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### SOCIOPSYCHOPHYSIOLOGY

Sociopsychophysiology, or social psychophysiology as it is more often called, is characterized by the use of noninvasive procedures to study the relationships between actual or perceived physiological events and the verbal or behavioral effects of human association. The field represents the intersection of social psychology and psychophysiology. Social psychology, the older of the two spawning disciplines, is directed toward understanding the reportable and behavioral effects of human association, whereas psychophysiology employs noninvasive procedures to study the interrelationships between physiological events and a person's reportable or overt behavior. Social psychology is generally partitioned into conceptual areas of research (e.g., attitudes, aggression, altruism) and is replete with abstract theories based largely on verbal data. Psychophysiology, in contrast, is generally partitioned into anatomical areas of research (e.g., cardiovascular, gastrointestinal) and is laden with sophisticated physiological measures, instrumentation, and observations with uncertain psychological significance. Social psychophysiology has emerged from these disparately focused disciplines for the purposes of understanding the psychological significance of physiological events and explaining complex behaviors in biological terms.

The perspective on human behavior epitomized by social psychophysiology is quite old. It dates back to at least the third century B.C., when a young man named Antiochus had the fortune of being the son of one of Alexander the Great's leading generals and the misfortune of falling in love with his father's young and beautiful bride. Antiochus realized that his love for his stepmother would never be realized and he tried to control his demeanor when in her presence. A mysterious malady soon befell Antiochus; he occasionally suffered profuse sweating, stammering speech, pallor, uneven heartbeat, and weakened muscles. Several physicians had tried unsuccessfully to diagnose the young man's ailment when Erasistratos, a well-known Greek physician, attended to Antiochus. To establish what particular condition triggered Antiochus' attacks, Erasistratos observed the young man's physiological signs (e.g., pulse rate) in response to various people and events. He observed that Antiochus' attacks covaried with his stepmother's visits to wish him well. Erasistratos concluded that the young man's disruptive physiological reactions were attributable to a social condition: lovesickness.

Articles bearing the imprint of a social psychophysiological perspective began appearing in the psychological literature in the 1920s with reports about the changes in the breathing of poker plays when they were bluffing and about the galvanic skin responses (GSRs) of students finding themselves possessing attitudes shared by few peers. The first summary of empirical research in social psychophysiology was published by Howard Kaplan and Samuel Bloom in 1960. The review dealt with the physiological concomitants of social status, social sanction, definition of the situation, and empathy. An optimism was expressed that the field of social psychophysiology had come of age: "In recent years sociological and social psychological concepts have been applied in physiological studies at an ever increasing rate. The acceptance and utilization of such concepts have been said to form the basis for a relatively new field of inquiry . . ." (Kaplan & Bloom, 1960, p. 133). This review appeared in the *Journal of Nervous and Mental Disorders* rather than a social science journal, perhaps because most of the research surveyed dealt with assessing therapeutic effectiveness rather than psychological processes. At about the same time, John Lacey (1959) published a critical and cogent review wherein he argued there was little consistency in the literature upon which to build bridges between psychophysiological data and psychological constructs. He went on to argue that the phenomena of individual and stimulus response stereotypy were largely responsible for the apparent inconsistency in the literature, and that these stereotypes were so pervasive that they, rather than complex therapeutic factors, should be the focus of research in the coming decade. The frequency of studies of psychophysiological measures during social interaction in therapeutic settings did indeed decline during the 1960s.

Nevertheless, investigations of the reciprocal influence of social and physiological systems began to broaden in scope and increase in number. In 1962, Stanley Schachter and Jerome Singer published their influential paper, "Cognitive, social, and physiological determinants of emotional state." The thrust of their two-factor theory of emotions was that the sensations derived from a large and unexpected increase in physiological arousal could be experienced as widely different emotions, depending upon the circumstances covarying with these sensations. Two years later, P. Herbert Leiderman and David Shapiro published a small edited book on

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*Psychobiological approaches to social behavior* that represented a different vein of research: Evidence was presented for the dramatic impact that social factors such as conformity pressures have on physiological responding.

By the turn of the next decade, psychophysiological recording had become relatively standardized. The discipline of psychophysiology had its first textbook, journal, and handbook. The second edition of the *Handbook of social psychology*, published in 1969, contained a chapter by Shapiro and Andrew Crider on "Psychophysiological approaches to social psychology" and a chapter entitled "Psychophysiological contributions to social psychology" by Shapiro and Gary E. Schwartz appeared in the *Annual review of psychology* a year later. This coverage of social psychophysiological research was not directed solely to social psychologists either, as a review by Schwartz and Shapiro entitled "Social psychophysiology" appeared in 1973 in a book on electrodermal activity compiled primarily for psychophysiol-  
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ogists. The attractiveness of psychophysiological procedures was tempered, however, by three formidable barriers: (1) the paucity of conceptual links between the psychophysiological data and social psychological constructs; (2) the technical sophistication and expensive instrumentation required to collect, analyze, and interpret psychophysiological data in social psychological paradigms; and (3) the inevitable pitting of social psychological and psychophysiological procedures against one another in studies of construct validation. For instance, psychophysiological studies designed to validate social psychological constructs (e.g., attitudes) and measures (e.g., self-report measures of attitudes) have actually led most social psychologists to avoid the psychophysiological measures, since their simpler, less expensive, and less cumbersome measures appeared, in many instances, to be just as informative.

Three distinct strategies developed for dealing with these barriers. One strategy was simply to dismiss physiological factors as irrelevant, at least at present, to the study of social cognition and behavior, and to dismiss social factors as too molar to contribute to an understanding of psychophysiological relationships. For example, Stuart Valins (1966) argued that the actual sensation of physiological arousal was not necessary, but rather the simple belief that a change in physiological arousal occurred was needed to stimulate the search for an emotional label. A second strategy was to view the physiological factor important in the study of social processes as being diffuse, perceptible changes in physiological arousal. This view provided the rationale for conducting research with little or no psychophysiological recording equipment and expertise, since it followed from this reasoning that any single physiological response, or even sensitive measures of interoceptive sensations, reflected a person's physiological arousal at any given moment. Hence psychophysiological procedures as simple as occasionally palpating the radial artery in a subject's wrist to measure heart rate or monitoring any one of a number of measures of electrodermal activity (e.g., GSR, palmar sweating) were employed in various studies as if they were equivalent measures of physiological functioning.

The third approach more often involved collaborative efforts by psychophysiol-  
ogists and social psychologists. The strategy followed was to narrow the breadth of the social issue under investigation while increasing the depth (levels) of the analysis. For instance, rather than viewing physiological arousal as the *sine qua non* of organismic influences on social cognition and behavior, specific patterns of physiological responses were conceived as reflecting and/or influencing specific social processes. Experiments exemplifying this approach are characterized by the simultaneous measurement of multiple physiological, verbal, and/or behavioral responses in a single session, and by interpretations that entertain highly specific, reciprocal, and (at least initially) biologically adaptive influences between social and physiological systems. Studies of the incipient and transient patterning of facial muscles during social interaction, impression formation, or social influence are illustrative.

The increasing utility for investigators to be informed about various levels of human behavior ranging from the physiological to the sociocultural resulted during the 1980s in John Cacioppo and Richard Petty's *Social psychophysiology: A sourcebook*, the appearance of a short edited book by William Waid entitled *Sociophysiology*, and the expansion of graduate programs in social psychology to include training in this emerging area. There was also a convergence observed among the three research strategies outlined as the barriers to social psychophysiological research were overcome.

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The nonelectrophysiological procedures developed by earlier investigators to study the effects of "arousal" on social processes, for example, posed interesting questions regarding the actual physiological basis for the obtained data. This, in turn, resulted in research on the symptoms and sensations people associate with various patterns of somatic and autonomic responses.

**FURTHER REFERENCES**

Crider, A. The promise of social psychophysiology.  
Geen, R. G., & Gange, J. J. Drive theory of social facilitation: Twelve years of research and theory.  
Kiesler, C. A., & Pallak, M. S. Arousal properties of dissonance manipulations.  
Schachter, S. *Emotion, obesity, and crime*.  
Zillmann, D. Attribution and the misattribution of excitatory reaction.

**PHYSIOLOGICAL PSYCHOLOGY (NONREDUCTIONISM)**  
**SOCIAL PSYCHOLOGY**  
**SOCIOBIOLOGY**

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