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Project 977F -

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Annual Report
AF-AFOSR 62-16
Edgar F. Borgatta,
Principal Investigator
The University of Wisconsin

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Cumulative Scaling, Error Estimation,
and other Methodology Problems in Social Psychology,

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January 1, 1963

Work under this contract has occurred in several areas.

Statistical and Numerical Procedures

A number of statistical and numerical procedures have been brought under scrutiny in this program of research. The most interesting findings to this point center on the analysis of the problem of utilization of dichotomies in computing correlations for factor analytic procedures. One general stricture frequently encountered in factor analysis is that dichotomies should be avoided because in the nature of the computation of $r_{\phi i}$ difficulty factors will arise. Systematic exploration of this question has directly contradicted the stricture. Alternate findings did arise with reference particularly to shifts in definitions that occur for the items at different cutting points. However, emphatically, no additional factors arise in our explorations. Copies of a comprehensive report on this research are available on request under the title: "Difficulty Factors and the Use of $r_{\phi i}$."

In the next period an intensive concentration of methodological research will center on problems of system analysis.

Methodological Developments in the Analysis of Social Structure

One of the key concerns in this project has been the exploration of application of analytic numerical procedures to the study of interaction processes. Exploration has centered on the factor analytic procedures as a means for partitioning and organizing sources of variance in group participation.

A fruitful approach in this type of analysis appears to occur as follows. First, a general principle of ordering of group members must be established. For this principle, some assumptions are required

with regard to the validity of prior work and the general importance of the principle utilized itself. For example, one principle of ordering is the total interaction rate of the group members. Such a variable is known to have concomitants in peer rankings, and may be translated in other contexts as directly related to other important theoretical variables. Having ordered the group on this principle, then, utilizing category system scores and other sources of information it is possible to input simultaneously the scores of individuals as group scores. This method has been explored with family data as well as with more abstract data derived from prior Air Force research. The method appears productive; findings to this point are being accumulated while additional analyses are being conducted. In particular, more knowledge about the general principles of ordering of members must be established, and the procedures involved are time consuming. For example, corresponding to the notion of "Great Men," it is possible to do classification of group membership. As a further example, in the allocation of roles, groups where allocations occur to different members in different role concept areas may be contrasted to those in which this is not clearly the case. Availability of reports on this aspect of methodological exploration and its consequent substantive contributions is expected in the late spring of 1963.

Additional methodological explorations are being carried out in the analysis of input characteristics on the consequences of group behavior. These center on examination of how much of the system characteristics can be attributed to individuals and how much appears emergent in the social interaction. Parallel structural analyses at individual and group levels are being carried out and then being joined.

Publications

During the course of this period additional tasks have been completed related to prior Air Force contracts and several publications listed below have come into print.

Mood, personality, and interaction. Journal of General Psychology, 1961, 64, 105-137.

Role playing specification, personality, and performance. Sociometry, 1961, 24, 218-233.

Personality concomitants of extreme response set (ERS). (with David Glass) Journal of Social Psychology, 1961, 5, 213-221.

A systematic study of interaction process scores, peer and self-assessments, personality and other variables. Genetic Psychology Monographs, 1962, 65, 219-291.

The coincidence of subtests in four personality inventories. Journal of Social Psychology, 1962, 56, 227-244.

The effects of others on ego's behavior. In S. B. Sells, Symposium on dimensions of stimulus situations which account for behavior variance, Ft. Worth, Texas: Texas Christian University, 1962.

Coalitions and interaction concepts of support in three-person groups. (with Marie L. Borgatta), Social Forces, 1962, 41, 68-75.