

Valins S. Cognitive effects of false heart-rate feedback.
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Male subjects heard sounds portrayed as their hearts beating while viewing slides of seminude females. Subsequent measurements indicated that subjects were most attracted to females if these "heart rates" had changed in response to the slides. Physiological reactions can serve as a source of information that influences emotional behavior. [The *Social Sciences Citation Index*® (SSCI®) indicates that this paper has been cited in over 195 publications.]

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As a graduate student at Columbia University, I worked with Stanley Schachter exploring the implications of his cognitive and physiological theory of emotion.¹ My master's and doctoral research revealed a puzzling pattern of data: dispositionally unemotional individuals were manifesting higher heart rates in response to emotional stimuli. Our theory had led us to assume that such individuals were unemotional because of diminished physiological responsivity, and, along these lines, it had been demonstrated that they became more emotional when injected with the cardiac accelerator epinephrine.

Faced with these data and a history of curiosity about the meaning of perceptible variations of my own heart, I developed the idea that physiological reactions are relevant to the development of emotion only when they are perceived and used as a source of information. Unemotional individuals may not perceive or label these reactions, and emotional individuals may perceive and label nonexistent reactions. Thus, perceptions of physiological reactions could be nonveridical, and these perceptions might be more emotionally relevant than actual physiological reactions. The experiment

that resulted in my first publication showed that false heart-rate feedback influenced emotional judgments and behavior just as real heart-rate feedback might do.

This study was subsequently reprinted in several books and has been frequently cited because it helped bridge the gap between work on social perception and self-perception. This unification of two research traditions became known as attribution theory—a set of ideas that guided social psychology throughout the 1970s. The determinants and consequences of explanations of our own and others' behavior became a popular focus of study that is part of the cognitive revolution in psychology.

The research also generated considerable interest as a result of my emphasizing its relevance to the development and treatment of emotional disorders. Incorrect explanations of the causes of one's own behavior could lead to maladaptive emotional behavior. By correcting these explanations or supplying new ones, the psychotherapist might improve the emotional state of the individual. Applying these ideas to problems faced by the largest subgroup of psychologists certainly enhanced the article's influence. Clinical psychologists had applied traditional learning theories about as far as possible and were ready to adopt the sort of cognitive approach that could be grounded in current experimental research.

A third source of influence had to do with the development of the field of psychophysiology. In graduate school, I had counted heart beats of rats and humans one-by-one as they were recorded by the polygraph. More sophisticated techniques were evolving and people were grappling with the psychological significance of these measures. My false-feedback experiment challenged researchers who were committed to the importance of physiological measurements and led to speculation about how this kind of feedback affected actual heart rate.²

Finally, the experiment was popular because it realistically and easily manipulated cognitions about arousal and assessed effects in a somewhat flashy manner. By selecting nudes from *Playboy* magazine as alleged causes of heart-rate changes, I tapped into a basic interest that had become even more topical given the sexual revolution of the 1960s.

1. Schachter S. *Emotion, obesity, and crime*. New York: Academic Press, 1971. 195 p. (Cited 180 times.)
2. Parktesson B. Emotional effects of false autonomic feedback. *Psychol. Bull.* 98:471-94, 1985.