

Causes and Consequences of Feelings

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1. Feelings: Their Nature and Causes

This book deals largely with the ways in which people's feelings influence their thoughts, memories, judgments, and actions. In the next two chapters, though, we will be concerned with the nature and origin of feelings: generally speaking, how feelings are experienced and what aspects of the situation give rise to these experiences.

As I indicated in the Introduction, when I use the term feeling in this book I'm not necessarily thinking of emotion as the latter concept is usually understood. Although there are exceptions, most psychologists basically conceive of an emotion as a complex sequence of responses to a personally relevant stimulus. These reactions occur throughout the brain and body and include cognitive evaluations, bodily and neural changes, motor impulses, and emotion-related thoughts, as well as a particular feeling. Moreover, psychologists usually regard emotions as being focused on a certain object or issue. In this sense, we're happy about something or afraid of something or envious of someone. In this book, however, the word feeling is synonymous with affect and refers only to conscious experience rather than to the full constellation of emotional reactions. Furthermore, a feeling may or may not have to do with a particular object or issue or happening. People might have good feelings as the result of a specific event: perhaps because their team won a game or because they did well on an assigned task. But affect can also be produced by vague, barely noticed, or even subliminal occurrences, such as a warm, sunny day or a familiar, pleasant melody. This latter type of general, object-less feeling is sometimes called a *mood*. Many students of emotion think of a mood as being somewhat different from the relatively more focused emotion: It is an affective state that typically is fairly long-

lasting, often at a relatively low or moderate level or intensity, and generally objectless and free-floating.¹

We can also say that we are interested primarily in what Russell and Feldman Barrett have recently termed *core affect* rather than in *prototypical emotional episodes*. A core affect is the feeling that a person experiences consciously at the moment and may or may not be focused on any particular object or event. Prototypical emotional episodes, on the other hand, are much more complex. Typically they are concerned with a specific object or event, real or imagined, so that they embrace affect but also include appraisals of the activating target, related ideas, and behavioral inclinations. For Russell and Feldman Barrett, a mood is a "prolonged core affect without an object or with a quasi-object."²

But whatever is involved in the feelings, whether they are part of a relatively complex emotional episode or not, and however long-lasting they may be, this book, generally speaking, does not distinguish among them except in regard to their valence (whether they are pleasant or unpleasant). However specific the cause or focused the target, I will regard them all as affective states and will be concerned with the consequences of the feelings that are experienced.

The Nature of the Affective Experience

What Are the Dimensions of This Experience?

We seem to have a great variety of emotional feelings. When they're angry, many people say they feel hot, whereas they're apt to describe themselves as cold if they're afraid. Many of us report having a lump in our throats when we're sad, but we are highly unlikely to have this sensation when joyous. Nonetheless, even with these differences, a number of researchers have argued that affective experiences can be meaningfully described in terms of only a relatively small number of dimensions, and they have attempted to identify these underlying common aspects of feelings.

In their investigations, they usually first ask the participants to rate either their feelings or their understanding of a set of emotion-related stimuli (such as words having emotional connotations or pictures depicting emotion-arousing events). These ratings are then usually analyzed to determine whether some of them cluster together. For example, when people report feeling happy, do they also tend to say

they are content or excited? When a person is described as sad, is she also apt to be rated as distressed or passive? Is an emotional event regarded as depressing also said to be agitating and/or sleepy or scary?

Employing this kind of methodology, more than a generation ago several factor analytic studies identified 6 to 12 separate clusters of affective experiences. These were supposedly the basic dimensions along which emotional feelings varied and included such qualities as the degree of "felt sadness," the degree of "felt anxiety," the magnitude of "felt anger," and the intensity of "pleasurable feelings." More recent research indicates, however, that many of these clusters are not independent of each other but tend to occur together in larger groupings. Indeed, it's now generally agreed, when the affect ratings are subjected to careful statistical analysis, they are often found to vary along only two (or perhaps three) separate dimensions. In other words, we can describe feelings to a substantial (but not complete) degree in terms of their particular location in an area circumscribed by these two independent axes.

Russell and Feldman Barrett propose, quite reasonably in my view, that it is the core affects, the feelings that are currently being experienced, that can be located within the circular area, the *circumplex*, formed by these independent dimensions. The more complex prototypical emotional episodes, being packages of feelings, appraisals, ideas, and behavioral tendencies, can be organized in a variety of different ways, perhaps in a hierarchical as well as a dimensional structure. For example, the prototypical episode of sadness conceivably could be regarded as a superordinate category involving, among other things, the more subordinate core feelings of sadness and depression. It may well be, then, that those investigations that uncovered a multiplicity of affective dimensions obtained these findings at least partly because they employed emotional stimuli fraught with meaning, such as pictures. These relatively complex social stimuli could have brought to mind prototypical emotional episodes rather than activating only the "purer" core affects.³

This structural conception can be quite useful in describing a substantial part of people's affective reactions to the situations they are in, and it seems to be valid across a broad range of linguistic cultures.⁴ This doesn't necessarily mean, however, that psychologists are in complete agreement as to just what are the two (or possibly three) underlying dimensions.

Pleasure-Displeasure and Active-Passive. For many investigators, such as Russell, our thinking about affect terms, and the experiences associated with these words, is largely, but not entirely, centered on two basic bipolar dimensions: *pleasure-displeasure* and *active-passive* (the latter dimension sometimes also labeled *active-sleep* or *activation-deactivation*). Calling this view a *circumplex model* of affect, Russell places affective experiences on a circle, with pleasure set arbitrarily at 0° and displeasure set opposite at 180°. (Because pleasure and displeasure are at opposite poles of a single continuum, this type of conception is also often termed a *bipolar model*.) The active-passive dimension is perpendicular to this valence dimension, so that arousal is at 90° and sleepiness at 270°. Think of these dimensions as marking off four quadrants, as in the top half of Figure 1.1. According to one of Russell's studies, the words *astonished* and *delighted* are typically regarded as being in the northeast quadrant because both have to do with a mixture of arousal and pleasure. However, *astonished* is high on arousal but is only slightly pleasant, whereas *delighted* is high on pleasure but is only somewhat aroused. *Afraid* and *distressed*, on the other hand, are both in the northwest quadrant, but although both of these affective terms are associated with relatively high arousal and displeasure, the participants in this research thought of *afraid* as connoting a somewhat higher arousal level than *distressed*.⁵

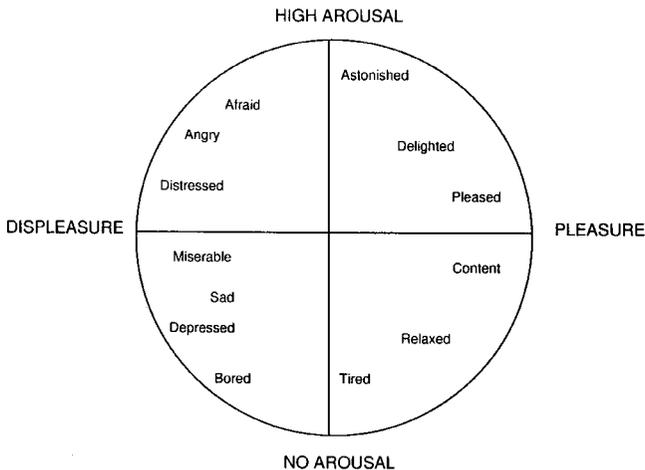


Figure 1.1 Scaling of affect words on the Russell circumplex model (modified from Russell, 1980, p. 1169).

Positive Affect and Negative Affect. In 1985 David Watson and Auke Tellegen published a different but also well-known formulation of the underlying dimensions of affective experience. On the basis of the statistical analyses of people’s self-reported moods they had conducted, they stated that feelings could be organized in terms of the affective structure summarized in Figure 1.2. There are four basic bipolar dimensions spaced 45° apart, they maintained: (1) High to Low Positive Affect, (2) High to Low Negative Affect, (3) Pleasantness to Unpleasantness, and (4) Strong Engagement to Disengagement.⁶

In this scheme, as you can see, *blue* and *sad* are at the extreme Unpleasant end of the Pleasantness-Unpleasantness dimension rather than being located at the polar end of the High Negative Affect dimension, and extremely high Positive Affect is better indicated by *elated* than by *happy*. (I’ll say more about this later.) The last dimension I listed, having to do with degree of engagement, is apparently similar to the Arousal-No Arousal dimension in Russell’s model, but otherwise, the 1985 Watson–Tellegen analysis evidently disagrees with Russell’s scheme in an important respect. It tells us that an extremely unpleasant feeling isn’t necessarily very high on the Negative Affect dimension; the Pleasantness-Unpleasantness and Negative Affect dimensions are correlated to a good degree but, according to Watson and Tellegen, they aren’t identical aspects of feelings.

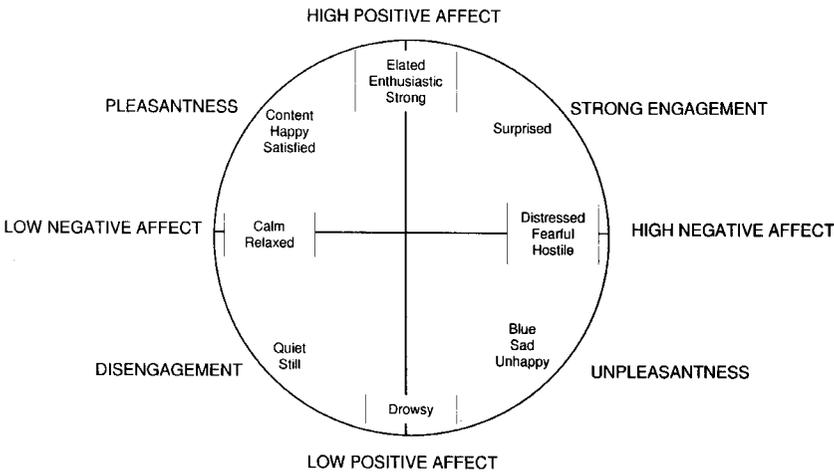


Figure 1.2 Positive-negative structure of affect (modified from Watson & Tellegen, 1985).

Later research, again based mainly on analyses of self-reported feelings, convinced Watson and his associates that the essentials of the original Watson–Tellegen conception are correct, although they also pointed out that the exact nature of the affective structure will vary from one situation to another. Their findings seem to be clearest, they noted, when the feelings have to do with one’s current, momentary experience rather than with one’s mood over, say, an entire day. The later analyses also led the Watson team to suggest that the various feelings are organized somewhat hierarchically. The highest and most general aspect of feelings has to do with how pleasant or unpleasant they are. Then, below this on the hierarchy, are the feelings’ location on the positive and negative affect dimensions. Finally, the specific, discrete affects are even further down, at the lowest level of the affective hierarchy.⁷

This last-mentioned observation about the generality of pleasant-to-unpleasant feelings is obviously consistent with Russell’s identification of pleasantness-unpleasantness as a major aspect of affective experience, and I’ll soon return to this important agreement. But for now, let’s look at the feature of the 1985 Watson–Tellegen formulation that had attracted the greatest attention and that was the principal focus of the investigators’ research: the proposal that positive and negative affect are largely independent dimensions.

In 1985 Watson and Tellegen characterized these two dimensions in this manner:

*The first factor, Positive Affect, represents the extent to which a person avows a zest for life. The second factor, Negative Affect, is the extent to which a person reports feeling upset or unpleasantly aroused. . . . [O]nly the high end of each dimension represents a state of emotional arousal (or high affect), whereas the low end of each factor is most clearly and strongly defined by terms reflecting a relative absence of affective involvement. . . . [These factors] are independent, uncorrelated dimensions. . . .*⁸

Both the Russell and Watson–Tellegen factor analytic interpretations of the affect data can be defended, mathematically speaking (as all of these researchers have acknowledged). And moreover, each conception can be helpful in interpreting particular findings. Consistent with the Russell bipolar model, for example, certain kinds of bodily reactions seem to be associated with affective experiences on the pleasure-displeasure axis, whereas other bodily responses vary with position on the activation (or arousal-sleep) dimension.⁹ How-

ever, because it seems contrary to common sense, and even everyday language, to hold that positive and negative feelings are independent aspects of affective experience, I'll focus mainly on evidence supporting the Watson–Tellegen conception.

Sometimes, for instance, an emotional occurrence produces both good and bad feelings. An employee who has just retired after long years of work might be both happy and somewhat anxious about his new freedom from company routines. Positive and negative affect can arise together, just as the Watson–Tellegen model proposed. Watson, Tellegen, and their colleagues also pointed to other research results. In one investigation, Zevon and Tellegen asked 23 men and women to rate their mood on a 60-adjective checklist at specified times each day for 3 months. After carrying out factor analyses of the ratings made by each of these people, the researchers concluded that most of the participants had rated their feelings largely in terms of the two dimensions of positive and negative affect. Further attesting to the apparent independence of these two factors, when the investigators combined the data for all of the people in their sample, they found that relatively high positive affect scores were distributed over a wider range of days than were high negative affect scores. Strong negative feelings evidently were a more extreme and more unusual reaction than strong positive affective experiences.¹⁰

Studies of persistent individual differences also point to a separation between positive and negative affective systems. Strong extroverts are typically disposed to have relatively intense positive feelings, whereas extreme neurotics are apt to be high in negative affect. Some people evidently are inclined to be in either a good or bad mood a great deal of the time, much as if their psychological makeup is dominated by either a positive or a negative affect-generating reaction system. In line with these observations, when Berenbaum and his associates examined the ratings university students made of their sad, angry, and fear moods every day for 6 weeks, the investigators found not only that these negative moods were relatively stable over this time period, but also that the experience of any of the negative feelings during the first 3 weeks was a good predictor that other negative moods would arise in the second 3 weeks. Some persons' feelings apparently are controlled largely by a psychological and/or neurological system generating negative moods.¹¹

Research on the biology of emotion also seems to call for a clear separation of pleasant and unpleasant feelings. The physiological

mechanisms involved in positive affect are often different from those operating when there is a negative experience. Davidson's important studies of brain activity testify to such a difference. Activation of the left frontal cortex is generally associated with pleasurable states, whereas unpleasant affect is typically linked to high electrical activity in the right frontal cortex. Adding to this evidence, facial muscles can also reflect the valence of an affective state. The zygomatic muscles that pull the lip corners up and back are usually activated by pleasant feelings, but the corrugator muscles that draw the brows together and downward become active when affect is unpleasant.¹²

Cacioppo, Gardner, and Berntson went further along these lines. Thinking of the pleasantness-unpleasantness dimension as having to do primarily with tendencies to approach or avoid external stimuli, they argued that there are separate positive and negative affect systems, which they termed *appetition* and *aversion systems*. However, they maintained, because the person cannot approach and withdraw at the same time, but must do one of the other, there is a single bipolar response system concerned with actions ranging from strong approach to strong withdrawal (i.e., from positive to negative).¹³

Nevertheless, even with all of this evidence, the original Watson-Tellegen formulation has some serious conceptual problems, as Larsen and Diener noted in their thoughtful review of these different models. Look at the axes Watson and Tellegen had named Positive Affect and Negative Affect in Figure 1.2. Low Negative Affect is defined by such terms as *calm* and *relaxed* – words that virtually everyone would say have a somewhat pleasant connotation. This particular pole seems to have more to do with low arousal or a low state of activation than with unpleasant experience. Similarly, ask yourself why happy is somewhat below the High Positive Affect pole, and why sad and unhappy are said to be less extreme on the High Negative Affect dimension than, say, hostile or jittery. The answer should be clear. In both of these latter cases, words that suggest a lower level of arousal are lower on the given dimension. As Larsen and Diener commented, the Watson-Tellegen dimensions “reflect composites of hedonic valence and high activation.”¹⁴ Experiences at the end of the High Positive Affect axis in the Watson-Tellegen formulation do not represent all positive experiences but only those that are pleasant and also highly activated or aroused. Similarly, those experiences at the High Negative Affect extreme in this formulation don't represent all un-

pleasant experience but only those involving strong arousal as well as strong displeasure.

There was another problem besides the combination of valence and strong arousal level at the high ends of the Watson–Tellegen dimensions. Many people had been puzzled by the terms used in 1985 to mark the low ends of these continua – for example, that *calm* and *relaxed* indicated low Negative Affect. To overcome these difficulties, the Watson–Tellegen group now maintained that their two dimensions have to do with Positive *Activation* and Negative *Activation* rather than with Positive Affect and Negative Affect. These constructs, they said, are unipolar, not bipolar, in nature, and it is the high poles of these dimensions that are important, not the low ends. According to this newer view, a low level on one or the other dimensions reflects “the absence of a particular kind of activation rather than the presence of a given affective state” (such as calmness or relaxation). So what we now have are two theoretically distinct *bibehavioral systems*, one that can bring about strong positive feelings and the other promoting the activation of intense negative affect.¹⁵

Reconciling the Russell and Watson–Tellegen Conceptions

What can we say about the bipolarity of affect? Are positive and negative feelings the opposite ends of a single continuum or not? The Watson–Tellegen and Russell positions are now moving closer together than they were commonly believed to be in the past. I’ve already noted the Watson–Tellegen group’s latest proposal that the various feelings exist in a hierarchical structure, with the most general feature of these affects being their degree of pleasantness-unpleasantness. As Watson and Tellegen put it in another paper, “A general bipolar dimension of happy versus unhappy feeling states emerges at the apex of [the affect] hierarchy, attesting to its pervasiveness in self-rated affect.” Russell and Clark have welcomed this view, observing that on this central issue they and Watson–Tellegen are in agreement.¹⁶ It is meaningful to say, as I have done throughout this book, that a very important (but not all-important) aspect of any given feelings is its valence, that is, how pleasant or unpleasant it is.

Then too, if we keep in mind the Watson group’s new characterization of their postulated two independent dimensions as Positive Activation and Negative Activation (rather than as Positive and Neg-

ative Affect), we can see that the two research groups are, in actuality, also not far apart on this matter. In accord with the attempted reconciliation offered in 1992 by Larsen and Diener, both sets of investigators agree that when Watson and Tellegen were talking about positive feelings, they had in mind affective “states that were both pleasant and activated (such as enthusiasm)” and that excluded “happiness and serenity and the like.” And similarly, the negative affect of concern to Watson and Tellegen had to do with strongly activated negative states “such as panic or nervousness” and did not include such low-level states as melancholy.¹⁷

Some research results obtained by Diener and his associates are relevant in this connection. On examining how undergraduate students rated their feelings at times when they experienced an emotion, the investigators found that a strong, definite mood of a particular valence (such as decidedly happy or decidedly sad) was rarely accompanied by intense affect of the opposite valence. In other words, people do not have both strong positive and strong negative feelings simultaneously. Those who are in a very bad mood are unlikely to have strong pleasant feelings of any kind at that time. The full-fledged activation of one of these affect systems evidently inhibits complete activation of the other system at the same time. However, if a person is experiencing only relatively weak pleasant or unpleasant feelings on any given occasion, he or she could also have any level of the other type of affect. And so, low levels of bad feelings can occur together with some degree of pleasant feelings.¹⁸ The man I mentioned earlier who was both happy and anxious about his retirement from work probably wasn’t exceedingly happy; his pleasure wasn’t strong enough to keep him from also feeling anxious.¹⁹

In sum, there’s reason to think that positive and negative affects aren’t always as independent of each other as the original Watson–Tellegen model had held in 1985. We sometimes can have a mixture of pleasant and unpleasant feelings but, at other times, an intense feeling at one end of the pleasure-displeasure axis seems to prevent affective experiences at the other extreme on this dimension. Keep in mind, though, that this latter affective incompatibility usually occurs within a narrow time span; it is only when strong feelings of one kind exist that intense feelings of the other type are ruled out at that time. If we were to look at people over a range of hours, days, or longer, we might not find this same incompatibility. A person obviously might feel good on one occasion and be in a bad mood later. Indeed,

some people are prone to have both intensely positive and intensely negative feelings but, of course, not at the same time. They characteristically react strongly to emotion-arousing incidents, so that they're very happy when something good happens and very unhappy on another occasion when a bad event occurs.²⁰

Some Questions About the Circumplex Conception

Another feature of both the Russell and 1985 Watson–Tellegen models of affect that has caused considerable controversy is their assumption of a circumplex structure. Watson and Tellegen have now expressed misgivings about this assumption, but Russell and his colleagues still believe that a circumplex structure fits the available data well.²¹ Let's consider some of the questions that have been raised about the circumplex idea.

Are Affects Continuous or Are They Separate from Each Other?

I noted earlier that circumplex models essentially hold that the different affective concepts around the circle are not distinct, bounded categories, but rather are continuous and more or less flow into their adjoining neighbors. A number of theorists take issue with this continuity view, at least with regard to emotional states, and propose discrete categories of emotional experience. One researcher²² has indicated, for example, that some of our affective terms can be grouped together into higher-order, relatively distinct categories. When this psychologist reanalyzed the data from one of Russell's circumplex studies, he concluded that at least four somewhat separate segments can be identified within the circle: sleepiness, distress, anger, and sadness. It could be that we create some distinctions in our conceptions of the various affective experiences and don't see all of these experiences as being only continuations of each other along the circumplex axes.

Niedenthal has gone even further in arguing along these lines. She and her colleagues maintain that we have a strong tendency to group together those objects and/or events that evoke the same specific feelings in us independently of their valence. This is especially so, they say, when the feelings are those that are involved in the commonly regarded basic emotions such as happiness, fear, anger, and sadness. For example, we are very apt to think that all those things

that make us happy are members of the same conceptual category even if they seem very different and generate happiness in different ways. One implication of this, as Niedenthal and her collaborators have demonstrated, is that an emotional state's influence on information processing often depends more on the distinctive nature of that state than on its pleasantness-unpleasantness alone. Thus, sad persons are especially likely to recognize words having a sad connotation relatively quickly but aren't necessarily likely to be fast in recognizing anger-related words, even though both sets of words are negative in nature.²³ I'll have more to say along these lines later.

Distinct Differences Among Affective States. There certainly can be more to affective experience than just pleasure-displeasure, activation-deactivation (or activity-passivity), and intensity. We've already seen that people at times think of a number of emotional feelings as distinctly different categories of experience rather than only as sensations varying along such continuous dimensions as their arousal level and how pleasant-unpleasant they are. The affective states usually have other qualities as well that help to distinguish them from each other. A fair amount of research has now identified these additional qualities, but I'll highlight some of the main features by telling you about findings obtained in an important cross-national investigation reported by Klaus Scherer and Harald Wallbott.²⁴

First, because many different bodily systems contribute to the affective experience, Scherer and Wallbott decided to summarize the bodily reactions using concepts taken from the psychophysiology literature. Sometimes, they noted, when we're emotionally aroused we have ergotropic symptoms, sensations emanating principally from the cardiovascular and muscular systems, such as alterations in breathing rate, increased heart rate, muscle tension, and perspiration. Or we might have trophotropic symptoms, such as a lump in the throat, stomach troubles, and cold or hot feelings. All of these are specific sensations, more detailed than just being unpleasant and/or intense to some degree.

In this study, Scherer and Wallbott and their collaborators asked university students at 37 universities on every inhabited continent to describe their feelings when they are joyous, angry, afraid, sad, disgusted, ashamed, and guilty. Although there were some differences among the countries in the reported physiological symptoms, motor expressions, and subjective feelings of these emotional states, sup-

porting the social constructivist position discussed later, the cross-national similarities in how the emotional states were experienced were far greater. Scherer and Wallbott tell us that, across the countries, fear and anger were accompanied by a stronger arousal of ergotropic sensations, such as the sense of an increased heart rate and muscle tension, than were joy and sadness, with fear having a greater arousal level than anger. On the other hand, the participants indicated that there were stronger trophotropic sensations in joy than in either fear, anger, or sadness. Felt temperature differences were especially notable. As we all know, anger is frequently regarded as a hot emotion, and someone who is easily provoked is often said to be hot-tempered or hot-headed. Well, very much in line with this characterization, the participants typically indicated that they felt hotter when they were angry than when they were afraid, sad, or joyous. By contrast, the students tended to report feeling cold when they were afraid or sad.

It could be argued, of course, that the similarities across the broad range of countries involved in the study don't necessarily prove that the emotional sensations are biologically determined; after all, the people taking part in the investigation were all university students, and many of them could have acquired the same ideas from the mass media as to what the different emotions feel like. Nevertheless, Scherer and Wallbott were impressed with how closely the participants' descriptions of their sensations correspond with what is known about physiological changes in the various emotional states. According to these writers:

Given the correspondence between experimental studies using psychophysiological measurement and our self-report data, it seems premature to claim that self-reported reactions only exist as socially constituted representations in our heads. . . . The evidence, then, seems to support theories that postulate both a high degree of universality of differential emotion patterning and important cultural differences in emotion elicitation, regulation, symbolic representation, and social sharing.²⁵

Whatever the principal sources of people's affective experiences, culture or biology, how can we reconcile the dimensional and discrete-category views of emotional feelings? I would argue that both positions are correct to some degree. We're frequently aware of the unique nature of whatever affective state we're experiencing on that occasion, but at times the particular feeling's location on the circumplex dimen-

sions becomes very important. On these occasions, what matters to us is how good or bad we feel, whether we feel active or passive, and the intensity of the feeling.²⁶ This being the case, much of our discussion in the later chapters will be especially concerned with the effects of pleasant and unpleasant feelings, although we will occasionally also refer to more specific, more distinctive affects as well.

How General Are the Models of Affective Experience? There's one other question that I should bring up at this time: Do these models, whether of the Russell or Watson–Tellegen variety, fit people's affective experiences in cultures other than our own? For some students of emotion the answer is "probably not." Theorists taking a social constructivist stance generally maintain that emotions are shaped by culturally acquired beliefs, or schemas, and aren't biologically determined. They say that societally shared conceptions tell us what, if any, emotion is produced by a certain kind of situation, and how each emotional state is experienced and expressed. In societies said to possess a culture of honor, as a case in point, shared beliefs are quick to define many different kinds of unpleasant encounters with others as personal challenges or even threats to one's honor. Furthermore, the culture of these societies teaches its members that they should become angry at these perceived affronts, and it prescribes retaliation as the appropriate response. Strong versions of this perspective contend that the affective experience one has in an emotional state is also constructed on the basis of the culture's expectations as to what one should feel under particular circumstances. If emotional feelings are as malleable and as readily influenced as this type of reasoning assumes, affective experiences could conceivably be organized along lines other than those posited by the circumplex models.

However, contrary to such an extreme view, I've already noted that Russell's circumplex structure "has been essentially replicated across a wide variety of linguistic cultures." In addition to occurring in native speakers of English in the United States and Canada, it has been found in the self-reported emotion ratings of Chinese, Croatians, Estonians, Greeks, Israelis, Japanese, Poles, Swedes, and Gujarati.²⁷ In the absence of any clear contrary evidence, it does seem that the model we've been discussing fits people's emotional ideas and experiences all over the world.

Psychological Theories About the Origins of Affect

You might think it's obvious why people feel happy or unhappy: They're put in a good mood when something pleasant happens and feel bad when they have an unpleasant experience. This is only a commonplace observation, but still, you may be surprised at the great number of ways in which this principle is manifested. In general, many different factors can determine whether we feel pleasure or displeasure. I'll briefly spell out a number of these influences, ranging from the simple to the more complex, and highlight their implications for the study of feelings as we go along. To organize this discussion, I'll first take up external stimulation that can affect our feelings more or less independently of what we do. Then I will turn to more internally controlled factors, those having more to do with the effects of our own behavior.

Affect-Generating External Stimulation

Natural Pleasures. Quite a few of our pleasures and displeasures are relatively simple in that they arise through mechanisms that are not only built into us but that also operate very early in life. Humans, much like other animals species, are typically pleased by sweet foods and liquids but find bitter-tasting substances unpleasant. They also often enjoy gentle tactile stimulation, such as the feel of a soft woolen blanket, but are disturbed by abrasive, painful rubbing of, say, sandpaper on the skin. Our biological heritage probably also leads us to like warm, sunny weather and maybe even certain kinds of rhythmic sounds.

Research psychologists studying emotions have at times varied their subjects' feelings by making use of such pleasant or unpleasant situational stimuli. As a notable example, in one of their investigations of the influence of mood on judgments, Schwartz and Clore found that many of us feel better on bright, sunny days than when the skies are overcast. The university students they interviewed in sunny weather reported being happier than the students who were questioned on rainy days. Certain sound patterns can also be pleasant or unpleasant, perhaps because of cultural learning but maybe also partly because of our biological heritage. Think of the old saying that "Music soothes the savage breast." Well, a pleasant melody might not

entirely eliminate a person's strong anger, but it might at least improve his mood if he has no strong feelings before the music starts. And conversely, unpleasant music that grates on our nerves could well create negative feelings. Although there clearly are individual differences in these effects, music is such a reliable influence on mood states, for a short time anyway, that quite a few experimenters have used musical selections to shape their subjects' feelings. Other investigators have even used music to induce a short-lived depressive mood. In much the same vein, aesthetic considerations can also affect our feelings, again maybe for both cultural and biological reasons. Whatever the explanation, our mood can improve if we find ourselves in an attractive room or it can suffer if the room is a mess, affronting our aesthetic senses. Some experiments have thus influenced participants' feelings by varying the appearance of the laboratory room.²⁸

Associations with Earlier Affective Experiences. Sometimes our feelings are aroused by reminders of an earlier affective experience. We see or hear something that automatically recalls this previous experience to mind and thereby activates, to some degree, the feelings we had on that occasion. The situational detail, often termed a *cue*, has this effect because of its association with an earlier emotional event. Behavioristically inclined psychologists would say that the reaction developed through classical conditioning, the process in which the cue (the conditioned stimulus) becomes paired with the stimulus (the unconditioned stimulus) that originally evoked the emotional reaction. Because of its association with the original emotion elicitor, this cue evokes the feelings that had been aroused earlier.

The psychological literature provides many demonstrations of this kind of conditioning. The participants in one experiment heard a neutral sound just before they received some insulting comments. After repeated pairings of this tone with the unpleasant remarks, the sound alone evoked the visceral reactions characteristic of an emotional disturbance.²⁹ We have even more dramatic examples of this phenomenon in many phobias, in which a person is exceedingly fearful of a certain kind of situation even though, objectively speaking, there is no real danger. Consider stage fright or a strong fear of lightning. The conditioned stimulus (such as the sight of a watching audience or of a thunderstorm) is somehow connected in the individual's mind with a dangerous or anxiety-provoking occurrence, so that

this stimulus now automatically activates the bodily reactions and feelings that the original threatening event produced.

Several experiments have relied on the association of a stimulus with emotion-arousing events to generate specific feelings. In experiments employing the guided imagery procedure, the researchers basically ask the participants to think of an earlier incident in their lives when they were in a particular emotional state – say, happy or sad or angry. The memories the participants bring to mind are the cues evoking the affect they experienced during that earlier incident.³⁰ The widely used Velten mood induction procedure, published in 1968, is conceptually similar. Here the participants are given a series of 50 (or, originally, 60) statements, one at a time, and are asked to think about each of them. In one series the statements are increasingly depressive in tone: After beginning with the fairly neutral sentence “Today is neither better nor worse than any other day,” the series continues with statements such as “I feel rather sluggish now” and then goes on to much more morose ideas such as “I want to go to sleep and never wake up.” The other, elated (or happy) series also starts with the neutral sentence but then goes on to happier ones, such as “I do feel pretty good today,” and concludes with the elated statement “God, I feel great!” More often than not, according to published research, the ideas and memories activated as the participants think about each statement serve to evoke the associated feelings.³¹

Does Familiarity Breed Contempt? The Mere Exposure Effect. Let’s go further and extend this discussion of positive and negative happenings. As I suggested earlier, you may be surprised at the kinds of events that are pleasant to us. Consider the role of familiarity. Although we sometimes are told that “familiarity breeds contempt,” we also know that we often develop a greater liking for things we encounter again and again.

Familiarity can be pleasant. Think of the Eiffel Tower, the Art Nouveau structure that now symbolizes Paris and even all of France. The tower is now viewed quite fondly by most Parisians, but a storm of protest greeted the structure’s completion in 1889, and it was widely condemned as an “unforgivable profanation of the arts and a slap in the face for a nation which had previously upheld the banner of civilization. . . .” However, as the years passed, attitudes toward the Eiffel Tower became much more favorable, and it’s now more likely

to be seen as a “friendly giant.” Had its growing familiarity contributed to this attitude change? Maybe, as one psychologist put it,

Because of its tremendous height, the tower was ubiquitous and inescapable and hence was likely to be seen day after day. According to one long-standing hypothesis, familiarity leads to liking, and perhaps attitudes toward the tower changed simply because it became a familiar part of the landscape.³²

There is indeed evidence that familiarity often breeds liking rather than contempt. This is actually a fairly old idea in psychology, one that has been discussed at least as far back as the early years of the twentieth century, but its best support comes from research initiated by Robert Zajonc.

Zajonc’s thesis is both simple and sweeping: The greater the repeated exposure to a novel situational stimulus, the more favorable will be the attitude toward that stimulus, with the liking increasing logarithmically – in a positively decelerating curve – as the number of exposures rises. It is the increased exposure alone, the mere exposure to the stimulus, and not what happens during the encounter, that leads to the more positive attitude. In his initial 1968 monograph advancing this proposition, Zajonc pointed to a number of supporting observations. For one thing, more frequently used words usually are more favorable than less frequently employed words. This relationship holds for the rated liking for the words as well as the positivity of their meaning, and also exists in several languages, including Russian and Urdu. We can also see the frequency–liking relationship in quite a few experimental studies: When people are repeatedly presented with certain neutral stimuli, whether these are nonsense words or unfamiliar Chinese ideographs or musical selections or even photographs of people they don’t know, they typically develop a more positive attitude toward the stimuli they encounter most often. In one clever and newer variation on this theme, research participants were shown two photos of their own face and were asked to indicate which they liked better. One photo was the usual kind of picture, showing how they looked to others; the other photo was their mirror image – the way they saw themselves when they gazed into a mirror. As the investigators had expected, because the participants were much more familiar with their mirror image than with the way they appeared to others, it was the mirror-image picture that they preferred.³³

Findings such as these are remarkably general and have been duplicated widely with “nationals of dozens of different countries, sons

of alcoholics, amnesics, dieters, chicks, ducklings, goslings, and many other species. . . ." In fact, Zajonc has quoted two other researchers who "claim that the mere exposure effect is the one solid sociopsychological effect that is found without exception across various cultures."³⁴

At this point, you might be wondering about monotony and boredom. Suppose a simple musical jingle is repeated over and over again. Won't we get tired of it, maybe even annoyed? Two points can be made in answer to such a question. First of all, the repetition-induced increment in liking for the novel stimulus will slow down more rapidly the simpler this stimulus is. In comparison, our appreciation of a relatively complex melody will continue to increase for a longer time as it is repeated. And then too, we may become bored with the presentation situation rather than with the repeated stimulus itself. If the situation is varied in some way or if one waits for a while after the repeated presentations so that the boredom-fatigue diminishes, Zajonc says there is a very good chance that we will see the usual mere exposure effect.³⁵

Recent research has now gone well beyond these demonstrations of the generality of the mere exposure phenomenon. Most notably, a growing number of studies have now shown that the effect occurs even when the presented stimulus is not detected consciously. To mention only some of the evidence for this, in two of their experiments Murphy, Monahan, and Zajonc presented Chinese ideographs to their participants either one or three times, with each exposure so brief (4 milliseconds) that these people weren't sure what they had seen. In two other studies the exposure duration was much longer (1 second), so that the ideographs were clear. The speed of the exposure didn't matter as far as the mere exposure effect was concerned. Whether the participants could consciously detect the ideographs or not, the more frequently presented ideographs were better liked than those that were shown less often. Subliminal influence isn't limited to relatively simple and largely meaningless stimuli such as ideographs; it can also arise with pictures of actual persons.³⁶

Findings such as these contradict one explanation for increased liking with repeated exposure. The pioneering psychologist E. B. Titchener proposed long ago that we have "a glow of warmth . . . a feeling of ease, a comfortable feeling" when we recognize something familiar. It's the sense of familiarity that supposedly is gratifying. However, research tells us that the mere exposure effect arises even

when there is no conscious recognition, no sense of familiarity. Why does this come about? Zajonc offers one possibility. We know that virtually every species has an orienting response when a novel stimulus is suddenly encountered; the organism's automatic nervous system is quickly activated, much like going rapidly on the alert, ready for almost anything to happen. Zajonc suggests that this orienting response subsides as the once novel stimulus appears again and again. The organism relaxes, so to speak, and it is this relaxation that is pleasant.³⁷

This last observation is very important for us here because we're focusing on the sources of feelings. Zajonc emphasizes that the mere exposure effect is affective in nature and isn't due to a cognitive change. Several lines of research testify to this affectivity. Monahan, Murphy, and Zajonc reported that people exposed to five repeated presentations of Chinese ideographs were in a better mood for a short time afterward than were other persons who saw the ideographs only once. This happened, moreover, even though the stimulus presentations were so brief (5 milliseconds) that they were difficult to see.³⁸ In the Murphy, Monahan, and Zajonc studies mentioned before, the investigators found that the pleasure generated by the repeated presentation of the Chinese ideographs diffused to add to the good feeling produced by subliminal pictures of happy facial expressions. In these experiments, the happy pictures evidently induced a positive feeling only when they were viewed at a level below conscious awareness, perhaps because the participants weren't suspicious of the photos they couldn't see consciously. This automatically produced feeling was then intensified by the automatically engendered pleasure arising from the repetitions of the Chinese symbols.³⁹

Comparisons with the Expected. Let's now turn from the repeated appearance of previously neutral stimuli, as in the mere exposure effect, to the repeated attainment of rewards. Do we get more and more pleasure from the gratifications we obtain again and again? The mere exposure thesis tells us, you will recall, that the increase in pleasure with repetition is a decelerating curve. This seems to be the case with the repetition of a particular gratification as well. Suppose that Jill is a stockbroker in a large investment firm and earns \$300,000 a year. This high income is exceedingly pleasant at first, but as she earns the same pay year after year, she becomes accustomed to this level of reward.