

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Faculty Publications, Department of Psychology

Psychology, Department of

---

January 1984

## The role of emotion in moral socialization

Richard A. Dienstbier

University of Nebraska-Lincoln, rdienstbier2@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/psychfacpub>



Part of the [Psychiatry and Psychology Commons](#)

---

Dienstbier, Richard A., "The role of emotion in moral socialization" (1984). *Faculty Publications, Department of Psychology*. 114.

<https://digitalcommons.unl.edu/psychfacpub/114>

This Article is brought to you for free and open access by the Psychology, Department of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Faculty Publications, Department of Psychology by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

## 16 The role of emotion in moral socialization

---

*Richard A. Dienstbier*

The major aim of this chapter is to discuss a research program designed to assess emotion-cognition-behavior relationships in moral decision making. While pursuing that aim, I will discuss the relationship of that research to some of the more enduring theoretical issues in emotion.

Theories of emotion wax and wane across a more extended time frame than is typical for theoretical approaches in many other areas in psychology. Perhaps these extended cycles of emotion theory result from the relative difficulty in the recent past in doing definitive research within the area of human emotion. The field was thereby insulated from sudden shifts in focus precipitated by dramatic research relevant to basic theory.

One of those areas of enduring concern to philosophers and psychologists interested in human emotion has been whether to conceive of emotion as dimensional versus discrete in structure. Those on the discrete side of this controversy generally trace their theoretical lineage to Charles Darwin, whereas dimensional theorists often credit William James. Discrete theorists hold that there are eight or nine basic emotions, which are inborn syndromes of feeling and behavior (e.g., Izard, 1971, 1977; Tomkins, 1963). Although proponents of that view would usually acknowledge that general physiological arousal (cerebral, autonomic and/or endocrine) may affect some dimension of intensity or duration of experienced emotion, the role of general arousal is regarded as minor. On the dimensional side of the debate, several modern theorists argue that the physiological arousal underlying emotional experience combines with certain cognitive assessments of the meaning of that arousal to form a specific emotional experience, so that the number of different emotions one could experience would be limited only by one's ability to be cognizant of nuances of meaning in a situation that had stimulated general arousal (e.g., Mandler, 1975; Schachter & Singer, 1962). Similarly, the focus of the two approaches

The research and ideas of this chapter could not have progressed without the willing assistance and co-participation of many students and colleagues. In addition to those named as co-authors of the various papers mentioned in this chapter, thanks for research work with the children are due to Rod Cole, Ursela Fritsch, Dwight Heil, Julie Jorgensen, Charles S. Kaplan, Bob LaGuardia, Arlene and Max Lewis, Paula Mares, Kelly Martens, Jane McGinnis, Phil Nickel, Mischel and Terry Robacker, Shelley Stahl, Elinora Ward, Noreen Wilcox, Sharon Ziers, and Gail Zimmerman.

is on different response categories, with discrete theorists showing interest in the face and facial expression or voluntary muscle patterns and the dimensional theorists focusing on sympathetic nervous system arousal and hormonal changes or upon states of general cortical arousal. (For a review contrasting dimensional and discrete approaches, see Izard, 1971.)

Whatever the disposition of current theorists in this area, most acknowledge that for appropriate or inappropriate reasons, a major impetus toward the study of the interaction of emotion with cognition has been the attention given to the work of Schachter and Singer (1962), who attempted to support a radical dimensional viewpoint. The program of research reported in this chapter was stimulated by that dimensional work, now two decades old. Over the decade of this project, which is still ongoing, my students and I have had cause to modify our initial dimensional beliefs. Without dwelling on that personal progression, this chapter will discuss our theoretical evolution as our research developed. The final portion of the chapter will evaluate recent research designed to refute and to support the radical dimensional view with which we started and to evaluate our research in view of those observations.

A related theoretical concern is the interrelationship of emotion and cognition. Can emotion exist independently of cognition? While this is not a crucial issue for the discrete emotion theorists, for those who hold to strict post-Schachterian dimensional views, cognitions about the source and meaning of autonomic arousal are essential in the experience of emotion. "Pure" emotion without cognition is therefore not possible. (Such notions of the inseparability of emotion and cognition are consonant with the dominant view of attitude held during the 1950s and 1960s by most social psychologists.) Whereas the issue is sometimes couched in terms of whether cognitions precede and stimulate emotional states (e.g., Beck's, 1967, cognitive theory of depression) or whether emotional arousal precedes and stimulates consonant cognitive activities (e.g., various physiological approaches and pharmacological treatments of emotional disorders), Zajonc (1980) has recently refocused attention on the more basic question of whether emotion and cognition may exist independently of each other. The research reviewed in this chapter will be discussed in relation to this issue.

### **Emotion defined**

Before discussing my research, let us consider establishing a definition of emotion. Each chapter author will undoubtedly confront this task differently, for differences in definition lie at the core of many theoretical disagreements. Like attempts to definitively establish *the* components of personality, the question of emotion definition should, at our present state of knowledge, be approached by first ascertaining which theoretical or practical questions will be pursued once the definition is established. Extending George Kelly's notions about

theory in personality into the realm of emotion, each theoretical approach and, to a certain extent, each definition implies a set of constructs that may be most usefully applied toward a limited "point of focus"; similarly, there exists a range of convenience for the theory beyond which other theoretical structures and definitions need be sought.

Because of the nature of the research described in this chapter, my definition of emotion will stress aspects of motivation and arousal. Formally and simply put, *human emotion is conceived to be a motivation-laden feeling resulting jointly from shifts in arousal and from the meaning attached to those arousal shifts.*

To understand this definition, consider first the nature of arousal. Some arousal may be central nervous system arousal, and some may be peripheral, depending upon the emotional state elicited; certain of the arousal components may be general and common to many emotional states, and others may be unique to specific emotional states. The generation of the aroused state usually results from perceptions of external situations; those perceptions, together with later cognitions about the meaning of the external state, influence the nature of the experienced emotion and the direction and force of the experienced motivation.

Next, let us consider the motivational qualities of emotion. The motivational quality of the feeling of emotion is experienced as an increased tendency to avoid or pursue certain perceptual experiences (i.e., to attend to certain classes of stimuli), to remember and think about ideas and images with a similar affective tone, and to avoid or pursue certain behavioral options associated with changing our relationships with certain classes of goals (e.g., to fight with, run from, reject, avoid, or engage with). While following both Tomkins and Izard that the motivational quality of emotional experience is of paramount importance (e.g., see Izard & Tomkins, 1966), for me even low intensities of human emotion frequently stimulate far more effort than would be expected. That is, we may respond to the motivational quality of even slight emotion and to cognitions about the likelihood of emotional states as if we were experiencing a strong, current, emotion-instigated motivational force. While I will return to this theme at the chapter's end, it is time to consider the theoretical system that initially led to our research.

### **The development of modern peripheral-dimensional theory**

Throughout the 1950s studies by a group of psychologists at the University of Rochester investigating the effects of various popular illicit drugs stimulated interest in the interaction of physiological states and cognitive information on the experience of mood and emotion (Vincent Nowlis, private communication).

Those researchers (including G. R. Wendt, Vincent and Helen Nowlis, Russel Green, and others) found, for example, that the impact on mood of a given drug varied dramatically as a function of whether other research subjects were simultaneously exposed to the same or to a different drug (e.g., whether an individual stimulated by an amphetamine remained with others similarly treated or with individuals who had taken barbiturates). Following those demonstrations, Schachter and Singer (1962) similarly demonstrated that following adrenaline injection, individuals appeared to act differently depending upon either the information they received through the social environment in which they were subsequently placed or through direct information about the impact of the adrenaline. Although the continuity between those two lines of research is easily apparent, the discontinuity is less obvious – whereas the drugs under study in the Rochester experiments were thought largely to affect mood as a result of the alteration of central nervous system conditions, the adrenaline used in the Schachter and Singer (1962) study was thought to impact emotion through feedback from peripheral body areas. Similarly, when Schachter and Wheeler (1962) demonstrated the impact of chlorpromazine in reducing laughter in response to a humorous movie, the peripheral impact was emphasized. Those interpretations led to a dramatic modification of previous dimensional approaches, which had emphasized cerebral arousal (e.g., Lindsley, 1970); instead, it was emphasized that feedback from peripheral areas and cognitive interpretations about the meaning of that feedback would be crucial in the experience of emotion. At the end of this chapter I will discuss research from other sources concerning the role of adrenaline (and noradrenaline) in the experience of emotion and those recently published studies that have challenged the Schachter and Singer findings and debated the role of autonomic (and facial) feedback in the experience of emotion. For the moment, the critical point concerning the early “emotion-attribution” interpretations by Schachter and his colleagues is that those interpretations stimulated a significant amount of research that could be (and was) interpreted as support for the importance of feedback from peripheral arousal in the experience of emotion and for the correctness of a dimensional approach with peripheral arousal as the central physiological dimension of importance.

### **The role of emotion in moral decisions**

Schachter and Latané (1964) demonstrated that psychopathic criminals would learn to avoid punished errors much better if they were first aroused with an injection of adrenaline, and Schachter and Ono (reported in Schachter & Latané, 1964) demonstrated that college students tranquilized with chlorpromazine cheated more. Those demonstrations suggested that both the avoidance of punished errors and resistance to temptation were influenced by high levels

of psychological arousal. Actually, it was inferred from that and other related research (which showed that psychopaths may be as physiologically reactive as nonpsychopaths) that the *experience* of inhibiting emotion, rather than physiological arousal per se, would reduce the probability of transgression.

*Misattribution of peripheral arousal symptoms and cheating – the first study*

Impressed by the coherence of those converging approaches to the role of emotion in resistance to temptation, and by the peripherally based dimensional theory of emotion, which underlay those approaches, I endeavored to ask the next logical question concerning the impact of peripheral arousal on resistance to temptation: Could it be demonstrated that one's interpretation of the meaning of the arousal modulated the effectiveness of that arousal in facilitating resistance to temptation?

Nisbett and Schachter (1966) had previously developed a technique that seemed to successfully influence the meaning of peripheral arousal and hence the experience of emotion. They had administered placebo pills with instructions that the pills would either contribute to four peripheral arousal symptoms (hand trembling, fast heart rate, face flushing, and stomach butterflies) or (for control subjects) would contribute to symptoms that were irrelevant to peripheral autonomic arousal. Those subjects who anticipated arousing side effects from their placebo pills subsequently withstood more electric shock (a graded series of mild shocks) before reaching the limit of their pain tolerance than did those subjects anticipating benign symptoms. It appeared that the misattribution of emotional arousal – stimulated by the electric shock and by fear of the shock – to the placebo pill lessened the avoidance-motivating quality of that emotional arousal.

We anticipated that this logic would hold equally well for our research subjects as they faced the temptation to cheat. That is, when facing such temptation in a natural environment, individuals would experience some emotional arousal – arousal that would signal their fear, shame, or guilt in anticipation of either the act of or the consequences of cheating. Whereas such emotional responses would motivate the avoidance of cheating in a natural setting, we anticipated that we could lessen that effect if we could induce misattribution of the emotional experience to a previously consumed placebo pill.

The first study with placebo pills in this series served as a prototype for the subsequent studies. Freshman introductory psychology students were recruited "in order to study the effects of a vitamin-related drug on vision." After being seated in individual booths, subjects were given a placebo and a form describing the pill's major effects on both vision and either the peripheral arousal side effects or the benign symptoms as described by Nisbett and Schachter. A

vocabulary test was subsequently given to fill the interval "while the pill took effect" but that vocabulary test was to be taken seriously, because the "board of psychologists" developing that test was supposedly interested in interviewing college freshmen with particularly poor vocabularies. Following that test, subjects were exposed to the autokinetic illusion to substantiate the "visual effects" cover story and subtly reminded of the possible side effects. Subjects were then given the opportunity to cheat on their vocabulary test. The period during which subjects could cheat on their vocabulary tests was introduced as a delay period before rating any possible side effects (arousal-relevant or benign). Subjects were shown the correct vocabulary-test answers and told to "clean up" their machine-graded answer papers if needed (to provide an excuse for using their pencils and erasers) but warned "do not change any answers." Virtually all subjects "failed" the vocabulary test, which was designed to be deceptively difficult. Following the 7-minute period during which subjects could cheat by changing vocabulary test answers, a detailed post-experimental questionnaire concerning any suspicions was administered, followed by a complete debriefing.

With cheating defined as changing one or more answers, almost twice as many subjects anticipating arousal side effects from their placebos cheated (49% vs. 27%,  $p < .02$ ). However, that effect was achieved almost entirely by the male subjects. (The procedure for detecting cheating using pressure-sensitive paper is described by Dienstbier & Munter, 1971.)

Before sex differences are discussed, let us consider some procedural questions and the meaning of the major findings. Did our suggestions about side effects lead to only the desired between-condition differences in the attribution of emotional arousal or were actual differences in arousal levels created between the experimental conditions? Once arousal-relevant side effects have been suggested to individuals in such research, there is no test free from very obvious demand characteristics, which could prove the null hypothesis that no arousal differences were actually created by direct suggestion. While we therefore have no definite answer to the question of between-condition arousal differences, we believe that such differences are unlikely, in part because of our technique for presenting side-effect information. We approached the induction of beliefs about placebo side effects in a low-key manner. That is, we suggested that we were not at all certain whether each individual would experience side effects and indicated that our reason for requesting feedback from each subject on whether such effects were experienced was a reflection of our uncertainty that such effects would occur. As observers of the experimental situation, it was our impression that the side-effects suggestions were among the least interesting and stimulating of the experimental maneuvers that our subjects experienced. A major reason for keeping our side-effect manipulation relatively tentative was to avoid the incredulity that frequently follows from

overemphasizing such impacts. A recent review and analysis by Ross and Olson (1981) of both direct and "reverse" placebo effects substantiates these conclusions.

Assuming then that we did not induce differential arousal levels in our two subject groups, we are left with an emotion-attribution explanation for the cheating difference: That the attribution of arousal to a cause or source that is not relevant to the moral decision (the placebo, for the subjects in the experimental conditions) would attenuate the impact of that arousal in resisting temptation. Being neither hard determinists nor strict behaviorists, we were not aloof from speculation about the rational processes that might have intervened between our independent manipulations and altered cheating rates. The ideas that we then posited (and which have been subsequently modified by being placed in a more extensive context) were that individuals who face temptation think about their behavioral alternatives and, depending upon factors ranging from past punishment for options currently considered to the perception that certain actions would lead to value conflicts, experience emotional responses. We believed that we had demonstrated that if the peripheral symptoms of emotional arousal are experienced as irrelevant to the temptation dilemma (i.e., attribution to the placebo), then the emotional state would not be experienced as inhibitory – individuals would be as free to cheat as if they did not experience the emotions at all (as with the tranquilized students of the Schachter and Ono research described earlier). The research seemed to provide strong support for a dimensional emotion theory based upon peripheral feedback. More about that later.

### *Cheating and arousal misattribution – follow-up studies*

Before we could progress with an understanding of the interaction of emotion and cognition in determining behavior in temptation situations, we had a conceptual cleanup chore required by the sex difference finding of our initial work; additionally, we wanted to be sure that an attributional explanation was necessary to account for our results rather than a simpler attentional one. (That is, would merely attending to the peripheral arousal side effects impact cheating or was the attribution of those symptoms to the placebo a necessary step.) With respect to the findings of sex differences, we reasoned that our female subjects may have been more upset by failing in the presence of the threat of the "board of psychologists" than were males. Subsequent research (Dienstbier, 1972) indicated that as threat intensity was systematically varied across four levels, at lower threat levels the placebo manipulation worked exactly as it had for males (with more cheating associated with the arousal side effects). Those results confirmed our suspicion that men and women use emotional cues similarly in making decisions about cheating and that the cause of our initial finding of



sex differences was probably that our women subjects were more distracted by an intense social threat than were the men.

In a third study, using males, it was shown that when subjects focused attention on arousal-relevant (vs. benign) side effects it did not impact their cheating unless they could also attribute that arousal to a placebo. Half the subjects were given no pills at all but were instead told that they were a control condition to check for suggestion effects in a drug study. Thus they were to rate their (arousal or benign) side effects and do everything (except view the autokinetic illusion used to verify the effectiveness of the placebo) the "real" subjects did. Merely attending to whether they experienced the side effects had no impact on cheating, as contrasted to the replication (of Study 1) conditions where the arousal-condition subjects again cheated far more than did the controls. Apparently, the misattribution of emotional arousal to an irrelevant source is necessary before cheating rates increase.

### **Related emotion-attribution research**

While our work progressed, other researchers were using similar independent manipulations to successfully test important variations of the peripheral dimensional approach. All these studies investigated and confirmed hypotheses that arousal would contribute *less* to a variety of emotional states when such arousal was misattributed to sources believed to be irrelevant to emotion (such as a placebo pill or a background noise). Younger and Doob (1978) found, for example, that administration of an "arousal" placebo reduced aggressive response. Ross, Rodin, and Zimbardo (1969) demonstrated that subjects who could attribute their arousal symptoms to a loud background noise worked less to avoid shocked punishment (contrasted with working to earn a positive reward) than did subjects who anticipated benign effects from the background noise; apparently the arousal from the anticipation of shock became attributed to the noise and hence was not experienced as fear. Rodin (1976) demonstrated that women who could attribute test anxiety to premenstrual symptomatology improved in test performance.

### *Emotion misattribution and the extinction of conditioned responses*

Two related research programs were more directly important from the standpoint of our considerations of moral development. Loftis and Ross (1974) had subjects acquire a classically conditioned galvanic skin response to a light (having previously paired the light with shock) while an irrelevant tone sounded in the background. Following conditioning, some subjects were told that the tone was really responsible for their emotional response; others were not given such erroneous information. Those who attributed their conditioning to the

tone extinguished more quickly (in a light-alone condition) than did subjects not given that misattribution-facilitating information. Thus, although previous research demonstrated that arousal misattributed to an emotion-irrelevant source would lose its impact on emotional experience, the Loftis and Ross study suggests that such misattribution will also lead to the quick extinction of acquired emotional responses.

*Emotion misattribution and reduced attitude change  
in dissonance research*

In a second research tradition, Zanna and Cooper (1974) showed arousal misattribution effects in the realm of dissonance research. In forced-compliance research, it is assumed that subjects induced to advocate attitudes that are quite different from their initial attitudes will experience some emotional tension. In turn, that tension will motivate attitude change, so that the subjects' attitudes shift in the direction of the position advocated. (Of course various parameters relevant to perceived coercion, payment, or lack of freedom attenuate this effect.) In a series of studies Zanna and Cooper demonstrated that postdissonance (following forced compliance) attitude change did not occur when arousal resulted from cognitive dissonance that was either misattributed to an irrelevant source or was the consequence of ingesting a tranquilizer (phenobarbital; Cooper, Zanna, & Taves, 1978); on the other hand, when subjects anticipated relaxation symptoms from an irrelevant source (but did not receive them) or were stimulated by an arousing amphetamine drug, postdissonance attitude change increased. Since those studies used both misattribution techniques and arousal-impacting drugs, they provide a powerful confirmation of arousal-misattribution working somewhat as suggested above. That is, the misattribution of arousal to an irrelevant source attenuates the impact of that arousal on subsequent decisions in a manner directly analogous to that obtained with a tranquilizer. The relaxation symptoms provided converging evidence; the misattribution of relaxation symptoms to an emotion-irrelevant source lead to behavioral outcomes similar to those caused by the administration of a stimulant drug. It should be noted, however, that in the case of this research both the arousing and the tranquilizing drugs used actually affect the central nervous system rather than peripheral processes. This observation has implications for a peripheral-dimensional theory of emotion. This issue will be discussed later.

*Emotion misattribution and enhancement through the addition of  
naturally induced arousal*

Another paradigm that was interpreted as supporting emotion-attribution theory involves inducing arousal in more natural ways than the adrenaline-injection technique used by Schachter and Singer and studying changes in a situation-

appropriate emotional response. For example, Zillmann, Katcher, and Milavsky (1972) demonstrated that exercise-induced arousal facilitated aggression response; this facilitation was particularly strong (Zillmann, Johnson, & Day, 1974) when individuals mistakenly thought that they had returned to base line in their exercise-induced arousal. Similarly, Cantor, Zillmann, and Bryant (1975) found that exercise-induced arousal facilitated the judgment of aesthetic value of objects and the entertainment value of an erotic film, but only when subjects mistakenly believed that they had recovered from the exercise-induced arousal. Arousal induced by listening to complex (versus simple) tones delivered at loud volume (rather than mild) was found to increase aggression (Konecni, 1975).

A number of different approaches placed individuals in the company of attractive opposite-sexed others subsequent to arousal. Dutton and Aron (1974) found that more TAT story sexuality was elicited in males following passage over an arousal-inducing suspension bridge as contrasted to men who met the beautiful experimenter via a less-arousing bridge. Similarly, I have noted (Dienstbier, 1979a) that while attraction toward a beautiful (or handsome) opposite-sexed researcher is enhanced by startle-induced arousal (relative to nonstartled controls), attraction toward a same-sexed experimenter is reduced by that arousal-inducing startle.

With respect to the theoretical issue concerning a peripheral-dimensional theory, it should be apparent that the other placebo studies (including the Ross, Rodin, and Zimbardo study, 1969, in which arousal was attributed to sound) could be regarded as providing further supporting positive evidence. However, the conceptually similar second group of studies, in which naturally induced arousal apparently contributed to heightened emotional experience, could be more broadly interpreted. That is, while I have continued to use the term *arousal*, the operations inducing that arousal are not restricted to enhancing merely peripheral or autonomic arousal. Finally, as noted briefly earlier, the finding that *central* nervous system stimulants and tranquilizers lead to results similar to the misattribution of *peripheral* relaxation or arousal symptoms casts a pall over a radical peripheral-symptom dimensional emotion theory. This issue and the implications for theory will be reengaged later in this chapter.

### **Emotion attribution in self-control with children**

Following the research with adult cheating, described earlier, I began to speculate with several colleagues and students about how normal socialization procedures with children might affect emotion-attribution processes in natural settings. Daryl Bem's work (1972), following that of the more traditional attribution theorists (such as Heider, 1959), had suggested that one reflected upon one's own previous behavior and searched for explanations of that behavior from

among the possible internal motives and environmental forces. (Note here the similarity of that view to the traditional emotion-attribution view, which posits that following arousal one begins a search for explanations for the development of the arousal; both views have been challenged for their "cart before the horse" appearance.) These views were incorporated into thinking about the socialization of morality and self-control. Aronson and Carlsmith (1963) and Lepper and his colleagues (e.g., Lepper, Greene, & Nisbett, 1973) had demonstrated that whenever more force was used by a socialization agent than was needed to influence a desirable choice by a child, the child would attribute subsequent positive behavior to those external forces; no reduction in attraction toward the negative behavioral option would be experienced. On the other hand, if less pressure was applied to the child and especially if the child experienced some personal choice in adopting the positive behavior pattern, then the child would seek to justify his or her choice and, to achieve that justification, would value more the "chosen" positive behavior and devalue the "unchosen" negative option.

In our view, "overjustification" theory offered a substantial improvement over more traditional social learning conceptions of moral development, giving a clear prediction for the improved effectiveness of reduced coercion in socialization. (For an excellent recent review of attributional vs. social learning approaches to moral socialization, see Perry & Perry, in press.)

The major issue we took with the traditional attribution approach was simply that emotion had been left out of the process; we felt that the inclusion of consideration of attributions about emotion offered an important addition to the cool rational thinking proposed by the overjustification theorists (Dienstbier et al., 1975). Most traditional thinking about major moral socialization problems, from the development of psychopathy on the one hand to issues of oversocialization on the other had highlighted the central role of emotional processes. Indeed, the work just reviewed on cheating and emotion misattribution and the work of Schachter and Ono with chlorpromazine suggested to us that even in adulthood emotional processes were central in moral choices. We believed that they would be at least as important in childhood moral choices. In this regard the importance of emotional or affective processes in making judgments (as contrasted to "cool" cognition) parallels the recent thinking of Zajonc (1980), who has emphasized that when the balance between cool cognition and affect is assessed, "for most decisions, it is extremely difficult to demonstrate that there has actually been any prior cognitive processes whatsoever." Emotion plays a role of similar magnitude in our model.

As an illustration of emotion-attribution processes developing during a socialization encounter, consider two children confronting angry parents over some proscribed behavior. The confrontation and uncertainty would normally lead the children to experience a significant level of emotional arousal. If one of the children was subsequently physically punished, that child could arrive

at quite different conclusions concerning the meaning (and cause) of continuing negative emotional states than would the child who was not given so salient a stimulus as physical punishment. Assuming some learning (similar to classical conditioning) of emotional responses following confrontation and/or punishment, it is likely that in subsequent temptation situations of a similar nature that the previously punished child would experience more emotional arousal than the child given an explanation of why such behavior was wrong. (See Hoffman, 1970, for an extensive discussion of "induction" techniques.) But emotional intensity may not be as crucial as the meaning of the emotional response. If the children were sure that detection of transgression was impossible, depending upon which of those previous treatments were received, the meaning of the emotional response would vary. The previously punished child might attribute arousal to the previous episodes of salient punishment, and, as in the experiment with an arousal-generating (placebo) pill, that emotional response would be assessed as irrelevant to the current detection-proof temptation dilemma. Having not experienced salient punishment in previous episodes, so that no alternative external explanation for emotional tension is available, the second child could believe that his or her tension is caused by the temptation to misbehave rather than to previous negative parental responses.

### *Early self-control studies*

We attempted to abstract the emotion-attribution aspects of these socialization episodes into a laboratory procedure. Since that procedure is discussed extensively elsewhere (Dienstbier et al., 1975), it will be sketched here.

To effect as powerful a design as possible, identical or same-sex fraternal twins were used as research subjects. While the magnitude of the between-condition means are not affected by these special subjects, the use of such subjects allows the control of genetic and social background in a matched-pairs design. Individual subjects were left alone in a toy room with the assignment of watching a problematic slotcar (an electric toy car guided by a pin that slides through a slot in the track) in order to prevent an accident that could seriously affect the (very old) slotcar. After subjects abandoned their assigned task for a criterion time period, the accident was made to happen (by a hidden observer) and the experimenter was simultaneously signaled to return to the playroom. Subjects in the condition hereafter called internal (in which emotion-attribution was made relevant by association with the child's own behavior) were informed that they might feel unhappy because of what they had done and that children who do the right thing usually feel good *even if no one else ever knows* of that proper behavior. Subjects in the external condition (emotion-attribution to confrontation) were informed they might feel a bit bad because *the experimenter knew* what they had done and that children who can *show others* that they have done the right thing usually feel good. The emotional intensity of the two manipulations was carefully matched. The temptation

situation was subsequently structured so that children believed that their watching of the slotcar was important but that now (with a new slotcar, the door locked from the inside, and with training in restarting the slotcar in case of accident) no detection by the experimenter of either good or poor behavior was possible. Twins in the internal condition (emotion attributed to own behavior) transgressed (failed to watch the slotcar) for an average of 177 sec out of 12 min, contrasted with 322 sec for their external-condition co-twins ( $p < .001$ ). In a similar study with nontwins, transgression rates were 80 sec and 187 sec ( $p < .07$ ), respectively. (The power of the twin design is seen in that whereas only 12 twins contributed to the first analysis, 24 subjects participated in the similar but marginally significant results of the nontwin study.) Subsequent research found almost identical results when the initial failure of the child was replaced by a story about another child who had "tried to help us out" but who had failed to watch the slotcar sufficiently to prevent the dreaded accident. The independent manipulation was couched in terms of how and why that other child responded emotionally to that failure.

Collectively, the research with twins and nontwins indicated that when a situation is perceived to be detection-free, emotional responses attributed to relevant sources (such as own behavior) play a large positive role in resistance to temptation, as contrasted to emotion attributions to irrelevant sources (such as previous confrontation). If these manipulations truly abstract important elements from real-life socialization episodes, they illustrate some of the reasons why more gentle and psychologically oriented socialization techniques may be more effective than harsh and punishment-oriented practices.

### *Integration of child and adult studies and theoretical reconceptualizations*

Whereas the studies with placebo pills and cheating had at best only slight mundane realism, it being fairly unusual for one to ingest symptom-stimulating placebos prior to confrontation with moral dilemmas, the work with children provided a closer approximation to real life. We concluded that gentler socialization approaches have the dual virtues of being less likely to become the focus of emotion attribution and of providing a vehicle for specifically directing emotion attributions to the child's previous transgression.

Although at this point in our research most of our thinking was about the negative emotional response an individual would have while facing transgression, it was suggested by others (particularly Jerzy Karalowski, personal communication, 1978) that we should similarly focus upon the role of emotion attribution of positive emotions in prosocial choice situations. That is, if positive emotional responses are attributed to one's own choice to engage in altruistic behavior, then the likelihood of future similar altruistic behavior (in an anonymous situation) should be high relative to another person who believes that such

positive feelings stem from recognition from others for one's positive accomplishments. In a variation on this thinking, Hoffman (1977) has discussed the efficacy of explaining to children how they impact upon the emotional states of those with whom they interact. The focus is not upon attributions about one's own emotional states but upon attributions about the other's states (e.g., "she will feel bad if you take that away from her"). Finally, similar approaches are used by Weiner (Chapter 6, this volume) in thinking about the emotional response of individuals to achievement situations.

The mundane realism of our independent manipulation and its application to children had been more than merely improved. The language derived from the peripheral-dimensional approach to emotion had been replaced by language that simply discussed "feeling good" or "feeling bad" with no reference to specific symptoms of arousal or to peripheral or central locations of feelings. We wondered whether our peripheral-symptom messages of the college-student cheating research could have been replaced by far simpler messages about the experience of emotion resulting from the pill.

### **Adult cheating, schema activation, and emotion attribution**

Although a complete answer is not available to that question, a partial one was provided by some subsequent research. We launched a series of experiments in which our independent manipulations were presented to adults in the guise of reading-comprehension tests, with cheating on the vocabulary test the dependent measure (Dienstbier et al., 1980). Fortunately for our understanding of the interaction of emotion and cognition in temptation circumstances, our initial studies seemed to be complete failures; people who were sensitized to moral issues through their reading-comprehension test cheated more (on the vocabulary test) than did control-condition subjects who read nothing relevant to emotion or morality. We assumed that Study 1 was an example of the haunting reality that false positive results (or, as in this research, false negative) will strike once in 20 successful experiments when probability levels are set at  $p < .05$ . When, to our deep chagrin, we replicated the phenomenon (Study 2), we were forced to grow in our understanding of the interaction of emotion and cognition.

The intent of the five studies in this series was initially to ascertain whether a manipulation very much like that used with the children would similarly affect college students who were tempted to cheat. But whereas the children were presented with manipulations that directly addressed their future (dependent measure) behavior, in forms such as "you will feel bad if you do a poor job watching the slotcar, even if no one ever knows," adults were presented with messages in abstract form that were not directly related to the dependent-measure task. Passages were presented as reading-comprehension tests, which

described the interaction of emotion and cognition in temptation situations using either internal or external emotion-attribution terms; a control group read about perception rather than morality. For example, in Study 2, the internal-condition subjects read that emotional tension develops when one contemplates or executes actions that are counter to one's own moral values. External-condition subjects read a matched passage that presented the idea that emotional tension signals that the contemplated or executed transgression is behavior that would have resulted in punishment in childhood, even though the real danger of punishment may no longer exist. The two messages we hoped to transmit to our subjects were that emotional tension experienced in the face of temptation is usually relevant to that decision (internal) or likely to be irrelevant to the decision (external). As in previous research, subjects were told that the "board of psychologists" developing the verbal tests was particularly interested in vocabulary test performance and would be interested in following the future grades and career of individuals who scored unusually low (defined as less than 18 of the 30 vocabulary items correct). When manipulation checks indicated that our subjects did not really understand the distinctions between internal and external manipulations, we knew that differences in cheating between the internal and external conditions would not be great; indeed they were not; but in Study 2, where control subjects read about long- and short-term memory, the finding of least cheating in the control group did replicate a similar finding from Study 1. (In both studies, 18% [14] of the 77 control-condition subjects cheated, as contrasted with 36% [51] of the 143 subjects in the combined internal and external conditions,  $p < .01$ .)

To explain our peculiar results, we began to speculate about the potentially elaborate roles of moral schemas in determining responses to temptation (Dienstbier et al., 1980); we temporarily suspended our thinking about emotion attribution. We defined a "schema" as a complex of values, attitudes, cognitions, and emotional responses that are either spontaneously made salient by internal thought processes or elicited by new relevant information; the interaction of new information with the elicited schema determines the resultant attributions, decisions, and behaviors.

We were sure that we had sensitized our subjects to moral issues by our internal and external emotion-attribution messages, since those manipulations contained detailed reference to various moral choices and how emotion plays a role in aiding people in the avoidance of lying, cheating, and stealing. Since those manipulations increased subsequent cheating on the vocabulary test, we reasoned that some other aspects of our experimental situation were providing information that interacted with heightened sensitivity to moral issues to increase cheating. We decided that the threat of embarrassment by an anonymous and powerful "board of psychologists" in the context of what should have been a simple one-hour experiment may have seemed unfair, particularly to those of our subjects who were stimulated to dwell on what is and is not moral;



potentially increased resentment could then have accounted for our peculiar results.

To test that hypothesis, we attempted to reduce such resentment in Study 3. We modified Study 3 to replicate Study 2 but with the research represented as the dissertation research of a graduate student (who acted as the experimenter in both studies). In addition, after the warning not to change any answers, the experimenter added that for his dissertation he needed accurate data or he might have to spend an extra semester gathering new data. As hypothesized, whereas few subjects in the internal and external conditions cheated, more subjects in the control condition did cheat (12% vs. 29%,  $p < .05$ ). To be certain of our interpretation, we followed in Study 4 with a quasi-experiment in which both the Study 2 and 3 versions of the procedure were run, but with the experiment stopped just at the beginning of the period during which subjects could cheat. Questionnaire replies made at that moment indicated that the hypothesized resentment differences could account for the increase in cheating in Studies 1 and 2 in the moral schema activation conditions (internal and external) and a decrease in cheating in those conditions in Study 3.

Having apparently solved the problem of our initially surprising results, in Study 5 we carefully designed an internal and external emotion attribution manipulation with understandable and salient between-condition differences contrasted with a (long- and short-term memory) control condition for the last time. The hypothesized reduced cheating in only the internal emotion-attribution condition was achieved (with 15% cheating, differing from both the external condition rate of 30% and the control condition rate of 31%,  $p < .05$ ).

As had been hoped at the inception of this series of five studies, the final study formed a conceptual bridge between the initial adult cheating studies, which employed the placebo-pill/misattribution manipulation, and the studies with children in which the misattribution information was provided at a conceptual level in a language that might be used in real socialization episodes. Additionally, this final study employed a significant methodological improvement over the work with children, for the independent manipulation was not related by the experimenter to the dependent-measure task. That is, in the work with children one salient alternative explanation for our results had haunted us: That the two emotion-attribution messages, by referring to the dependent-measure task ("you will feel bad if you don't watch the slotcar"), may have somehow increased the importance of that task in the internal condition relative to the external condition. This study achieved a conceptually similar result while effectively eliminating that alternative explanation.

#### *The interaction of emotion attribution and schema activation*

Following the research series just described, we concluded that whereas moral schema activation will enhance resistance to temptation (as in Study 3, given

that no other information in the situation in interaction with the schema results in contrary analyses of what is moral), those increases in moral behavior will most likely occur when the appropriate emotion attributions are made. That is, in the external emotion attribution condition of Study 5 the elicitation of the relevant moral schema with an irrelevant emotion attribution resulted in *no* reduction in cheating (contrasted to the control group). Although a single study is far from definitive, those results, in combination with the placebo study results, allow the strong inference that, even for college-age adults, appropriate attributions about emotional tension in the face of temptation may be essential in determining the outcome of decision making when behavioral choices present a moral value conflict.

In the original presentation of the five studies we speculated about the interactions of emotion-attribution processes and schema activation in temptation situations; the following roughly parallels that speculation:

When an individual perceives the possibility of transgressing, schemas relevant to morality will typically become activated. In addition, emotional arousal will develop as a result of many processes, of which the following are examples:

1. Arousal may result from elements in the current temptation situation being perceived as like previous elements to which emotional responses have been conditioned (as through previous punishment for transgression in similar circumstances).
2. If aspects of the moral schema relate to self-concept ("I should be honest"), the consideration of behaviors that are contrary to those self-concepts may elicit emotional responses. In short, potential value conflicts from contemplating transgression may cause emotional arousal.
3. On the more external side, the individual may fear the potential shame or humiliation from others' knowing of the consideration, or the act, of transgression.

Even though the emotional tension in a single situation may have been elicited by several causes, the meaning of the emotional experience will be determined largely by the most salient cognitions about the meaning of the arousal. Those cognitions depend in turn on the nature of the schema elicited in interaction with elements in the current situation. Anxiety, fear, guilt, shame, or even excitement could result. As shown by the placebo-pill research and by Study 5 of the last series, the amount of arousal and the attributions made about its source and meaning will determine its impact on behavior in the temptation situation.

In addition, although this point is not illustrated by our research, it seems likely that the amount of emotional arousal elicited by elements of the immediate temptation situation would affect the degree to which the moral schema becomes salient and the specific components of the schema that are seen as relevant.

We are left with a complex interaction between elements of the situation that are salient and important because of relevance to either current or past

socialization experience, the activation of some aspects of the moral schema by those elements, and the activation of emotional arousal by those elements. All these variables may have simple and interactive influences on all others; for example, both the initial intensity of the emotional response and the initial attributions concerning its source and meaning may influence, in turn, the search for either other relevant elements in the situation or aspects of the moral schema that bear on this situation. Out of this dramatic complexity one clear prediction remains: The meaning eventually accorded to the emotional experience in the temptation situation will play a major role in subsequent behavior.

#### *Relating this research to dissonance and extinction research*

It is useful to consider this model in the light of the similar work of Zanna and Cooper (1974) concerning the role of emotional tension in dissonance. They demonstrated that emotional arousal mediates attitude change when cognitions about attitude and about past behavior are dissonant unless that emotional arousal is misattributed to an irrelevant source. In our research, potentially similar dissonance was faced by our subjects before their behavioral decision. The "dissonance" centers around some aspect of the moral schema and the conflicting temptation to behave in a manner discrepant with that schema. As long as the resultant emotional arousal is experienced before the transgression, the emotional tension usually will be more easily resolved by resisting the behavior rather than by changing the moral schema. However, as with the dissonance research, where attributions of emotional arousal to an irrelevant source allow the dissonant elements to coexist without attitude change, emotion misattribution to irrelevant elements in the face of temptation apparently allows both the transgression and the contradictory moral schema to coexist.

But the coexistence of transgression and contradictory moral schemas will not be maintained indefinitely in the context of emotional tension thought to be irrelevant. The findings of Loftis and Ross (1974) suggested that the post-conditioning misattribution of emotional tension to an irrelevant source leads to the more rapid extinction of the conditioned emotional response. In moral dilemma situations, the repeated attribution to fear of punishment (when punishment is perceived as impossible) should lead to at least partial elimination of tension in the face of similar future temptations.

#### *Further research on self-control with children*

Our research program with children has led to some recent failures, which we hope will prove to be as heuristic as our initial "failures" in the adult series just described. That is, we have used a procedure similar to that used with

children just described, but have attempted to present emotion-attribution messages in a form that does not relate directly to the temptation task in which they will be engaged. We have been telling stories of temptation successfully or unsuccessfully resisted, with the emotional response of the hero following success or failure and the emotion-attribution messages emphasized (e.g., "he felt very bad that he did not do what he was supposed to, even though no one ever found out" as an internal message and, as an external message, "she felt very good that her mother and father knew what a good job she had done"). To apply these messages to their own subsequent temptation, children must translate them into abstract terms (we supply some help in this initial transition) and apply them to the specific concrete situation in which they find themselves. Children in grades two through seven have not been successful in doing this, as no between-condition behavior differences have yet been demonstrated in that research. However, some recent research by Rachel Karnoil (personal communication) has led us to speculate about the potential source of our problems. Karnoil has demonstrated that the degree of post-transgression guilt experienced by children (as assessed in fantasy projection) does not relate to their actual resistance to temptation. She makes a strong and convincing case that for young children there is not necessarily any relationship between post-transgression emotions and emotional states experienced as inhibitory during or prior to the contemplation of transgression. Although she did not measure post-transgression guilt in response to exactly the same behavior as the subsequent temptation, this research does suggest that the automatic transition from post-transgression arousal, induced initially by confrontation with socialization figures, to inhibiting arousal may be later in development than I had previously believed. These ideas suggest that the most effective emotion-attribution messages for parents to give in the context of confrontation over transgression might involve describing the future feelings of children in similar temptation situations in addition to labeling current emotional feelings.

### **A developmental perspective**

In this section, I will discuss in a more speculative form how the changing patterns of socialization of parents and the maturing symbolic capacity of the child lead to changing patterns of emotional intensity and attributions as the child develops.

With very young children, the learning of prohibitions against injuring younger siblings or animals is often an important concern. In such socialization encounters, the sheer intensity of the emotional response evoked by confrontation with parents over transgression is crucial. That is, when the child with very rudimentary symbolic capacity confronts a similar future "temptation," the sheer volume of inhibiting emotional reaction in contrast to the positive desire (as in a classic approach-avoidance conflict from animal research) determines

the outcome. As the child develops, just as the learning of language allows a cognitive symbolization of environmental (and behavioral) objects and events, a parallel symbolization of emotional response develops. That is, instead of the older child relying on the sheer intensity of inhibiting emotion to resist temptation, the symbolic representation of the transgression can lead to a similarly symbolic (or token) level of emotional arousal. At this point in development, even though the "approach gradient" toward a "sin of commission" may be very high, the child can understand the token inhibitory emotional response as a sign the intensity of emotional response that would develop if the transgression were to be actually undertaken (and/or if detection were to result). Just as the purely cognitive representation of a delayed goal may allow the older child to delay immediate gratification (even without visualizing and reexperiencing all the wonders of the greater but delayed goal), the symbolism of small levels of emotional arousal allows the resistance of even mighty temptations without reexperiencing the horrors of a fully developed negative emotional response (depending upon the attributions made, as discussed in the earlier part of the chapter). No longer dependent upon the reactions of parents, the experienced levels of emotional tension are usually sufficiently small so that they are neither "aversive" as they develop nor particularly "reinforcing" as they decline but instead serve only to forecast symbolically the aversive emotional response that might develop with transgression.

Given that I am now invoking very small levels of emotional arousal, which may be experienced as shame (given external attributions) or as guilt (given internal attributions), would it not be more parsimonious and reasonable to abandon the emotion-as-symbol approach entirely in favor of verbal symbolic processes within the developing child? That question is quite close to the one with which I began this research program, hardly believing that people of college age would rely upon either token or large emotional responses in making judgments about such behaviors as cheating. Yet the research has provided an answer (as has the research of Schachter and Ono, who increased cheating rates through the tranquilizer chlorpromazine; reported in Schachter & Latané, 1964). Particularly for the placebo-pill research, it is difficult to pose an appealing alternative interpretation to the observation that emotion and emotion attributions play a major role.

### *The role of socialization intensity*

Whereas in the foregoing sections of this chapter I considered the role of the *type* or quality of socialization procedure used in shaping the emotion attributions that developing children would make in the face of temptation, the intensity or quantity of socialization may also impact such attributions. Those forces impact the normal child's developing attributions in a way that may reinforce internal emotion attributions for intensely socialized dilemmas but stimulate

external emotion attributions for temptations that have been weakly socialized. In this section, intense or strong socialization refers to pressures from socialization agents that are neither more nor less internal or external in their focus than less rigorous or intense socialization but nevertheless evoke substantially more intense and enduring emotional responses.

Remember the logic of self-perception theory. The individual makes an analysis of those factors that apparently influenced his or her own behavior – an analysis based upon the same observations available to the onlooker. In my extension of that approach to emotional events, I propose that the emotional state itself will be attributed to internal causes when it is experienced for an extended period of time in the absence of obvious external causes. Consider the child who has been strongly socialized for episodes of lying. Following an apparently undetected subsequent lie, the child may experience an extended negative emotional response. The high intensity and long duration of the emotional response should motivate continued searches for understanding. But if no punishment or other salient external element is present in this episode, it is likely that the child may come to believe that the extended emotional response is due to internal causes – his or her revulsion for telling the lie.<sup>1</sup> On the other hand, when the child is weakly and infrequently socialized for a specific class of transgression, the emotional response subsequent to an episode of transgression in that category will be weak and uncertain. The failure of a significant emotional response when the child is “getting away with it” provides further evidence to the child that the proper attribution for any emotional response in like episodes (when parents may have intervened) was indeed external. This approach would predict that many of the weakly taught moral lessons of our youth should be soon forgotten (because of the quick extinction of emotional responses with external attribution, as discussed above), but that the strong ones should go with us to the grave.

### *The role of temperament*

This same logic leads to the view that individuals with different temperaments should similarly gravitate toward different emotion-attributional styles. That is, for the child who easily experiences high levels of emotional tension, a kind of attributional inevitability may foster internal attributions about transgression-inhibiting emotion, even in the absence of socialization agents specifically fostering such internal attribution. Such a child would experience his or her intense and lingering emotional tension following transgression as a result of his or her own sins, so that such individuals should frequently be guilt-ridden. The vast clinical literature on depression is, of course, supportive of this conclusion, since many chronically depressed individuals indicate high frequencies of guilt-laden thoughts.<sup>2</sup>

On the other hand, the child with only a slight tendency to experience any negative emotional responses will "condition" poorly even in the face of strong socialization practices and will often inspire harsh and repressive measures from parents. Such harsh punishment provides salient external stimuli to which the emotional responses may be attributed. But the failure of a significant emotional response to develop when the child is "getting away with it" provides further evidence to the child that the proper attribution for the emotional response in other episodes (when the socialization agent intervened) was indeed to the external cause. Thus, whereas the easily conditioned child may form increasingly internal emotion attributions, the unperturbable child may form increasingly external attributions, even in response to similar socialization techniques.

This logic would predict a population distribution of morality that would differ from the traditional bell-shaped curve. That is, with intensity of emotional experience and attributional tendencies not being additive but interactive, so that anxious individuals adopt internal emotion attributions and unperturbable people become external, a flattened curve, or even a trichotomous distribution, would be predicted, with (in the case of the trichotomous result) a major "bell" in the middle and two upturns on either end that would designate individuals who are either guilt-ridden, anxious, and depressed or psychopathic.<sup>3</sup>

### **Physiological dispositions and personality**

If the foregoing speculations about the relationship of temperament to moral decision making have merit, there should be some research support. In fact, no research has been completed directly linking a tendency to form internal attributions about emotion in moral decision making with any aspect of temperament or personality. In the preceding section, I suggested that those with a more emotionally responsive temperament would become more internal. If we can assume that being more internal in emotion attributions (within the normal range) leads to the perception by others that one is better socially adjusted (by virtue of demonstrating appropriate levels of *self-control*), then indirect support for the basic relationship would be achieved by demonstrating a link between high emotional responsivity and positive social adjustment.

Relevant to this issue of psychological responsivity and positive personality (or adjustment) characteristics, three branches of research do exist. One branch of that research, undertaken largely in Europe, indicates that within individuals, increases in the catecholamines adrenaline and noradrenaline in the context of challenge or stress are correlated with many positive characteristics of temperament and personality. The second branch of relevant research demonstrates relationships between the physiological responsivity of the sympathetic nervous system and positive personality characteristics. Finally, work with psychopathic individuals suggests similar relationships.

Concerning the first branch of this research, high catecholamine levels during stress or high catecholamine level increases from control conditions to stress conditions have been associated with: high "ego strength" or greater "adaptive capacity or stress tolerance" in American male college students (Roessler, Burch, & Mefferd, 1967); low neuroticism and low experience of day-to-day stress for Swedish male college students (Forsman, 1980); more trust, less apprehension, and less anxiety (measured on Cattell's Sixteen Personality Factors Inventory) for Finnish male high school students, and low psychosomatic symptomatology for both male and female Finnish high school students (Raustevon Wright, von Wright, & Frankenhaeuser, 1981); better ratings by teachers of social adjustment and emotional stability and more school satisfaction for 12-year-old Swedish girls and boys (Johansson, Frankenhaeuser, & Magnusson, 1973). Finally, in contrast to the substantial catecholamine increases of normal criminals as they experienced the approach of their trial dates, psychopathic criminals showed no such catecholamine increases (Frankenhaeuser, 1979).

The literature just cited is not an exhaustive review of the research showing positive relationships between catecholamine increases in stress or challenge and positive personality characteristics. Although it is compatible with major approaches to undersocialization and psychopathy to assume that catecholamine deficits may be associated with those states, finding that such deficits may be associated with anxiety and other forms of maladjustment is not as easily incorporated into most existing theories. However, to ease that problem, Johansson and Frankenhaeuser (1973) found that whereas improved performance accompanied catecholamine increases, neuroticism was identified with slow recovery (return to catecholamine base line) following stimulation.

Investigators of the second branch of research linking arousal indexes to temperament, who are largely American, have measured direct indices of the activity of the sympathetic branch of the autonomic nervous system and have come to similar conclusions about arousal and positive personality dimensions and/or socialization. J. Schachter and his associates (1965) found that for a sample of 46 college males, intimacy and involvement (a trait correlating .61 with tolerance for anxiety) was positively correlated with both heart-rate variability and skin-conductance levels under stress. They concluded that those subjects with calm temperaments showed the highest physiological reactivity to stress. Valins (1967) found similar results. The most important study for our purposes was that of Waid (1976), who found that skin-conductance responses to both signaled and unsignaled noxious stimuli were positively correlated with level of socialization as measured by the California Personality Inventory.

Concerning the third branch of research linking arousal to temperament, physiological response patterns have been related to psychopathy by Mednick (1977). Mednick was primarily interested in high-rate offenders and those



diagnosed as psychopathic (in Denmark where extensive records are maintained, allowing this type of research). To assess autonomic activity recovery, Mednick focused on the electrodermal response and the speed of recovery from that response (EDRec). Having measured autonomic characteristics in a large population of Copenhagen males in a longitudinal study, Mednick noted that the EDRec was slower in those 36 men who subsequently violated the penal code and slowest of all for those 9 individuals who were diagnosed as psychopathic. Mednick also noted a high heritability component for EDRec, with the children of criminal fathers showing a pattern significantly like their criminal fathers (contrasted to noncriminal fathers and their children). (Similarly, the number of skin-conductance responses was almost double for the children of the non-criminals, indicating more orienting responses to the cues presented.) In studying maximum-security prisoners identified as psychopathic, Hare (cited in Mednick, 1977) has found similar correlations of EDRec and psychopathy.

Taken together, the three lines of research suggest the conclusion we had been looking for: That indices of increased physiological responsivity, suggesting greater ease in the learning of emotional responses, are positively related to positive personality dimensions and to level of socialization.

### **A return to basic issues in emotion theory**

Let us return to the question of a dimensional theory of emotion emphasizing peripheral visceral feedback. Although the initial research using placebos suggested support for the peripheral feedback version of a dimensional theory of emotion, the independent manipulation in the research with children, which discussed "feeling good" or "feeling bad," allowed other interpretations. Subsequently, the final series of studies presented internal and external manipulations to college students in a textual format that described "emotional tension" rather than specific peripheral symptoms. The positive results of Study 5 in that series indicated that emotion attribution to an external source (previous punishment) facilitated cheating; that finding suggests strongly that the peripheral-dimensional language of the initial placebo studies was not essential. Of course, if that peripheral-symptom language was not essential in the early placebo cheating studies of our series, it probably was similarly nonessential in all the other noise-attribution and pill-attribution studies that appeared to support the peripheral-dimensional view. I now suspect that upon being told that peripheral arousal symptoms may be increased by a placebo, the research subject associated those systems (of muscle tension, pounding heart, face feeling flushed, and stomach "butterflies") with tension and/or anxiety and then understood the message to be that *feelings of emotional tension* would be pill-induced. Given this interpretation, I suspect it would have been as effective a technique for inducing emotion misattribution to have

suggested symptoms relevant to muscle tension in facial areas ("you may begin to experience feelings of tension in your brow and jaw"). The findings in the dissonance literature, cited earlier, that a central tranquilizer was similar in effect to misattribution of "peripheral" arousal symptoms and that the misattribution of peripheral relaxation symptoms achieved effects similar to a central stimulant support this line of reasoning. Together, these observations suggest modifications of emotion-attribution theory away from the "classic" notion that one's understanding of the causes of one's peripheral arousal symptoms determines the quality of the emotion experienced. I would suggest instead that *one's ideas about the source and meaning of one's emotional experience determine* (to some extent, with caveats to be elaborated) *the quality of that experience and the impact of that experience on behavior.*

Necessary modifications to peripheral-dimensional theory have been prompted by recent experimental efforts that have identified increasing emotional arousal with more negative than neutral emotional tone (i.e., Marshall & Zimbardo, 1979; Maslach, 1979). Although those data suggest that one should not assume that an emotional state is merely "standard" undifferentiated arousal with a specific cognitive label, some of the research cited earlier shows that arousal induced by startle, exercise, and acrophobia can contribute to increased attraction toward others, increased sexuality in stories, and so on. These data strongly suggest that negative rather than neutral undifferentiated arousal can still contribute to a positive emotion if the environmental elements fostering that attribution are strong and salient. That is, in the context of those strong environmental cues, prior arousal from the sources described leads to increases on the dependent measure dimensions to a greater extent than if no prior arousal has been established. Elements within the individual similarly foster or inhibit such an emotional attribution. (For a detailed discussion of the parameters affecting emotion attribution, see Dienstbier, 1979b.)

Concerning studies favoring the facial-feedback hypothesis, usually attributed to discrete emotion theorists, several studies that bear on the issue have recently appeared. While Torangeau and Ellsworth (1979) were unable to show any impact of feedback from facial expressions when their subjects held a facial expression for an extended time period, Zuckerman and his colleagues (1981) found strong evidence that both the experience of emotion and various peripheral autonomic arousal indexes increased when subjects exaggerated their facial responses (in response to short films), as contrasted with either neutral instructions or instructions to minimize facial responses. Similarly, Laird and his associates (1982) have found that cognitions are influenced by facial expressions in the direction of emotional tone compatible with the expression assumed.

As I have discussed more extensively elsewhere (Dienstbier, 1979b), it is apparent that there are components of arousal similarity between the various

emotional states characterized generally by sympathetic nervous system arousal, just as there are obviously components that are different (such as facial expression). Whether one focuses on the similarities and works with questions best answered from a theoretical stance, which emphasizes those similarities (such as has been my research approach), or whether one focuses on the differences and emphasizes compatible research and theoretical positions, the "opposing" theoretical position is not even addressed. I would suggest, however, that just as Laird and Crosby (1974) have suggested that individual differences may exist in sensitivity to facial feedback, similar between-individual differences probably exist for responsivity to more general forms of arousal.

Similarly, although no convincing data exist (to my knowledge) on this point, I strongly suspect that the degree to which facial or autonomic feedback plays a relatively larger role in the experience of emotion depends upon which emotional state we focus upon. Working within the framework of discrete theories for a moment, if one focuses upon the probable origins of certain emotional states in terms of the major adaptive functions they evolved to serve, some strong hints as to likely sites of important feedback emerge. (See Scott, 1980, or Plutchik, 1962, for theories emphasizing the adaptive utility of emotional states.) For example, I would expect that feedback from the region of the mouth, throat, and esophagus would be extremely important in the experience of disgust (thought to relate originally to the rejection of tainted food), whereas the importance of genital feedback in advanced states of sexual arousal (certainly more appropriately thought of as an emotion than a traditional "drive," since it is evoked more by external stimuli than by internal physiological needs) seems obvious.

On the other hand, the emotional states with which I have been most concerned in thinking about the inhibition of temptation are quite different. Anxiety is thought to arise in circumstances where neither a clearly definable cause nor an obvious response are available; predictably, the facial response is not generally emphasized, in contrast to the sympathetic and hormonal arousal character of anxiety. From an adaptive standpoint, this balance makes good sense, as the organism that feels vaguely uneasy has nothing to combat, nor an obvious direction available in which to flee, nor specifics about which to communicate with others of its kind. But an increase in general arousal, probably supported by long-term hormonal responses, will facilitate the long-term vigilance that may be necessary for safety and, in the context of a developed culture, the avoidance of temptation.

This research program has not specifically addressed the issue of arousal balance between cortical, peripheral autonomic and peripheral muscular facial locations. Despite our inability to know with precision what specific events in our brains and bodies contribute to our experiences of anxiety, fear, shame, and guilt, it is apparent that such emotional states profoundly influence our

behavior in temptation situations and that those emotional states and their impact on behavior greatly depend upon the attributions made about their meaning and origin.

## Summary

Following an introduction of some modern theoretical issues in the area of emotion and the development of peripheral-dimensional theory and research, a brief review of literature is presented showing the impact of the intensity of emotional arousal on moral decision making. Several studies are then presented that were designed to demonstrate that one's interpretation of the meaning of emotional arousal moderates the effectiveness of the arousal in facilitating resistance to temptation. Using a paradigm in which emotional symptoms were misattributed to a placebo pill (or not, in the control group), it was shown that cheating on a vocabulary test was significantly increased by the misattribution to the pill of symptoms of peripheral arousal.

Following another brief review of related emotion-attribution research based upon hypotheses derived from a peripheral-dimensional approach to emotion, some conflicts are highlighted in what seems at first to be a smooth progression of support for the peripheral-dimensional approach.

Presented next is a series of studies on self-control with children, in which the experience of emotion (feeling good or bad) was attributed to "internal" (the child's own behavior) or to "external" (others knowing about the child's behavior) causes. The attribution of emotional experience to internal causes was shown to have powerful self-control facilitating effects on difficult watching assignments in "detection-proof" situations. Those findings are discussed in relation to the larger literature on moral socialization.

A third research series is then presented that demonstrates that adult cheating rates too may be affected by giving adults different explanations of the meaning of emotional experiences in moral decision making. In the context of a reading-comprehension test, when adults read that the tension experienced during temptation is a sign that one may be about to violate one's own values, they cheated less on a subsequent vocabulary test than if they had read that emotional tension during temptation is related to past (often currently irrelevant) punishment. We concluded that, as with self-control in children, the meaning adults attribute to their emotional response (not peripheral-arousal symptoms) is crucial in self-control. This section concludes with a discussion of the interaction of moral schemas and emotion-attribution processes during moral decision making.

The role of emotion in resistance to temptation is then discussed from a developmental perspective. Explanations are advanced for how the progression from more intense emotional responses in younger children to the more symbolic and mild representations of emotional states in adults may still result in emotion-

mediated self-control. Approaches to socialization that facilitate a more internal basis for conscience are discussed, and the role of inherited temperament differences in fostering internal and external emotion-attribution dispositions is discussed. Subsequently, some evidence from the research of others concerning the possible link between temperament and internality is presented and discussed.

Finally, the broad theoretical issues concerning the nature of emotion with which the chapter began are reengaged in light of the evidence from our research. The state of the evidence concerning the importance of arousal feedback from different body areas is discussed, and conclusions are discussed concerning the relative merit of dimensional and discrete approaches to emotion.

## Notes

- 1 The research of Zillmann and his colleagues has suggested a similar process for exercise-induced arousal. When subjects mistakenly believed that they had recovered from that lingering arousal, they misattributed it to such "internal" sources as their valuing of aesthetic stimuli, the entertainment value they perceived in a film, and their own anger (Zillmann et al., 1974; Cantor et al., 1975).
- 2 It should be noted that this represents a causal emphasis between emotion and cognition in depression that is opposite to that popularized by Beck (1967). I am suggesting that the ongoing emotional state of depression can cause an increased frequency of emotion-compatible cognitions and that guilt (rather than shame), as an emotion compatible with internal emotion attributions, is a natural product of a lingering negative emotional state. Although this view is compatible with recent work on the impact of emotion and memory (e.g., Bower, 1981; Laird et al., 1982), it is not offered as a replacement for the causal direction emphasized by Beck but as an addition to that opposite causal view.
- 3 With respect to this prediction of psychopathic behavior, it should be noted that several recent studies of crime (e.g., Mednick, 1977; Yochelson & Samnow, 1976) have concluded that most crimes in civilized societies are committed by a very small number of individuals, representing 1% or 2% of the total population.

## References

- Aronson, E., & Carlsmith, J. M. Effect of the severity of threat on the devaluation of forbidden behavior. *Journal of Abnormal and Social Psychology*, 1963, 66, 584-588.
- Beck, A. T. *Depression: Clinical, experimental and theoretical aspects*. New York: Harper & Row, 1967.
- Bem, D. J. Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 6). New York: Academic Press, 1972.
- Bower, G. H. Mood and memory. *American Psychologist*, 1981, 36, 129-148.
- Cantor, J. R., Zillmann, D., & Bryant, J. Enhancement of experienced sexual arousal in response to erotic stimuli through misattribution of unrelated residual excitation. *Journal of Personality and Social Psychology*, 1975, 32, 69-75.
- Cooper, J., Zanna, M. P., & Taves, P. A. Arousal as a necessary condition for attitude change following induced compliance. *Journal of Personality and Social Psychology*, 1978, 36, 1101-1106.
- Dienstbier, R. A. The role of anxiety and arousal attribution in cheating. *Journal of Experimental Social Psychology*, 1972, 8, 168-179.
- Dienstbier, R. A. Attraction increases and decreases as a function of emotion-attribution and appropriate social cues. *Motivation and Emotion*, 1979, 3, 201-218. (a)

- Dienstbier, R. A. Emotion-attribution theory: Establishing roots and exploring future perspectives. In H. E. Howe, Jr., & R. A. Dienstbier (Eds.), *Nebraska symposium on motivation* (Vol. 26), Lincoln: University of Nebraska Press, 1979. (b)
- Dienstbier, R. A., Hillman, D., Lehnhoff, J., Hillman, J., & Valkenaar, M. C. An emotion-attribution approach to moral behavior: Interfacing cognitive and avoidance theories of moral development. *Psychological Review*, 1975, 82, 299-315.
- Dienstbier, R. A., Kahle, L. R., Willis, K. A., & Tunnell, G. B. The impact of moral theories on cheating: Studies of emotion attribution and schema activation. *Motivation and Emotion*, 1980, 4, 193-216.
- Dienstbier, R. A., & Munter, P. O. Cheating as a function of the labeling of natural arousal. *Journal of Personality and Social Psychology*, 1971, 17, 208-213.
- Dutton, D. G., & Aron, A. P. Some evidence for heightened sexual attraction under conditions of high anxiety. *Journal of Personality and Social Psychology*, 1974, 30, 510-517.
- Forsman, L. Habitual catecholamine excretion and its relation to habitual distress. *Biological Psychology*, 1980, 11, 83-97.
- Frankenhaeuser, M. Psychoneuroendocrine approaches to the study of emotion as related to stress and coping. In H. E. Howe, Jr., & R. A. Dienstbier (Eds.), *Nebraska Symposium on Motivation* (Vol. 26). Lincoln: University of Nebraska Press, 1979.
- Heider, F. *The psychology of interpersonal relations*. New York: Wiley, 1958.
- Hoffman, M. L. Moral development. In P. H. Mussen (Ed.), *Carmichael's manual of child development* (Vol. 2; 3rd ed.). New York: Wiley, 1970.
- Hoffman, M. L. Moral internalization: Current theory and research. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10). New York: Academic Press, 1977.
- Izard, C. E. *The face of emotion*. New York: Appleton-Century-Crofts, 1971.
- Izard, C. E. *Human emotions*. New York: Plenum, 1977.
- Izard, C. E., & Tomkins, S. S. Affect and behavior: Anxiety as a negative affect. In C. D. Spielberger (Ed.), *Anxiety and behavior*. New York: Academic Press, 1966.
- Johansson, G., & Frankenhaeuser, M. Temporal factors in sympatho-adrenomedullary activity following acute behavioral activation. *Biological Psychology*, 1973, 1, 63-73.
- Johansson, G., Frankenhaeuser, M., & Magnusson, D. Catecholamine output in school children as related to performance and adjustment. *Scandinavian Journal of Psychology*, 1973, 14, 20-28.
- Karalowski, J. Personal communication, 1978.
- Karnoil, R. Personal communication regarding her work with children in Israel, 1982.
- Konecni, V. J. The mediation of aggressive behavior: Arousal level versus anger and cognitive labeling. *Journal of Personality and Social Psychology*, 1975, 32, 706-712.
- Laird, J., & Crosby, M. Individual differences in self-attribution of emotion. In H. London & R. E. Nisbett (Eds.), *Thought and feeling*. Chicago: Aldine, 1974.
- Laird, J. D., Wagener, J., Halal, M., & Szegda, M. Remembering what you feel: Effects of emotion on memory. *Journal of Personality and Social Psychology*, 1982, 42, 646-657.
- Lepper, M. R., Greene, D., & Nisbett, R. E. Undermining children's intrinsic interest with extrinsic reward: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology*, 1973, 28, 129-138.
- Lindsley, D. B. The role of nonspecific reticulo-thalamo-cortical systems in emotion. In P. Black (Ed.), *Physiological correlates of emotion*. New York: Academic Press, 1970.
- Loftis, J., & Ross, L. Retrospective misattribution of a conditioned emotional response. *Journal of Personality and Social Psychology*, 1974, 30, 683-687.
- Mandler, G. *Mind and emotion*. New York: Wiley, 1975.
- Marshall, G., & Zimbardo, P. G. Affective consequences of inadequately explained physiological arousal. *Journal of Personality and Social Psychology*, 1979, 37, 970-988.
- Maslach, C. Negative emotional biasing of unexplained arousal. *Journal of Personality and Social Psychology*, 1979, 37, 953-969.

- Mednick, S. A. The biosocial theory of the learning of law-abiding behavior. In S. A. Mednick & K. O. Christiansen (Eds.), *Biosocial bases of criminal behavior*. New York: Gardner Press, 1977.
- Nisbett, R. E., & Schachter, S. Cognitive manipulation of pain. *Journal of Experimental Social Psychology*, 1966, 2, 227-236.
- Nowlis, V. Personal communication regarding the Rochester drug studies, 1968.
- Perry, D. G., & Perry, L. C. Social learning, causal attribution and moral internalization. In C. Brainerd (Ed.), *Advances in cognitive development*. New York: Springer-Verlag, in press.
- Plutchik, R. *The emotions: Facts, theories, and a new model*. New York: Random House, 1962.
- Rauste-von Wright, M., von Wright, J., & Frankenhaeuser, M. Relationships between sex-related psychological characteristics during adolescence and catecholamine excretion during achievement stress. *Psychophysiology*, 1981, 18, 362-370.
- Rodin, J. Menstruation, reattribution, and competence. *Journal of Personality and Social Psychology*, 1976, 33, 345-353.
- Roessler, R., Burch, N. R., & Mefferd, R. B. Personality correlates of catecholamine excretion under stress. *Journal of Psychosomatic Research*, 1967, 11, 181-185.
- Ross, L., Rodin, J., & Zimbardo, P. G. Toward an attribution therapy: The reduction of fear through induced cognitive emotional misattribution. *Journal of Personality and Social Psychology*, 1969, 12, 279-288.
- Ross, M., & Olson, J. M. An expectancy-attribution model of the effects of placebos. *Psychological Review*, 1981 88, 408-437.
- Schachter, J., Williams, T. A., Rowe, R., Schachter, J. S., & Jameson, J. Personality correlates of physiological reactivity to stress: A study of forty-six college males. *American Journal of Psychiatry*, 1965, 121, 12-24.
- Schachter, S., & Latané, B. Crime, cognition, and the autonomic nervous system. In D. Levine (Ed.), *Nebraska symposium on Motivation* (Vol. 12). Lincoln: University of Nebraska Press, 1964.
- Schachter, S., & Singer, J. E. Cognitive, social, and physiological determinants of emotional state. *Psychological Review*, 1962, 69, 379-399.
- Schachter, S., & Wheeler, L. Epinephrine, chlorpromazine, and amusement. *Journal of Abnormal and Social Psychology*, 1962, 65, 121-128.
- Scott, J. P. The function of emotions in behavioral systems: A systems theory analysis. In R. E. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research and experience*. New York: Academic Press, 1980.
- Tomkins, S. S. *Affect, imagery, consciousness*, Vol. 2: *The negative affects*. New York: Springer-Verlag, 1963.
- Tourangeau, R., & Ellsworth, P. C. The role of facial response in the experience of emotion. *Journal of Personality and Social Psychology*, 1979, 37, 1519-1531.
- Valins, S. Emotionality and autonomic reactivity. *Journal of Experimental Research in Personality*, 1967, 2, 41-48.
- Waid, W. M. Skin conductance response to both signaled and unsignaled noxious stimulation predicts levels of socialization. *Journal of Personality and Social Psychology*, 1976, 34, 923-929.
- Yochelson, S., & Samnow, S. E. *The criminal personality*, Vol. 1: *A profile for change*. New York: Aronson, 1976.
- Younger, J. C., & Doob, A. N. Attribution and aggression: The misattribution of anger. *Journal of Research in Personality*, 1978, 12, 164-171.
- Zajonc, R. B. Feeling and thinking: Preferences need no inferences. *American Psychologist*, 1980, 35, 151-175.
- Zanna, M. P., & Cooper, J. Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *Journal of Personality and Social Psychology*, 1974, 29, 703-709.

- Zillmann, D., Johnson, R. C., & Day, K. D. Attribution of apparent arousal and proficiency of recovery from sympathetic activation affecting excitation transfer to aggressive behavior. *Journal of Experimental Social Psychology*, 1974, 10, 503-515.
- Zillmann, D., Katcher, A. H., & Milavsky, B. Excitation transfer from physical exercise to subsequent aggressive behavior. *Journal of Experimental Social Psychology*, 1972, 8, 247-259.
- Zuckerman, M., Klorman, R., Larrence, D. T., & Spiegel, N. H. Facial, autonomic, and subjective components of emotion: The facial feedback hypothesis versus the externalizer-internalizer distinction. *Journal of Personality and Social Psychology*, 1981, 41, 929-944.



Published in *Emotions, cognition, and behavior: Based, in part, on workshops sponsored by the Committee on Social and Affective Development During Childhood of the Social Science Research Council*, edited by Carroll E. Izard, Jerome Kagan, and Robert B. Zajonc. Cambridge: Cambridge University Press, 1984. Pages 484–514.

Copyright © 1984 Cambridge University Press.

Used by permission.