of affect and feeling that are generally involved in preferences" (p. 152). The evidence he cited as most directly supportive of his thesis had examined subjects' ratings of how much they liked various stimuli. Here we shall take Zajonc's thesis to be about *affective judgments*, which we define as the class of reactions whereby a person finds something likable, valuable, attractive, preferable, and so on. Put in other words, an affective judgment is a mental event whereby a particular object (person, place, thing, or event) seems to have an affective property.

There is no name commonly agreed upon for the class of phenomena we are here calling *affective judgments*. Elsewhere, this class has been called *affective appraisal* (Russell & Snodgrass, in press) and distinguished in some detail from such other affective phenomena as moods, physiological states, and behavioral signs and components of emotion. In using this name, we do not want to prejudge what sort of process is involved in producing affective judgments. Nor do we want to deny that affective judgments are felt

or are related to other affective phenomena. Still, some characterization of what affective judgments are and how they differ from other affective phenomena is needed for a proper evaluation of Zajonc's thesis.

For example, let us define a *mood* as a subjective affective state that is not about any particular object (such as waking up in the morning feeling chipper, or blue). Moods, so defined, are distinct from affective judgments, which are defined as being about something. For the sake of argument, suppose that there exist some moods that are dependent entirely on hormones and that vary independently of cognitive processes. It would not follow that an affective judgment can be independent of cognitive processes. We suspect that at least some of the appeal of Zajonc's thesis about affective judgments stems from confusing them with moods. What is true of one need not be true of the other. Zajonc himself later reinforced this appeal. In listing evidence favoring his thesis, he wrote: "Emotional excitation can be induced by drugs, hormones, or electrical stimulation of the brain. Individuals given valium concealed in their food will change their mood, whether they know about having ingested the drug or not" (Zajonc, 1984, p. 120).

By the same token, Zajonc's thesis on affective judgments cannot be discredited by showing that another class of affective phenomena always depends upon, and follows in time, perceptual and cognitive operations. For example, let us define full-blown *emotional episodes* as the prototypical cases of anger, fear, grief, and other prototypical emotions. We take this to mean that each such episode necessarily involves interrelated physiological, mental, and behavioral components. For the sake of argument, suppose that such episodes always require cognitive processes. It would not follow that an affective judgment requires a cognitive process.

COGNITION

What in Zajonc's thesis is meant by "perceptual and cognitive operations"? Holyoak and Gordon (1984), Lazarus (1984), Mandler (1984), and Seamon et al. (1983) based their critiques of his thesis on the assumption that Zajonc (1980) meant *conscious* processes. In replying to Lazarus, Zajonc (1984) wrote: "Lazarus mistakenly assumes that I equated intention, rationality, and awareness, with cognition in general, or with cognitive appraisal in particular. This is not so. . . . Cognition need not be deliberate, rational, or conscious" (p. 118).

Zajonc (1980) apparently excludes from his thesis sensory processes, which, in his theory, do precede and influence affective judgment ["Of course, sensory processes must have the earliest onset" (Zajonc, 1980, p. 171)]. Precisely which other processes he believes an affective judgment must depend on

is not clear, but he does argue *against* the following position: "Before I can like something I must first know what it is. According to this prevalent view, therefore, such cold cognitive processes as recognition or categorization are primary in aesthetic judgments, in attitudes, in impression formation, and in decision making: they come first" (Zajonc, 1980, p. 160).

We shall therefore take Zajonc's phrase "perceptual and cognitive operations" (or, more simply, *cognition*) in a broad sense. Cognition includes any mental process, conscious or not, that goes beyond sensory features, any process that forms a representation of the stimulus itself, any process that attributes meaning to the stimulus, or any process whereby properties of the stimulus not immediately given in the senses are inferred.

ZAJONC'S THESIS

What precisely is Zajonc's thesis? Are affective judgments always independent of cognition? typically so? sometimes so? independent on one occasion? Zajonc does not claim they are always independent. He acknowledges that an affective judgment *can* depend upon cognitive processes. But nowhere does Zajonc state the precise limits and extent of his thesis. Some of his statements have a sweeping character: "Feeling is first" (p. 151). "Preferences need no inferences" (p. 151). Yet, in a subsequent discussion of his thesis, he gives a narrow interpretation: "the argument was that an affective reaction *can* occur without the participation of cognitive processes under *some* circumstances" (Zajonc, Pietromonaco, & Bargh, 1982, p. 211).

Here we shall consider, in turn, two versions of Zajonc's thesis. We define a *broad* version as follows: An affective judgment of a stimulus is *often* independent of cognitive processing of that stimulus. We define a *narrow* version as follows: There is at least one case where an affective judgment about a stimulus is independent of the cognitive processing of that stimulus.

THE BROAD VERSION OF ZAJONC'S THESIS

Zajonc (1980) is implicitly committed to a broad version of his thesis. He writes "affective reactions to stimuli are *often* the very first reactions of the organism" (p. 151, emphasis added). He implies that his thesis is relevant to such contexts as aesthetic judgments, impression formation, decision making, nonverbal communication, attitudes and opinions, responses to large-scale physical environments, language comprehension and production, and consumer behavior. In fact, it is the broad version of his thesis that makes his article interesting.

It might be argued that the broad version can be rejected at the outset. Likes and dislikes are as numerous as the objects of our world, and they all seem to confirm that, first, we know something about any object we like and, second, what we know about it influences how much we like it. And yet this argument is based on faulty reasoning. In such everyday examples, what we know is almost always confounded with the physical features that are the basis for that knowledge. The relationship between cognitive processing and affective judgment is a correlation from which it may be common, but is nonetheless incorrect, to infer causation. There is an alternative to the common view: Perhaps physical features of the stimulus, along with simple sensory processes, determine both its cognitive interpretation and the affective judgment about it. So, we cannot allow everyday experience to count against Zajonc's broad thesis.

What is needed is an experimental investigation of the causal link between cognition and affective judgments. Although the psychological literature contains some relevant evidence concerning full-blown emotional episodes, it provides little such evidence concerning affective judgments. The broad thesis has thus raised an important question, and, whatever the merits or demerits of Zajonc's argument in its favor, the broad thesis has served to uncover an area in need of empirical study. We now turn to one such study.

One way to approach this problem is to find a case where the physical features of a stimulus are not confounded with its cognitive interpretation. Such a case would occur, for example, where there are two possible interpretations for the same set of physical features. Boring (1930) made famous one stimulus that fits this bill, a figure commonly known as "My wife and my mother-in-law" and that is shown in Figure 1. It is an ambiguous drawing from a 1915 issue of *Puck* magazine, cleverly drawn to allow two possible interpretations. Some see the figure as a stylish young lady, the wife, while others see the same figure as a much older woman, the mother-in-law. If you examine the drawing, you can see first one and then the other. This ambiguous drawing could provide evidence relevant to Zajonc's thesis. If physical features alone determine attraction, then this figure ought to be as attractive on one interpretation as on the other. If, instead, it is the cognitive interpretation of those features that determine attraction, then attraction ought to vary accordingly. The first possibility seemed implausible, but it is just the sort of counterintuitive prediction that makes Zajonc's thesis interesting and, if confirmed, important.

Our first test was a correlational study. Under the pretext of studying art, we asked 28 college students to examine the drawing in Figure 1. Each rated the attractiveness and then the age of the person shown. Age ratings were roughly bimodal, and we divided subjects into two groups, with a rating of age 35 the dividing line. Those subjects who had interpreted the woman in the drawing as the young wife (who gave her age as under 35) found the

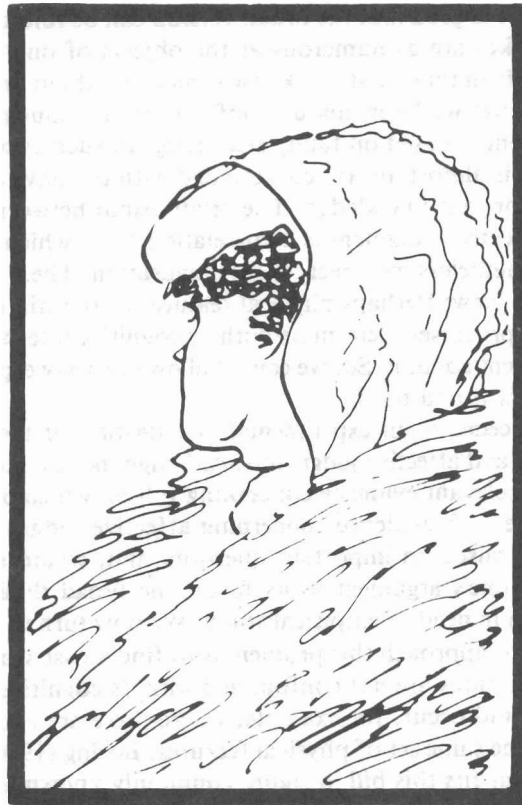


Fig. 1. My wife and my mother-in-law.

figure attractive (6.5 on a scale from 1 to 9). Those who had interpreted the same figure as the older mother-in-law found her unattractive (2.4 on the same scale). The over 4-point difference on a 9-point scale was highly significant with even this small sample size ($t = 9.06, p < .01$).

Of course, a correlational study cannot rule out the possibility that the affective judgment influenced the cognitive interpretation rather than the other way around, and we therefore carried out an experimental study.

Again under the pretext of studying art, we asked 39 high school seniors to rate the attractiveness of the person portrayed in Figure 1. First, however, they were shown six drawings as examples of the sort of art we were supposedly studying. In these examples was embedded the experimental manipulation. In one condition, the six included an unambiguous drawing of the young wife; in the other condition, the six included an unambiguous drawing of the mother-in-law. Leeper (1935) had shown that even one ex-

posure to one of these unambiguous versions determines the subject's later interpretation of the ambiguous version. Subjects shown the wife rated the person in Figure 1 as much more attractive than did subjects shown the mother-in-law (by over 3 points, 6.5 vs. 3.4, on a 9-point scale, $t = 7.55$, $p < .01$).

With physical features held constant, an affective judgment varied (indeed varied from positive to negative) with the outcome of cognitive interpretation of those features. Of course, even though the physical features of the target stimulus were the same in these studies, subjects in the different conditions or different groups may have attended to different features. Perhaps, by allowing affective judgment to depend on attentional processes, Zajonc's theory can be altered to accommodate data such as these. Nevertheless, attention can legitimately be considered a cognitive process, and these studies therefore failed to provide a case of affective judgment independent of cognition.

What do these results say about Zajonc's thesis? Zajonc (1980) had asserted that "an affective reaction to a person we meet emerges long before any [cognitively discriminable] features can be identified, let alone evaluated" (p. 159). Here we see evidence for the opposite conclusion: An affective judgment about a person depended on cognitively processed judgments about that person. Of course, one study could not decide the issue, but it did show at least one clear case where cognitive interpretation of a stimulus plays a causal role—and a powerful one—in an affective judgment about that stimulus. This case did not seem particularly unusual, and we suspect that it exemplifies the typical situation. In any case, this study represents the kind of study that can be used to test Zajonc's thesis.

What's more interesting, perhaps, is that these results may have helped to clarify just which thesis Zajonc wants to assert. Shown these results, Zajonc responded by saying (personal communication, February 14, 1984), "I need only one single instance against a million of contradictory instances to prove my point." Zajonc is apparently falling back on the narrow version of this thesis. We take Zajonc's reply as a rejection of the broad thesis and we now turn to the narrow version—pausing only to say that we know of no other evidence that would support the broad thesis.

THE NARROW VERSION

The Mere Exposure Studies

The narrow thesis—the existence of one instance of independence—is problematic as a scientific hypothesis. At the least, the narrow thesis is asym-

metric with respect to evidence: Although some data could count in its favor, no amount of evidence could count against it. At the worst, it could be argued that the narrow thesis cannot be falsified and is therefore not a scientific hypothesis at all.

On the other hand, it could be argued that the narrow thesis is trivially true. Recall that Zajonc allows that affective judgments depend on sensory processes. Thus, any affective judgment of a pure and simple sensation—finding an odor unpleasant, liking a certain shade of blue, or feeling a burning match on your skin painful—could be taken as an instance of an affective judgment without cognitive interpretation. In other words, when there are no cognitive operations, it is trivially true that affective judgments do not depend on cognitive operations. However, it would not follow that affective judgments may be independent of cognitive operations in cases where the cognitive operations do occur.

Zajonc must want to say more than that sensations can be pleasant or unpleasant. Let us therefore assume that the narrow thesis is meant to assert the existence of a case of independence where cognitive operations do occur, or, failing that, at least a case where most of us had previously believed that cognitive operations do occur. Zajonc's main evidence for his thesis of independence involves a claim concerning the latter situation.

An actual instance of independence was supposed to be demonstrated in a series of studies carried out by Zajonc and his colleagues on the "exposure effect." The exposure effect occurs when the more one is exposed to a stimulus, the more one likes it (Zajonc, 1968; Stang, 1974). In a typical experiment on the exposure effect, Matlin (1971) presented Turkish-like words to subjects, varying the number of exposures. Subsequently, subjects were asked to rate how much they liked each word, together with other words not previously shown. Matlin replicated the exposure effect but claimed to have discovered an even more interesting phenomenon. Matlin had also asked subjects to rate how familiar or unfamiliar each word seemed. Liking and a measure of memory, such as familiarity, generally follow almost identical curves when plotted as a function of exposure frequency (Stang, 1975)—thus suggesting that (the cognitive process leading to) familiarity mediates the effect of exposure on (the affective judgment of) liking. Matlin's discovery was that the mere exposure effect occurred even in the absence of familiarity. She examined those trials on which a subject reported being unfamiliar with the stimulus word and found that objective exposure frequency still predicted liking.

Further experiments were attempted to verify Matlin's discovery: Moreland and Zajonc (1977), Wilson (1979), and Kunst-Wilson and Zajonc (1980). These, together with Matlin's (1971) study, were the experiments Zajonc (1980) cited as the main evidence for his thesis. We believe that draw-

ing such a conclusion from these four studies is questionable on methodological grounds.³ But, for the sake of argument, let us suppose that methodological difficulties can be overcome (perhaps through further experiments). In other words, let us suppose that a person can see something and like it, that the liking is greater because of previous exposures to that stimulus, and that the person is completely unable to recognize that stimulus as one seen before.

Consider how we might account for this phenomenon, assuming it exists. Presumably, some mechanism would exist that links the current increase in liking to the prior exposure. We've assumed that the mechanism is not familiarity or recognition of the stimulus as something previously encountered. But what is the mechanism? We don't know the answer, but two things can be said.

First, the mechanism must exist. Prior exposure cannot directly cause current liking. There is a temporal gap that must be bridged between prior exposure and current liking. Zajonc apparently believes that a mechanism exists, presumably a mechanism that involves the affect system he has postulated.

Second, there is no reason to suppose that the mediating mechanism is not cognitive. If we assume that (A) lack of recognition of a stimulus as

³Returning to Matlin's (1971) study, recall that the trials on which her conclusion rests were selected on the basis of low recognition scores. Unless the recognition scores were perfectly reliable, this selection procedure suggests a regression-to-the-mean interpretation of Matlin's result. By regression to the mean, cases selected for extreme scores on an imperfectly measured variable will show counterintuitive behavior for purely statistical reasons. For example, the selected cases would yield higher recognition scores if recognition were measured again. Any variable correlated with recognition (of course, liking is just such a variable) would also show higher scores in these selected cases than in cases selected with a perfectly reliable measure of recognition. Because there still exists some variance of degree of recognition within this (fallibly) selected set of cases, a new measure of recognition, or any variable correlated with recognition, can also be expected to correlate with the determinant of recognition, exposure frequency.

To illustrate this point, suppose that Matlin's procedure were duplicated in all but one detail: For the measure of liking, substitute a second measure of recognition. Again, select those cases in which, according to the first measure of recognition, the subject failed to recognize the stimulus. Now, within this set of cases, the second measure of recognition can be expected to indicate some degree of recognition greater than zero and to correlate with objective exposure frequency. By the logic of the argument advanced by Zajonc (1980), we would now have to conclude that recognition (as indexed by the second measure) occurred in the absence of recognition (as indexed by the first measure).

We believe that in addition to other problems, the Wilson (1979) and Moreland and Zajonc (1977) studies cited by Zajonc suffer from a similar problem: Because the measure of recognition was less than perfect, some valid variance in recognition remained among the cases classified as not recognized. The Kunst-Wilson and Zajonc (1980) study does not appear to suffer from this problem, and Seamon, Brody, and Kauff (1983) report similar results. On the other hand, in several systematic attempts, Mandler and Shebo (1982) were unable to replicate the Kunst-Wilson and Zajonc findings.

one seen before demonstrates lack of memory for the prior encounters with that stimulus, and if we assume that (B) memory for those prior encounters is a necessary condition for cognitive mediation, then we could conclude that there is no cognitive mediating mechanism. But both assumptions are incorrect.

Assumption A is incorrect. Information can exist in memory that is not detected by a recognition task. Tulving and his associates showed that some items that were missed on a recognition test could be recalled correctly on a cued-recall test (Tulving, 1974; Tulving & Thomson, 1973; Watkins & Tulving, 1975). Similarly, Nelson (1978) showed that there can be information in memory that is not detected by a recognition task but that can be detected by a savings measure (i.e., greater efficiency of relearning). Indeed, savings was strictly more sensitive than recognition: savings detected small amounts of information in memory undetected by a recognition measure, but the reverse did not occur. In a generally favorable review of Zajonc's (1980) theory, Seamon et al. (1983) argue as well for the possibility that an affective judgment might rely on memory for previous exposures, memory that is not detected by a recognition measure.

Assumption B is also incorrect. The mediating mechanism may be cognitive and still not require memory for prior encounters with the particular stimulus. Assume for the moment that no information exists in the subjects' memories about any prior encounter with the particular stimulus. We can still believe that the prior encounter influenced the later cognitive processing of the stimulus and that that cognitive processing, in turn, influenced the affective judgment. In this case, what the subjects would lack is not a cognitive mechanism for the exposure effect, but knowledge of one of the events (namely, the prior encounters) that had influenced that cognitive mechanism.

It may be helpful to suggest a specific mediating mechanism for the exposure effect that does not require memory for prior encounters with the particular stimuli. Suppose that with exposure to the stimuli (Turkish-like words, polygons, or whatever), the subject begins to form a prototype for that set of stimuli. Posner and Keele (1968) reported evidence that subjects do form such prototypes, where the prototype is an average or modal representative of the entire set shown. The prototype is thus distinct from any one instance actually seen but serves as a reference point for future judgments about those stimuli. Because the prototype is based on instances seen, it will resemble the more frequently seen stimuli more than the less frequently seen ones. Whitfield and Slatter (1979) reported separate evidence that stimuli more closely resembling a prototype are liked more. So, we can speculate that subjects in an exposure study might form a prototype and use that prototype in judging liking. If so, the subject need not remember whether the instance was previously seen but need only have the prototype. Note that

even if there were no memory for individual instances at all, prototype formation would account for a positive correlation between liking and prior exposure frequency.⁴

The point here is not the specific prototype mechanism suggested but what Zajonc has and has not demonstrated about cognitive processes in a mere exposure study. In the four studies listed by Zajonc on the exposure effect, there were two phases. During a first phase, subjects were shown various stimuli various numbers of times (and, in the Kunst-Wilson and Zajonc (1980) study, for a very brief duration). During a second phase, they rated how much they liked each stimulus. During this second phase, subjects had ample time to perceive and interpret and even reflect upon the stimulus. The point of our prototype hypothesis is to suggest one way that encounters during phase one could have influenced the perceptual and cognitive processing of the stimulus during phase two, even if subjects could not remember those prior encounters.⁵

Let us summarize this way. Zajonc appears to reason in the following manner:

1. The exposure effect relies on some mediating mechanism, which must be either cognitive or affective.
2. Familiarity and recognition are cognitive processes.

⁴On this account, the subject should be able to use the same mechanism (resemblance to the prototype) to guess whether a particular instance was seen before. There is no reason to suppose that the subject must do so. But, because exposure, rated familiarity, and liking are highly intercorrelated, subjects may do just that. How, then, can there be cases of liking in the absence of recognition? Those cases of liking in the absence of recognition, if they occur, would be a small minority of cases, but they could, on this account, occur in the following way. Imagine a subject shown pairs of stimuli, one previously seen ("old") and one previously unseen ("new"). Some trials will occur where the old stimulus resembles the prototype but the new stimulus just happens to resemble a remembered actual instance. Such cases should produce a paradoxical result: The subject should like the old but "recognize" the new. These trials would give the appearance of the exposure effect in the absence of recognition.

⁵The word *recognition* may have inadvertently caused some confusion. During the second phase, subjects presumably recognized the stimulus in the sense that it was in front of them and they could see what it was; the "recognition" they supposedly lacked concerned their memory of having encountered it during the first phase. Zajonc's claim might have seemed less startling if "affective discrimination of stimuli that we cannot recognize" were replaced with "affective discrimination of stimuli that we cannot remember having seen before."

The ambiguity of the word *recognition* may account for an interestingly mistaken memory we encountered concerning the Kunst-Wilson and Zajonc (1980) experiment. One colleague misremembered the experiment as asking subjects to rate liking immediately after a 1-msec exposure to the stimulus, thereby showing liking in the absence of recognition—recognition in the sense of knowing that a stimulus was present. To our knowledge, no one has carried out a study showing reliable ratings of liking in the absence of recognition in this sense. In the Kunst-Wilson and Zajonc (1980) experiment, there were two phases: During the first phase, subjects were exposed to the stimulus for 1 msec. During the second phase, subjects apparently had ample time to examine the stimulus before making their affective judgment.

3. The exposure effect occurs in the absence of recognition or familiarity.
- ∴ The exposure effect relies on an affective rather than a cognitive process.

For the sake of argument, let us grant the premises (even though premise 3 is questionable and Zajonc has provided no explanation why, in premise 1, the mechanism must be either cognitive or affective). The argument is clearly invalid without an additional premise:

4. The exposure effect occurs in the absence of all other cognitive processes besides familiarity and recognition.

The fourth premise is not self-evident, however. No evidence supports it and it does not follow from the first three premises. Recognition and familiarity are not the only cognitive processes, and their absence does not rule out other cognitive processes. It does not even rule out processes involving memory.⁶

CONCLUSION

One disquieting difficulty in assessing Zajonc's (1980) thesis is interpreting it. We are not sure that we have translated Zajonc's statements correctly and we would like to state as clearly as possible just which ideas we hope to call into question. Everyday words like *emotion*, *affect*, and *cognition* do not specify precisely delimited classes of events. Statements about the relationship between affect and cognition are doubly difficult to pin down. Zajonc says, for example, that feeling is first and that preferences need no inferences. There are some senses of the phrase "feeling is first" with which we would not argue. That feeling can precede and influence thinking is a common enough idea—in the sense that a prior mood can color our current thoughts. It is no secret that Monday morning blues make the world seem dull.

Similarly, most of us have also always believed that "feeling is first" in the sense that feelings precede our understanding of them. Sometimes we

⁶Whether or not Zajonc (1980) was denying that the mechanism we have been seeking is available to consciousness, some have taken him to mean that and the thought deserves comment. Few psychologists would assume that a person is aware of all the processes that determine his or her feelings and thoughts and actions. But the important point is this: To say that a person is unaware of the mediating mechanism is not to say that no mechanism exists. Nor that the mechanism can't be experimentally demonstrated. Nor that the mechanism cannot be cognitive interpretation. And it is certainly not to say that the mechanism is affective. Moreover, we simply don't know what the subjects in the four exposure studies were or were not aware of. The contents of their consciousness at the time they rated liking were not probed. The evidence Zajonc advanced failed to address this issue.

are painfully slow in figuring out why we feel as we do, or even in figuring out exactly what we feel. Indeed, one wonders if we ever fully understand all the reasons for our feelings.

The phrase “preferences need no inferences” can also be interpreted in a noncontroversial way. It could refer, for example, to cases where no cognitive interpretation occurs (when, for example, I have a simple pleasant sensation of warmth or an unpleasant sensation of cold). If sensations occur without perceptual or cognitive operations, then presumably sensations can produce affective judgments without perceptual or cognitive operations. Moreover, affective judgments about such sensations could differ from one time to the next without cognitive intervention; adaptation level research provides the examples.

Most of us have always believed that there are noncognitive influences on affective phenomena (and on cognitive phenomena, for that matter). Affective judgments, moods, and prototypical emotional episodes can, for instance, be altered by chemicals, whether internally generated hormones or externally administered drugs. No one has supposed that cognitive interpretation of a stimulus is the only cause of all affective phenomena.

What conclusions about affective judgments seem reasonable? Consider the following possibilities:

- A. An affective judgment can be influenced by noncognitive factors (such as sensory processes, moods, and drugs).
- B. An affective judgment can occur without cognitive processes when no cognitive processes occur (such as finding a sensation pleasant).
- C. An affective judgment about a stimulus that is cognitively interpreted is often independent of that interpretation.

Conclusions A and B seem reasonable. A and B are worthy of investigation but, unfortunately, both are commonsense ideas. Zajonc’s (1980) article clearly meant to challenge our common assumptions about affective judgments and cognition, but neither A nor B does so. We are therefore not interpreting Zajonc as merely pointing out that sensation can be pleasant or unpleasant, or that people have moods, or that affective judgments can be affected by drugs.

It is C that has been the focus of our concern in this article. To our minds, C is an interesting and heuristic idea. C is what makes Zajonc’s article so provocative. But is C Zajonc’s thesis? We don’t know. At times Zajonc retreats to a narrower and less interesting thesis—the existence of a single instance of independence (although presumably one that was previously unsuspected). In any case, Zajonc’s evidence and argument have failed to establish either version of his thesis. We know of no instance in which an affective judgment of a cognitively interpreted stimulus is independent of that cognitive interpretation.

Everything we have said so far is based on the assumption that Zajonc is challenging what is commonly believed. But, of course, it's not always clear what that is. Let us therefore conclude by stating what we believe about affective judgments. A person's affective judgment about something depends on two classes of factors: those irrelevant and those relevant to that stimulus. The first class includes the person's biological and general psychological state. The second class includes what he or she senses, knows, believes, remembers, misremembers, conjectures, imagines, or whatever about that stimulus. No one of these mental processes relevant to the stimulus may be *necessary* for an affective judgment. An affective judgment is a judgment about the *object* and is therefore based on *whatever* information is possessed about the object. When a stimulus produces only sensations, then the affective judgment depends only on sensations. When the stimulus is interpreted, then the affective judgment depends on that interpretation. (Contrary to the suggestion of Zajonc's, 1980, theory, as shown in his Figure 5, sensory processes are not necessary either. When no sensation occurs, when for example the stimulus is a thought, then the affective judgment does not depend on sensations.)

Now all of this is common sense and might not be worth mentioning had Zajonc not claimed that the common view is mistaken. As far as we can make out, the common view stands up well. On the other hand, the history of science does not encourage optimism over the fate of commonsense ideas. We were surprised at how little evidence directly tests the common view on affective judgments, and we state the hypotheses above in explicit form with the hope that they can be put to experimental test.

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