

## NEW DEVELOPMENTS IN THE SCIENTIFIC STUDY OF EMOTION:

### An Introduction to the Special Section

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Most of the great psychologists and biologists in the late 19th and early 20th centuries regarded emotion as a process of central importance to the understanding of behavior. Included among this group were Darwin, Freud, and James. Unfortunately, the empirical study of emotion was pursued only sporadically in the history of scientific psychology until quite recently. The topic lay dormant for several interrelated reasons, including behaviorism's shunning of internal states and the lack of appropriate methods to probe emotional experience, expression, and physiology.

Today, emotion research has come of age. Witness the recent proliferation of major books on this topic (Buck, 1984; Clark & Fiske, 1982; Ekman, 1982; Frijda, 1986; Gainotti & Caltagirone, 1989; Lazarus, 1991; Lewis & Michalson, 1983; Plutchik, 1980; Scherer & Ekman, 1984; Stein, Leventhal, & Trabasso, 1990; Tomkins, 1991), two journals devoted almost exclusively to this topic (*Cognition and Emotion*, *Motivation and Emotion*), the increase in number of papers on emotion published in the premier journal in social and personality psychology (*Journal of Personality and Social Psychology*), and the creation of a new society for the study of emotion (International Society for Research on Emotion). The explosion of new work in this area is due, in part, to the changing zeitgeist within psychology regarding the importance of internal states to explaining behavior and to the refinement of established procedures and the development of new methods with which to investigate emotional experience, expression, and physiology.

There have been important conceptual developments as well. Emotion is now recognized to be critically important to understanding many of the core phenomena in virtually every major subdiscipline of psychology. For example, basic research on emotion has been useful

In 1890, William James held that "... the merely descriptive literature of the emotions is one of the most tedious parts of psychology ... the general causes of the emotions are indubitably physiological" (*Principles of Psychology*, vol. 2, pp. 448-449). A century later, this "Symposium on Emotion" takes issue with the first of these propositions, finds some support for the second, and presents an overview of the now vastly larger literature.

to clinical psychology in aiding understanding of aspects of affective and anxiety disorders. In developmental psychology, the study of emotion has assumed a privileged status because a number of the most significant developmental milestones within the first two years of life are marked by affective changes. For example, the onset of fear of heights toward the end of the first year of life is a major developmental transition requiring explanation. In a number of the classic areas of experimental psychology—including attention, learning, and memory—emotion has been identified as an important and relevant construct. For example, in anatomical and neurophysiological research in animals, both the construct of emotion and brain structures identified as a substrate of emotion have been implicated in learning and memory (Aggleton & Mishkin, 1986). It is clear from this brief overview that emotion research has assumed a position of considerable importance within many different subareas of psychology. The rise in interest in emotion among investigators in these different subareas is

paralleled by a surge of basic research on emotion itself, with an emphasis in new studies on the distinctive configural and temporal patterning of multiple physiological and expressive actions during different emotional states. Thus, research on emotion is increasingly interdisciplinary and involves measurement of multiple response systems using a diverse array of technologies.

The papers contained in this Special Section are meant to offer a selective introduction to recent developments in research on emotion. The Special Section emerged out of a small meeting, held on October 7-9, 1990, on new developments in emotion research. This meeting was funded by a grant from the James S. McDonnell Foundation to the Emotion Panel, a precursor of the McDonnell-Pew Program in Cognitive Neuroscience. All the papers included in this Special Section share one common characteristic. They regard emotion as a self-organizing, integrative state that is coherent across several different response systems. Most of the research described incorporates measures of multiple response systems which reflect or underlie emotion, with a central goal being to understand the relations that inhere among different response systems in distinct emotional states. The research emphasizes social, psychobiological, behavioral, and information-processing variables since the study of these variables, particularly in combination with one another, has led to noteworthy advances in our understanding of emotion.

Space limitations precluded inclusion of several areas of contemporary research related to emotion in this set of papers. Not included, for example, are studies of the cultural determinants of emotional experience and expression, the conceptual organization of emotion, the cognitive operations underlying emotion, and the effects of emotions on the immune system, as well as neurobiologi-

ical studies in animals dedicated to elucidating the detailed neurochemistry and neuroanatomy of brain circuits that subserve emotion. We regard these as important new areas in emotion research, but the selective nature of this Special Section and the obvious space constraints prevented an exhaustive coverage of the terrain.

The past decade has been a momentous one for research on this topic. No longer relegated to a secondary role, the study of emotion is now regarded as central to many different areas of psychology. The present set of papers provides

an overview of some of the most exciting new developments in emotion research.

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