FINAL REPORT

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GROUP PROCESS UNDER DIFFERENT CONDITIONS OF SUCCESS AND FAILURE

David Shapiro, Ph.D.
Principal Investigator

Harvard Medical School
Boston, Massachusetts

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Contract No. 1866(43)
November 1, 1960 - April 30, 1969

The following report includes a brief general summary of the research carried out in this Contract, a list of associated professional staff, and a list of publications, technical reports, and theses supported by this contract. Other activities such as conferences and foreign travel are described.

Although this is a final report on the above contract, work continues under a new Contract, NOO014-67-A-0298-0026, until April 30, 1970.

The original goals of this research were to examine patterns of social interaction in small groups under different conditions of success and failure. Specifically, it was shown that social responses in groups could be manipulated by making rewards contingent upon particular patterns of interaction. For example, the degree to which an individual took initiative or leadership in decision making in a 3-person group could be increased if the outcome of the decision was to achieve reward. Other patterns of group behavior that were similarly investigated were disagreement in decision making and speech sequences.

The small group experimental studies were expanded to include the use of physiological measurements in assessing group interaction and the physiological consequences of specific roles and group role composition. It was shown, for example, that failure in a group in a given task resulted in slower habituation of physiological arousal, as measured by skin potential level, as compared to success. Persistent arousal was more likely in roles characterized by uncertainty or ambiguity. Similar psychophysiological methods were used to compare the responses of individuals to social or group situations versus conditions of social isolation. A symposium in this area held in 1963 and published in 1964 served to facilitate further developments of this kind of work and led to the inclusion of a new chapter in the 1969 revision of The Handbook of Social Psychology. The chapter is entitled "Psychophysiological approaches in social psychology," by David Shapiro and Andrew Cricer.

In the process of developing psychophysiological methodology useful in small group research, a number of technical and methodological problems had to be solved in the following areas: automatic processing of physiological data, mathematical analyses of physiological time trends, interrelation of physiological, verbal, and behavioral indices.

Early in the contract, several new directions of the research took place. The major development was research on the direct manipulation of autonomic responses by techniques of providing feedback and reinforcement contingent upon such responses. Our first publication in 1964 (Shapiro, Cricer, and Tursky) showed that skin potential responses could be increased by operant reinforcement and that these changes were independent of other autonomic indices. This research was among the first to open up a new approach to autonomic behavior and has broad implications for learning theory, practical implications for the treatment of psychosomatic disorders, and also provides...
alternative means of influencing performance by directly modifying associated physiological correlates of the performance.

Current work in the project is concerned with (a) studies in the control of autonomic responses by feedback and reinforcement, (b) studies in the consequences of autonomic functions for different kinds of human performance. In regard to the first area, the research has been extended to studies in the control of blood pressure and heart rate. These measures are probably of more central medical and behavioral significance than electrodermal activity. In regard to the second area, several studies have been completed showing that autonomic activity is nicely graded as a function of the difficulty of a paced mental task. Studies of physiological correlates of reaction time and other behavior are also in progress.

Professional Staff

Current
David Shapiro, Ph. D., Principal Investigator 1960-
Bernard Tursky, Instrumentation Engineer 1960-
Susan Shnidman, Ph. D., Associate Investigator 1967-

Former
P. Herbert Leiderman, H. D., Co-Principal Inv. 1960-1963
Andrew Krider, Ph. D., Associate Investigator 1963-1968

Publications


Technical Reports


**Theses partially supported by this contract**


**Symposium**

A symposium entitled "Psychobiological Approaches to Social Behavior" was held on April 19 and 20, 1963, at Holyoke Center, Harvard University. Papers were presented by K. Back and M. Bogdonoff; A. Couch; H. Gerard; M. Horwitz; H. Kaplan, N. Burch, and S. Bloom; H. Lennard, G. F. Mahl, J. Mason and J. Bracy; V. Nowlis, A. Rapoport, S. Schachter, J. P. Scott, D. Shapiro and P. H. Leiderman.

Also in attendance were J. R. Ewalt, P. B. Dews, A. Levine, R. Trumbull, G. Tolhurst (ONR).

The results of the meeting were published in Psychobiological approaches to social behavior, edited by P. B. Leiderman and D. Shapiro, Stanford University Press, 1964.
Foreign Travel

1. Summer 1961 - P. H. Leiderman and D. Shapiro

2. Spring 1968 - D. Shapiro
   Visit to psychophysiological laboratories in Japan.
   Detailed report to Dr. John Nagay, June 3, 1968.