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A PRELIMINARY APPROACH TO SMALL GROUP ANALYSIS

by

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B.A., Montana State University, 1951

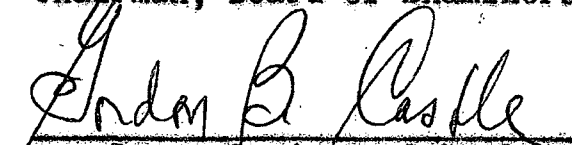
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CHAPTER I

THE PROBLEM OF SMALL GROUP ANALYSIS

It is not the purpose of this study to develop a single body of empirically defined data in regard to a particular small group problem area, but rather to examine the entire field and develop several theoretical considerations in regard to small group analysis. At the outset of research it was thought that one theory might be found to explain the existent research in this field. Such an explanation was found to be inadequate; I feel that even a major hypothesis with several sub-hypothesis^e would fail to explain this category of data.

A selective survey based on independent research as well as current bibliography did not indicate that there was a basic body of theory behind the research. If one takes the view that empirical research leads to a body of well-defined theory it is time that such theory should begin to be developed. All in all, no single, uniting core appears to lend coherence to what one who is intimately connected with small group research terms, ". . . this runaway growth of activity."¹ No one orientation appears to apply to all

¹Fred L. Strodbeck, "The Case for the Study of Small Groups," American Sociological Review, 1954, 19, 651.

empirical research done in the field of small group research.

I. THIS RUNAWAY GROWTH OF ACTIVITY

Indicative of the volume of research in this field are two recent references regarding small group analysis. The first is a bibliography containing 1407 items from 1890 to 1953.² Of particular interest is a table indicating the acceleration of this type of research during this period till an average of 152.5 items have been produced a year. This bibliography is not complete, by the author's own admission.³ The second, and most recent attempt, is a journal issue publishing fourteen papers under one cover, that places a main emphasis on interaction in small groups in an attempt to convince the reader that such inquiry should not be considered a side-line of the social sciences.⁴ In introducing this issue the editor regrets the inadequate synthesis of the research produced in the past six years but commends the "sizeable and serious investment of resources"⁵ that has been made. Others, too, have tried to survey and provide the needed synthesis.⁶

²Fred L. Strodbeck and A. Paul Hare, "Bibliography of Small Group Research," Sociometry, 1954, 17, 107-178.

³Ibid., p. 109.

⁴Fred L. Strodbeck (ed.), American Sociological Review, 1954, 19, 651-781.

⁵Strodbeck, "The Case for the Study of Small Groups," 652.

⁶Dorwin Cartwright and Alvin Zander (eds.), Group Dynamics (Evanston, Illinois: Row, Peterson and Company,

All of this work of collection and compilation has been helpful to the social scientist who works with small groups and desires to know more about what others are doing, as well as to the social scientist who is unacquainted with small groups. There is a need for further synthesis of the avenues of approach that others have taken in an attempt to understand the small group. That is the purpose of this thesis: an additional analysis of this research and a direction for synthesis. Integrated theory will lead to better directed research.

II. DEFINITION AND FRAMES OF REFERENCE

From appraisal it appears that the term "small group" has come into use without any uniform definition and has been so utilized that many fail to define it in the belief that it is generally understood. Actually and permissably various researchers define the term in slightly different forms to suit their specific needs in empirical study. The term, however, generally refers to groups which are "small enough for each participant to have had at least an opportunity to respond directly to the comments of each

1953); Gardiner Lindzey (ed.), Handbook of Social Psychology (Cambridge: Addison-Wesley Publishing Company, 1954) particularly Chapters 10, 11, 21, 22 and 24; Mary Roseborough, "Experimental Studies of Small Groups," Psychological Bulletin, 1953, 50, 275-303; Michael Argyle, "Methods of Studying Small Social Groups," British Journal of Psychology, 1952, 43, 269-279; and A. Paul Hare, Edgar F. Borgatta and Robert F. Bales, Small Groups: Studies in Social Interaction (New York: Alfred A. Knopf, 1955).

participant during the period of consideration."⁷

A definition of the small group based wholly on size would be erroneous.⁸ Other factors enter into the definition. The size of a group is usually determined in a number of ways so that the mention of size in a definition would act to exclude certain groups from consideration. In the case of work groups the size is generally determined by an outside factor, management. A social group may limit its size by refusing membership to individuals who may not be compatible with group goals. Sources of variations in groups may be produced by a variety of reasons: (1) personality make-up of the group, (2) social organization of the group, (3) culture brought to the group and the resultant group culture, (4) types of problems and situations encountered by the group, and (5) the behavior of the group and its action of breaking up into sub-groups.⁹ Each of these five factors will act on group size. Numerical size should not be

⁷Strodtbeck and Hare, op. cit., p. 107.

⁸Various empirical work in small group analysis has been carried on with groups numbering from three upward in accordance with the delimiting factor of perception of individual members. Conceivably a group could be as small, numerically, as two members. There is a maximum size for as Krech and Crutchfield report in The Theory and Problems of Social Psychology (New York: McGraw-Hill Book Company, 1948) ". . . there is a limit to the number of persons that an individual can perceive and react to as a group member." John James in "Size Determinant in Small Group Interaction," American Sociological Review, 1951, 16, 474-477, reports the conclusion that freely forming groups undergoing continuous interaction range in size from two to seven with an average size of about three.

⁹Robert F. Bales, Interaction Process Analysis (Cambridge, Mass.: Addison-Wesley Press, Inc., 1950), pp. 26-28.

considered in a definition of a small group.

A definition that is specifically designed to suit the needs of an empirical study usually is more encompassing and acts to delimit the possibilities of consideration. The following operational definition for a small group was developed to apply to research that was being conducted with experimentally contrived groups in a laboratory situation. In some instances the same groups would meet more than once; or the group might exist for only one meeting. This definition is still satisfactory and could be applied easily to groups which social scientists might find existing freely in a natural as well as experimental environment. This definition is:

Any number of persons engaged in interaction with each other in a single face-to-face meeting or series of meetings, in which each member receives some impression or perception of each other member distinct enough so that he can, either at the time or later, give some reaction to each of the others as an individual, even though it be only to recall that the other was present.¹⁰

In both of these definitions there is the element of recall, as well as the element of participation or interaction. In any case, no matter what empirical research, the definition that may be used will not be incompatible with the two stated above.

Related to these definitions are several frames of reference which should be considered. The first and most

¹⁰Ibid., p. 33.

obvious referent is that small group research involves a problem of individual behavior in a group situation. Many leadership studies are considered to be in this area.¹¹ Or, the central concentration may be placed on the group itself as a social entity with certain recognizable properties and abilities.¹² These two considerations are the social-psychological aspects and should be considered as equally important. They are, however, very broad categorizations.¹³

¹¹Alvin W. Gouldner (ed.), Studies in Leadership (New York: Harper and Brothers, 1950) is a collection of papers dealing with types of leaders, leadership in the group setting, and techniques of leadership.

¹²Robert F. Bales and Fred L. Strodbeck, "Phases in Group Problem Solving," Journal of Abnormal and Social Psychology, 1951, 46, 485-495, and Bales, et. al., "Channels of Communication in Small Groups," American Sociological Review, 1951, 16, 461-468, as well as other research showing the group as an entity.

¹³Any possible belief that small group concern is relatively new in the social sciences is refuted by this social-psychological frame of reference. Charles H. Cooley, Human Nature and the Social Order (New York: Charles Scribner's Sons, 1902), pp. 1-2, shows this same orientation: "A separate individual is an abstraction unknown to experience, and so likewise is a society when regarded as something apart from individuals. The real thing is Human Life, which may be considered either in an individual aspect; or in a social, that is to say, a general aspect; but it is always, as a matter of fact, both individual and general. In other words, 'society' and 'individuals' do not denote separate phenomena but are simply collective and distributive aspects of the same." Another early sociologist, A. W. Small, General Sociology (Chicago: University of Chicago Press, 1905), p. 497, remarked, "To understand what society is, either in its larger or smaller parts, and why it is so, and how far it is possible to make it different, we must invariably explain groups on the one hand, no less the individual on the other." Neither author specifically mentions small groups, but the use of the term "group" here does not prohibit the inclusion. Both authors appear to have had social-psychological orientation.

Another frame of reference that is also broad, but more definitive, develops a consideration of the internal and external factors that effect the group.¹⁴ The internal factors are considered to be the motives, attitudes, emotions and the general state of the organism as well as the influence of past experience on the individual member. The external factors are the stimulus situations outside of the individual group member. Such things as objects, persons both of the in-group and the out-group with whom the member makes contact, other groups, events, and situations fall in this category.

III. THE PROBLEM AREA

The problem area of this thesis is the further consideration of various frames of reference that have been utilized in small group research. The two previous frames of reference do not reveal sufficiently the current empirical research designs. Recent research reports are based mostly on previous experimental activity. This thesis is an attempt to categorize under various theoretical considerations a variety of headings taken by social scientists in an attempt to understand the phenomena of small groups. The order in which these theoretical considerations are presented is not, an a priori schedule in order of importance. All of the

¹⁴George C. Homans, The Human Group (New York: Harcourt, Brace and Company, 1950) is an example of a consideration of the internal and external factors of the group. Homans, however, will be considered later as an interactionist.

theories should be considered as equally important. Some, perhaps, have more proponents than others, but they all are contributing to the analysis of the small group. There is some overlapping of the various theories, but each is so oriented that all theories cannot be combined profitably at this time without the loss of some essential elements to act as the main guides to vigorous programs of empirical research. I found five such orientations in my research.

One popular theory stresses the basic concepts of action or interaction. The belief is that the overt behavior of human organisms in interaction is the "ultimate stuff"¹⁵ which must be observed by students of small groups. It is felt that interaction will determine the limits of the group. For example, observe a large gathering of individuals. Individual N appears to be directing a greater percentage of his action toward individuals L, M, O and P. Each in turn appears to be directing the greater percentage of his action to N and the other three. Among the five there is more mutual talking, more mutual gesturing, more mutual laughing than with any other people who may be present. On the basis of interaction, L, M, N, O, P have formed a small group. "A group is defined by the interaction of its members."¹⁶ A more detailed examination of various attempts

¹⁵Bales, Interaction Process Analysis, p. 31.

¹⁶Homans, op. cit., p. 82.

at interaction analysis will be conducted in Chapter II.

A second approach relies upon the empirical determination of the composition of groups through the technique of factor analysis. In this case, factor analysts wish to describe group characteristics correctly in order to make meaningful measurements upon the group or true statements comparing the group at different stages of its development. To describe the group completely, three panels of description are established: population, structure, and syntality.¹⁷ These descriptive panels are explained better as (1) the characteristics of individuals which are already established in their individual make-up and brought by them into any group, such as values or attitudes; (2) structural characteristics of the group which are descriptive of the internal behavior of the group, such as role relations between members and status gradients; and (3) syntality variables indicating the performance of the group acting as a single entity, such as group decisions, completed group tasks, and group aggression or assistance toward other groups or individuals. This second approach has been used mainly to deal with the problem of leadership and will be examined in Chapter III.

¹⁷Raymond B. Cattell, "New Concepts for Measuring Leadership, in Terms of Group Syntality," Human Relations, 1951, 4, 161-184, as well as Cartwright and Zander, op. cit., pp. 14-28. Additional research by Cattell continues in the same vein utilizing the three panels of description, particularly the term "syntality".

A third approach is taken by those people who concentrate on group organization in order to understand better the nature of leadership in formal organizations. Organized groups are thought to be those groups whose members have differentiated responsibilities in relation to one another to achieve a common group goal. This approach views the distribution of responsibility as far as what each member is to do and the interactional aspects of who is to work with whom.¹⁸ In as much as the factor analysts and the organizationalists are both concerned with leadership and have done a great deal of work in this respect, this theory of organization will also be considered in Chapter III.

In the fourth approach or the sociometric conception, free and undirected choice of one individual for another is the basis for group limits. Sociometrists also realize that some groupings are imposed by the forces of society and do not necessarily represent the free, natural groupings which emerge as a result of individual likes. One of the main contentions of this group of theorists is that better groups; i.e., more productive and satisfying both to the member and society can be established along the lines of spontaneous choice.¹⁹ This theory will be discussed in Chapter IV.

¹⁸Ralph M. Stogdill, "Leadership, Membership, and Organization," Psychological Bulletin, 1950, 47, 1-14, as well as Cartwright and Zander, op. cit., pp. 39-51. Ohio State Leadership Studies generally follow this theory.

¹⁹J. L. Moreno, Who Shall Survive? (Beacon, New York: Beacon House, Inc., 1953) as well as research by Helen H. Jennings is typical of application of sociometric techniques.

The fifth approach is the psychoanalytical conception that an individual's earliest experiences in groups basically directs and colors his behavior and feelings in groups for the rest of his life. The Freudian theory that group cohesiveness arises through common identification of members with one another appears as the basic underlying principle. This approach has focussed upon the group, its processes for emotional adjustment and upon the use of groups for therapeutic purposes. It considers the emotional and motivational aspects of the individuals who make up the groups.²⁰ This theory is also discussed in Chapter IV.

These five theoretical considerations should not be thought of as categorizing all small group research that has been done. There are other possibilities; however, it seems that these theories will continue to grow in importance and receive increased emphasis. There will be modifications and further changes within the field as they are subjected to experimental replication. In Chapter V these theories will be analyzed and compared with major attention first devoted to coming areas of research where directed retest will check previous experimentation; secondly, the suggestion that added variables will lead to more definite results, and lastly, the hope that field work will become more integrated

²⁰Saul Scheidlinger, Psychoanalysis and Group Behavior (New York: W. W. Norton and Company, 1952) Chapter 6, as well as Cartwright and Zander, op. cit., pp. 52-61. Moreno, op. cit., also report use of psychoanalytic method for therapy.

with the experimental laboratory.

Lastly, if this paper is to be an examination of the field of small group research and not a specifically directed piece of research within the field, I would like to evaluate the work that has been done in the light of two perspectives. One perspective may be considered "increased productivity"; i.e., individuals existing together in a group that is sponsored by an organization that expects a type of productive behavior from the group for the benefit of the organization. Such studies as those directed at work groups within an industrial plant or those relating to increased combat efficiency or understanding of the best type of behavior for Air Force crews in survival conditions are representative of "increased productivity."²¹ As a result of some studies financed by grants from such organizations as the Office of Naval Research, Rockefeller Foundation, Carnegie Corporation, United States Air Force, and the National Institute of Mental Health, productivity has been increased. Without such financial grants it would be difficult to secure the information to gain the second aim.

²¹Fritz J. Roethlisberger and William J. Dickson, Management and the Worker (Cambridge: Harvard University Press, 1939); Daniel M. Goodacre, "Group Characteristics of Good and Poor Performing Combat Units," Sociometry, 1953, 16, 168-179; E. Paul Torrance, "The Behavior of Small Groups under the Stress Conditions of Survival," American Sociological Review, 1954, 19, 751-755, are typical of this increased productivity type of research. This type of research also contributes much valuable information to the second aim.

The second direction is the belief that from such microscopic studies as the small group the macroscopic level of the system will be understood.²² Some fear that such a complete sociological synthesis can not be managed for whole communities and nations, but, "it is possible that we can manage one that will apply to the small groups."²³ Either theory of action whether for small groups or the macrocosm would be an excellent addition to sociological theory. Chapter V will also report on progress made toward this end.

²²Talcott Parsons, Robert F. Bales and Edward A. Shils, Working Papers in the Theory of Action (Glencoe, Illinois: The Free Press, 1953) is such an attempt in comparison of the microcosm and macrocosm to evolve a general theory of action.

²³Homans, op. cit., p. 5.

CHAPTER II

INTERACTION ANALYSIS

Interaction refers to a unit of activity which is stimulated by a unit of activity of another which in turn will produce an additional unit of activity. Interaction is an on-going process. This continuous activity may be studied as frequency. Frequency denotes number of times; its specific application in interaction analysis will depend on the unit of activity to be scored. For example, frequency may be scored as the number of times one member interacts with another member; it may be scored as the number of times the leader interacts with any of the other group members. There is considerable range governing the scoring of frequency; typically, a frequency score represents the total behavioral units that occurred during the course of a group meeting. Duration of interaction of individual members or of the group as a unit may also be considered. Or, the order of interaction may receive the emphasis; how does the group progress in a problem solving sequence, or with whom does the action originate?¹

¹(An example of empirical research based on the analysis of interaction will be found in the Appendix, Section I.) George C. Homans, The Human Group (New York: Harcourt, Brace and Company, 1950), p. 36.

From an examination of the definition and the above properties of frequency, duration, order and intensity, interaction is noted as an element of social behavior, and as such interaction may properly be considered as a component of small group analysis.

This is the foundation upon which many small group analysts build their fund of knowledge. They may not consider all the properties of frequency, duration, order or intensity but will generally concentrate on one phase. The concentration however does not exclude the other properties. The demonstration of the many interaction analyses is the purpose of this chapter.

Previous interaction analysis may be divided into two major categories on the basis of small groups utilized for the research. The experimental design may dictate either constructed groups where variables are clearly defined and an attempt made at rigid control or natural groups that exist freely in the society where variables are recognized yet it is difficult to control or measure them.

The constructed group should be considered as being "constructed" by the researcher for the purpose of the study. In many cases the group is composed of members who are paid for their services as group members. The group meets in an experimental setting where it is expeditious for the researcher to employ various refined observational methods such as one-way mirrors, tape recorders, and various

interaction recording devices. Such constructed groups generally exist for the period in which the research takes place. These groups are not expected to maintain themselves further except at the discretion of the researcher. The group may be so artificial that the interaction is carried on by means of written notes passed to the group members separated by partitions.² Procedures such as these are necessary because of the research design and, if properly considered, should not effect the reliability of the results. The constructed group is employed to achieve a more definite measure of group process.

The natural group is "natural" in that it is established in society and functioning before the research design is placed upon it. After the experimentation the group will continue to exist. In some cases the group may be established at the same time the researcher enters the picture, but even here it is expected that the group will continue after experimentation.³ The main consideration is that the group is established for some other purpose than gaining knowledge relative to small group behavior.

The purpose of the natural group would be varied

²Harold H. Kelly and Martin M. Shapiro, "An Experiment on Conformity to Group Norms Where Conformity is Detrimental to Group Achievement," American Sociological Review, 1954, 19, 667-677.

³Robert L. Hall, "Social Influence on the Aircraft Commander's Role," American Sociological Review, 1955, 20, 292-299.

dependent upon the wishes of the group members and the institutional authority that established the group. For example: a gang and a family are a natural group that exists at the pleasure of the individual members while rifle squads of an infantry division and industrial work groups are established and given cause for existence by an authority outside the group.⁴ Because of the naturalness of a natural group it is extremely difficult to place rigid controls on the variables to the extent it is done with constructed groups. An attempt to control a natural group in the number of variables controlled and the intensity of control imposed in a constructed group would probably destroy the naturalness that is so desired as a major variable. Data obtained from natural groups will be more representative of society's small groups if the variable of naturalness is properly evaluated.

In brief, the "natural" group exists in society for purposes other than experimentation. For example, the reason for the existence of the class room is to impart knowledge; however, if the class room is selected by the social scientist as an observational object this natural group also becomes an experimental group. The "constructed" group is so termed because its existence in society is

⁴Frederic M. Thrasher, The Gang (Chicago: University of Chicago Press, 1943); Fred L. Strodtbeck, "The Family as a Three-Person Group," American Sociological Review, 1954, 19, 23-29; Daniel M. Goodacre, "Group Characteristics of Good and Poor Performing Combat Units," Sociometry, 1953, 16, 168-179; Fritz J. Roethlisberger and William J. Dickson, Management and the Worker (Cambridge: Harvard University Press, 1939).

strictly for the purpose of experimentation. This group is created or constructed by the social scientist solely as an object of observation. The life of a group of this type is dependent upon the social scientist. To the social scientist the natural group will have a dual purpose; experimentation and the group's reason for existence in society; the constructed group has a single purpose, that of experimentation.

I. RESEARCH WITH CONSTRUCTED GROUPS

To measure precisely the more controlled variables in the constructed group, various techniques and category systems have been developed. Perhaps it is the use of such categories with constructed groups that has enabled an increased use of statistical analysis in small group theory. One disadvantage of requiring well-trained observers to observe the on-going interaction in the experimental group makes such techniques expensive in application. An unskilled observer with an interaction recorder might provide neither valid nor reliable measurements. To examine better the research that is done with constructed groups it is necessary to understand the various category systems that are used in the analysis of interaction.

Many differences exist among the various category systems. Some of the more formal properties of any system should be considered before examining a specific

system.⁵

One important property of a category system is the "dimension of exhaustiveness."⁶ A system is essentially a method of determining how much of the total observed behavior is to be classified into a positively defined set of categories. A system that allows all behavior to be categorized might be termed an exhaustive system. In a less-than-exhaustive system there would be no record of the amount of behavior that occurred which was not placed in a specific category. This may be a serious deficiency for there are occasions when scores are meaningless without an estimate of the total activity. A less-than-exhaustive system may not fully consider all the variables.⁷

The second property of a category system is the "dimension of inference."⁸ Some systems require the observer to infer and categorize more behavior than other systems. The most common things that an observer is to infer are concerned with motives, intentions, or states of feeling on the part of the actor or the recipient of the action.⁹

⁵Roger W. Heyns and Ronald Lippitt, Systematic Observational Techniques (Chap. 10 of Vol. 1 of Handbook of Social Psychology, ed. Gardiner Lindzey, 2 Vols. Cambridge: Addison-Wesley Publishing Company, 1954), pp. 374-375.

⁶Ibid., p. 374.

⁷Norman A. Polansky, Ronald Lippitt and Fritz Redl, "Problems of Interpersonal Relations in Research on Groups," Human Relations, 1949, 2, 281-292.

⁸Heyns and Lippitt, loc. cit.

⁹Robert F. Bales, Interaction Process Analysis (Cambridge, Mass.: Addison-Wesley Press, Inc., 1950), pp. 43-81.

Directly observable data such as talking and gesturing are supplanted in this manner of inference by other more subtle kinds of interaction.

"The number of aspects of social behavior under scrutiny"¹⁰ is the third property of a category system. In most social situations there are a number of processes operating simultaneously. The observer might wish to focus his attention on the group tension, the clique formation, or the interpersonal relations of the leader with the members; or, the observer may direct his attention to all of these social processes. The Bales category system to be described later contains six such dimensions.¹¹

The fourth property to be considered about any category system is its differentiation of "discrete" or "continuous" categories.¹² Here the concern is whether or not the categories have a value relationship so that one category might be said to have more or less of a certain property than the previous category. This, in effect, tends to place the categories on a continuum in a weighted scale. Very few of the categories which have been used have this continuum property; the categories are usually discrete.¹³

"Size of unit" to be rated within a category is the

¹⁰Heyns and Lippitt, loc. cit.

¹¹Bales, op. cit., p. 59.

¹²Heyns and Lippitt, loc. cit.

¹³Ibid.

fifth property.¹⁴ There is considerable range governing the unit of behavior that may be placed in a single category. Sentences or parts of sentences as well as various physical acts may be rated. The upper limits might be total meetings of the group or total physical behavior sequences. Typically, the unit is usually defined as the amount of behavior that can be classified in a single category.¹⁵ This property is necessary for any study of interactional frequency.

The final property of any system of categories is its "range of applicability."¹⁶ Apparently some systems were established with the intent to use them in a wide variety of behavior situations¹⁷ while others were conceived to apply to a particular research design.¹⁸ The categories that were established with a particular research design in mind may not be applicable to another behavioral situation. One fault of such limited categories is that the sumtotal of observable data may not be commensurate from one experiment to another. The question of applicability of a category

¹⁴Ibid.

¹⁵Bales, op. cit., p. 37.

¹⁶Heyns and Lippitt, loc. cit.

¹⁷Bales, op. cit., p. 35, and B. Steinzor, "The Development and Evaluation of a Measure of Social Interaction," Human Relations, 1949, 2, 103-122, are representative of systems having wide application in interaction situations.

¹⁸Launor F. Carter, et al., "The Relation of Categories and Ratings in the Observation of Group Behavior," Human Relations, 1951, 4, 239-254, and N. Fouriezos, M. Hutt, and H. Guetzkow, "Measurement of Self-oriented Needs in Discussion Groups," Journal of Abnormal and Social Psychology, 1950, 45, 682-690, are more specialized category systems; the former interested in leadership, the latter in participant motivation.

system to a variety of situations relies on the clarity of the conceptualization of the categories.¹⁹

Knowing the various properties that make up a system of categories is sufficient background to examine several systems that have been used to measure interaction. The application of the categories to the behavioral situation will do much to make the contribution of such category systems to the field of small group research more apparent.

II. BALES' CATEGORY SYSTEM

One of the most comprehensive and exhaustive category systems in current usage is one devised by Robert F. Bales.²⁰ It was Bales' idea to learn about larger social systems from a study of small groups. He does not seek to subordinate small group research to that of the larger system, but hopes to develop a body of theory that will be applicable to both. For this reason Bales set out to develop a set of categories that would have general utility.

Bales tried a variety of approaches in the development of the present system. He viewed a variety of groups attempting to find the categories which might occur naturally

¹⁹Heyns and Lippitt, loc. cit.

²⁰Bales, Interaction Process Analysis, should be consulted for the background, theoretical considerations and the methodology of this category system. Because of its importance in the field and its exhaustiveness the category system is reproduced in this thesis as Figure 1. In this author's opinion, this system of categories stands as a model in the field.

in the social situation; he surveyed the various existing systems. At one time there were as many as eighty-five categories and as few as five. The final system in use now consists of twelve categories. (See Figure 1.)²¹

It represents a compromise between the conflicting pressures of theoretical adequacy on the one hand, and such practical considerations as the number and kinds of distinctions which the observer can make, and ease of analysis and interpretation of the resulting data.²²

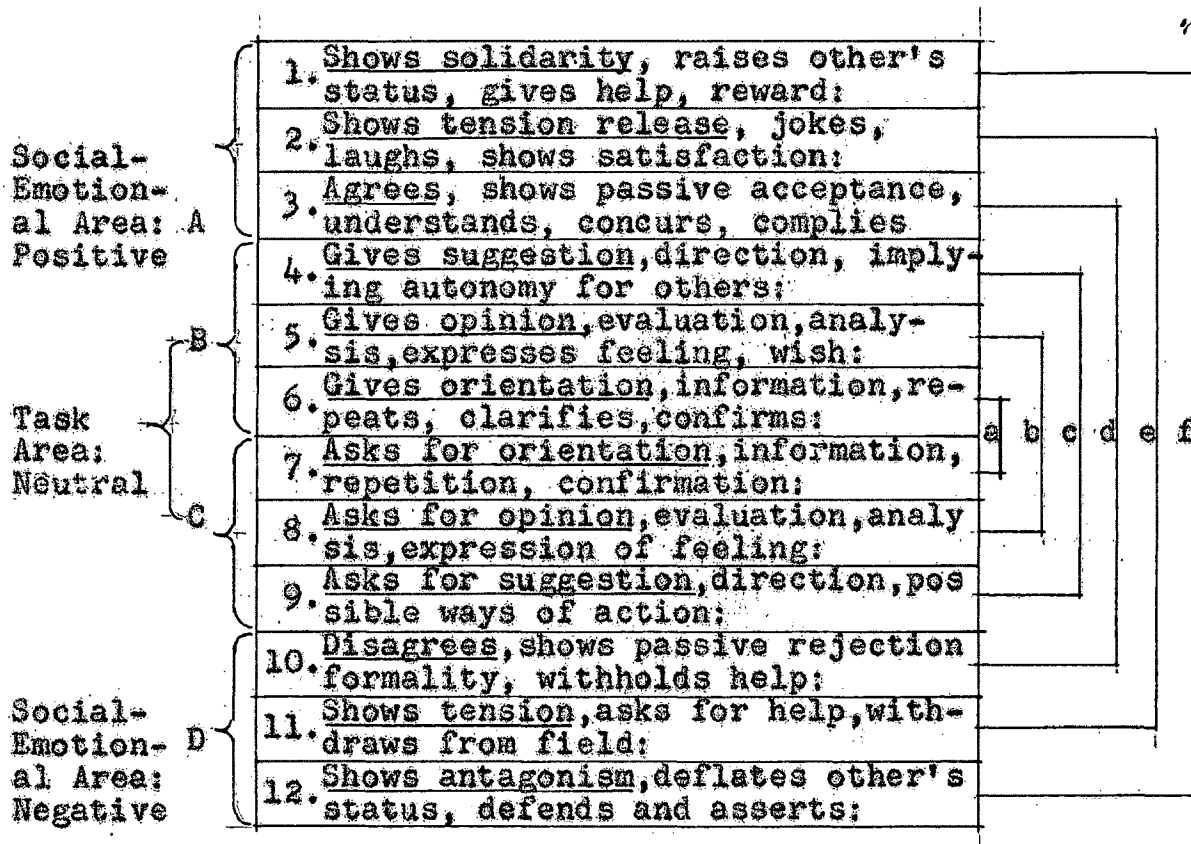
It is conceivable that this system may be modified at a future time because of the information that this system has provided. Bales is currently working on the group problem solving sequence that would continually test the adequacy of his present system.²³

In the Bales' system, categories which do not apply on the level of a single act have been omitted. The observer is not required to evaluate in a moral or ethical sense, to judge validity of the interaction content, or to derive conclusions that are not in themselves apparent in minimum context. The interactions to be categorized include speech,

²¹Ibid., p. 59.

²²Heyns and Lippitt, op. cit., p. 376.

²³Robert F. Bales, The Equilibrium Problem in Small Groups (Chap. 4 of Working Papers in the Theory of Action, Talcott Parsons, Robert F. Bales and Edward A. Shills. Glencoe, Illinois: The Free Press, 1953), pp. 111-161; Bales and Fred L. Strodtbeck, "Phases in Group Problem-solving," Journal of Abnormal and Social Psychology, 1951, 46, 485-495; Bales et al., "Channels of Communication in Small Groups," American Sociological Review, 1951, 16, 461-468, are directed so that the categories are being continually re-checked. The first cited reference with Parsons and Shills is an application of small group theory to the larger social system.



KEY:

- a Problems of Communication
- b Problems of Evaluation
- c Problems of Control
- d Problems of Decision
- e Problems of Tension Reduction
- f Problems of Reintegration

- A Positive Reaction
- B Attempted Answers
- C Questions
- D Negative Reaction

FIGURE 1

SYSTEM OF CATEGORIES FOR OBSERVATION AND THEIR MAJOR RELATIONS

facial expressions, gestures, bodily attitudes, emotional signs and other non-verbal acts, either expressive or non-focal or definitely directed to other people. The observer puts himself in the place of the person being acted upon. Thus he becomes aware of the common culture of the group, the norms and definition of the situation in order to properly adjudge the occurring act. The system, or as Bale prefers, the analysis, is inclusive and continuous in the time sequence. This type of continuous scoring does not allow time for long and complicated inferences.²⁴

On first appearance the system of categories tends to confuse, but actually once the interrelationships are recognized the confusion changes to an appreciation of the thoroughness of the system. The system considers six primary dimensions of group interaction when the group is faced with a common task: problems of (1) arriving at a common definition of the problem or orientation; (2) developing a common value system in terms of various alternative solutions that must be discussed or evaluation; (3) attempts by members to influence the individual decisions of others or control; (4) solution or group decision. To reach the solution of the problem the group must deal with (5) the tensions that arise in the group as a result of attempts to control and (6) work toward the maintenance of an integrated group.

²⁴Bales, Interaction Process Analysis, pp. 34-41.

This group process moves from one problem area to the others and difficulties in one area lead to problems of solution in the next area. Thus as the group moves through the processes of communication, evaluation, control and decision, it must be working toward tension reduction and reintegration.

There is another scheme within the same set of categories. Briefly, the middle set of categories (4-9) are concerned with problem solving tasks of questions and attempted answers. Behavior categories in these sections are essentially emotionally neutral. They are essential to the process of problem solving. The remaining six categories (1-3, 10-12) are concerned with the group efforts toward organization and integration. These extreme categories of positive reactions and negative reactions are social-emotional in nature. Rather than being instrumental to problem solving, they are expressive behavior that adds color and tone to the process.

The individual categories expressed in Figure 1 are defined only briefly and present key words to aid the observer in scoring with an interaction recorder. The categories, however, are process categories; they are not suitable for categorizing topical material. The observer must abstract from this topical content the significance of the act in light of the problem confronting the group. For this reason it is becoming accepted practice to make substantive

verbal tape recordings and simultaneously with interaction recordings. This practice makes re-check of scorings possible.²⁵

Re-checks of this kind and use of the Bales' twelve category system in the field situation is virtually impossible. Attempt to move this amount of equipment into a natural group would destroy the group rapport.

Bales' system of interaction process analysis is not without its critics. J. L. Moreno, the exponent of sociometry and psychodrama, charges Bales with hidden errors and unanalyzed and undiscussed prerequisites.²⁶ Moreno believes that the Bales' system does not tell about the subjects nor about the actor's self-evaluation of the action. This sociometrist calls it "a science of the observer, and not a science of the actor and of action."²⁷ Moreno labels the system as the observer's frame of reference and an experimental design to suit the observer. He readily admits that these criticisms do not invalidate the possible value of Bales categories, but Moreno prefers to wait until the categories have been used in many various situations before stating whether such a system gives a meaningful interpretation of the interaction process.

²⁵Robert F. Bales and Ned A. Flanders, "Planning a Laboratory," American Sociological Review, 1954, 19, 771-781.

²⁶Joseph L. Moreno, Who Shall Survive? (Beacon, New York: Beacon House, Inc., 1953), pp. 686-88.

²⁷Ibid., p. 687.

The criticism serves merely to point out that Bales operates crudely, with an incomplete theory of action and without a theory of spontaneity, without giving research status to the actor-subject. At this stage of the development of action and group techniques an incomplete theory of the actor is a serious shortcoming of experimental design. It can easily lead to an ill-designed experiment, and to analytically ill-considered generalizations.²⁸

Moreno may be correct in his criticism, but it stems from a basic difference with Bales. To Moreno, spontaneity and individual choice are paramount to the study of small groups. Bales is concerned with a rigorous empirical study of interaction. Not that one man is more empirically sound than the other, but Bales believes that the empirical phenomena that concerns the social scientist is of two types: (1) action or interaction and (2) situation.²⁹ Those things to which the action is addressed whether it be self, other individuals or physical objects are to Bales what comprises the concrete situation of action.³⁰ The observer puts himself in the position of the object that receives the action. Moreno is thus correct in that the actor-subject is without real research status in the Bales' system. Moreno, on the other hand, does accord this status to the actor-subject. This actor-subject is responsible for the spontaneity of choice that is responsible for Moreno's contribution to the field of small group research.

²⁸Ibid., p. 688.

²⁹Bales, Interaction Process Analysis, p. 31.

³⁰Ibid.

Using this system Bales has made substantial contributions to the field, and, as yet, does not appear to be guilty of "an ill-designed experiment" nor "analytically ill-considered generalizations." Further empirical research will prove the validity of the two theoretical orientations.

III. ADDITIONAL CATEGORY SYSTEMS

Another set of categories that deals with face-to-face interaction was developed by Steinzor to describe group atmosphere.³¹ His premise states that behavior is motivated and can not be understood without knowing the motivational factors behind the behavior. Steinzor's system requires the observer to make inferences concerning the motives of the actor before placing the interaction in one of eighteen intent categories. The total motivational picture of the group at any one moment is not reported under this system as the concentration is on the actor, ignoring the motivational consequences on the other members of the group. The over-all evidence concerning the reliability of Steinzor's system indicates that considerable training is required by the observers and that there should be some combination or redefinition of categories to achieve reliability.³²

Participant motivation is the focus for a set of

³¹Steinzor, loc. cit.

³²Heyns and Lippitt, op. cit., p. 381.

categories developed by Fouriezos, Hutt and Guetzkow to observe problem solving situations in business and industrial conferences.³³ As conceived by the originators of this system, behavior may be generated by the requirements of the group situation or by the individual's own personality needs or both. Accordingly, five need categories were set up: (1) Dependency, (2) Status, (3) Dominance, (4) Aggression, and (5) Catharsis. In addition the observers are aided by category definitions and behavior cues to each. The main function of these categories is to provide a framework for the observer. As in the previous system the scores are based largely on inferences made by the observers. This system is generally more valid than the previous one by Steinzor with correlation at .81 for three previously trained observers intercorrelating a thirty group sample.³⁴

A more extensive category system was developed by Carter and his associates for particular emphasis on the problem of leadership in small groups.³⁵ The orientation has thus dictated the group process to be observed. The Carter system has more categories relating to non-verbal behavior than any of the other systems mentioned because the categories were developed in a laboratory situation where groups

³³Fouriezos, Hutt, and Guetzkow, loc. cit.

³⁴Ibid.

³⁵Carter, et al., "The Relations of Categorizations and Ratings in the Observation of Group Behavior."

were working on three different tasks. One task was largely a trial and error manual dexterity test utilizing available materials. The problem arises here of how frequently should a non-verbal category be checked when the leader observes the various efforts of the group members.

This system is composed of seven principal dimensions and various sub-categories. All the categories are largely of low inference type which do not require the observer to note motive or leader feeling. The observer takes the role of an outsider viewing the behavior and is not concerned with the intent of the actor or the effect on the group. Because of the considerable length of the category list it is necessary to utilize trained observers to assure reliability.³⁶

IV. RESEARCH WITH NATURAL GROUPS

Up to this point we have been discussing observational procedures applicable to small group interaction in more or less controlled situations. The types of systems above were applied to groups that were constructed for the experiment, the activity was limited and prescribed by the research design. The members of the groups were clearly recognized by the observer. However, the social scientist's interests often take him outside of such groups and place him within

³⁶Launor F. Carter, et al., "A Note on a New Technique of Interaction Recording," Journal of Abnormal and Social Psychology, 1951, 46, 258-260.

a natural group in a field situation. Under these circumstances the observer must be mobile to move as the group moves; this limits the amount and kind of equipment he may use. During his original contact with the group the observer must be alert for all forms of interaction, the overt and hidden interaction of motives, intent, influence, and organization, so that he is able to correctly select the interactional properties that are desired by his research design. He may then devise categories to measure the interaction in a particular situation or categories that will function in any situation in which he finds the group. The observer also has the choice of no system in the formal sense of a system but may find the necessary data in describing the behavior, in the situation in which it occurs. In both cases the observer records the behavior that occurs naturally in a field setting. Because of the many possible interaction patterns that may occur in such a situation the observer will usually spend more time with the group so that he may determine the type of data desired before beginning to record his observations.

A great portion of the work with natural groups is done by participant observers. The participant observer does not have to do every thing that the group does; he need only find a role in the group which will not disturb the usual group behavior patterns. If the members of the group are not aware of the observer as an observer their behavior will

least effected. Since the periods of participation for the observer are usually of a longer duration, both at a single setting and the over-all number of meetings with a single group, the range of data collected will be much more extensive and all-encompassing than some meetings with structured groups. But, the more that a member observer participates with the group the more emotionally connected with the group he will become. This emotional reaction may color his findings. Perhaps, as an active participant some of the avenues of communication may be shut off to him and his data will not reflect the true picture. To the degree that the observer becomes a participant his own group experience becomes unique to him, virtually incapable of being reported by a second observer in the same situation. Of course, in such a situation the observer should not direct the group along a specific line; he should wait for the group to function naturally.³⁷

Whyte became such a participant observer to study "corner boys" in an Italian slum.³⁸ He entered the gang under the auspices of the leader in the guise of a local historian. He met with the gang on their corner, participated

³⁷William J. Goode and Paul K. Hatt, Methods in Social Research (New York: McGraw-Hill Book Company, Inc., 1952), pp. 121-23.

³⁸William F. Whyte, Street Corner Society (Chicago: University of Chicago Press, 1943). A later edition (1955) contains an appendix that describes methods, procedures, and techniques used in the study. This will aid reliability checks.

with them in their activities, notably bowling where on one occasion he jumped to the head of the bowling hierarchy; and he knew the expected patterns of behavior for each man.

The study continued over a two year period, Because of the length of time covered in the study and the period of economic depression during which it occurred it is doubtful whether such results could be duplicated. The reliability of such work rests in the recorded observations of the observer. The social scientist who utilizes material of this nature must decide this factor. Re-test is impossible.

A similar type of method has been applied by Homans with work groups where it was possible to correlate production or output data with interaction patterns.³⁹ By remaining more observer than participant, Homans was able to complete the study in a shorter period of time. Of course, he knew what he was looking for and had developed a technique in previous observational situations. Under such circumstances as this it was necessary to allow sufficient time after the entry of the observer to the social situation to allow the group members to become accustomed to the observer's presence. Homan's technique is representative of uncategorized observational systems in similar situations.

The group under consideration is usually contained in an area that can be systematically observed. Normal work

³⁹George C. Homans, "The Cash Posters," American Sociological Review, 1954, 19, 724-733; and Homans, "Status Among Clerical Workers," Human Organization, 1953, 12, 5-10.

activities are going on as are the group's social practices that are not directly related to any particular phase of production. The systematic observational procedure is usually reduced to a sampling technique on a time basis. Periodically the area is scanned and interaction of members is noted. The originators, recipients and the duration of interaction is usually omitted as is content, unless the interaction takes place where the observer can hear the conversation. The recording is made simply to note who is talking to whom.

An additional phase of such a study is an interview with each group member conducted by the observer in an attempt to ascertain the various attitudes of the workers in the group. Attitudes toward output, fellow workers, and satisfaction with the job are usually the key points in such observations. In other than a work situation group goals and norms might be the key points. In this case Homans also asked each respondent to make sociometric friendship choices in order to determine clique patterns. All possible interview data, including the sociometric choices, were then checked by further systematic observation.

Records of output for each worker were checked and compared with the data gathered by the observer in order to determine if patterns of interaction correlated with patterns of output.

The whole technique employed by Homans is based on

what he terms the elements of behavior to be: activity, interaction and sentiment.⁴⁰ The activity is checked from the company records of output; the interaction checked by systematic observation; and the sentiment checked by observation and the sociometric choices of the individual workers. Inference on the part of the observer is low when checking these social relations. A technique of this nature should be reliable, provided that the group is not changed by the introduction of the observer.

There also have been various attempts to fit the types of category systems such as were discussed before in constructed groups, into natural group observation. A natural group was selected as the object of the experiment with the scientists trying to disturb the group as little as possible.

Coffey and his associates have attempted to devise a system of this nature which would have wide applicability.⁴¹ This system describes social behavior in terms of interpersonal mechanisms. The system is developed from the premise that total personality exists on three levels: the public, the conscious, and the private. Levels of personality are established by the data which defines them. The public level consists of ratings of an individual's behavior and its

⁴⁰Homans, The Human Group, pp. 24-47.

⁴¹Hubert S. Coffey et al., "Community Service and Social Research," Journal of Social Issues, 1950, 6, 1-65.

effects on others. The conscious level consists of what the individual may say about himself and others while the private level is determined from such projective material as dreams and Thematic Apperception Test results. The category system is applied on the public level. Overall this system has achieved moderate success; the categories are usually about 73 per cent reliable.⁴²

Hare employed a different method of observing interaction within the group.⁴³ In an effort to compare the degree of consensus between two different sized groups having the same amount of time for group discussion, he checked the nature of the interaction with a short questionnaire. Each respondent was asked to give opinions on the progression of the group discussion as well as satisfaction with the group decision. The group was a natural group that was accustomed to seeing outsiders performing in this manner so that the group was not effected or destroyed by the intervention of this research design. Hare reports that this method of checking the interaction did not lead to inconclusive results from other methods of interaction observation. The Thematic Apperception Test was used in this experiment also, but this time to check the possible influence of the peer leader on the group decision.

⁴²Heyns and Lippitt, op. cit., p. 390.

⁴³A. Paul Hare, "A Study of Interaction and Concensus in Different Sized Groups," American Sociological Review, 1952, 17, 261-267.

All interactionalists whether they have worked with natural groups or constructed groups generally believe that the observation of social interaction and its situations is the common starting point. The observer assumes that all small groups are basically similar in that they involve a plurality of people with common task patterns arising from relations to an outside situation and certain social and emotional relationships arising from their contacts with one another.⁴⁴ The interaction that develops in such a situation is social behavior which develops a social structure.

Social structure may arise out of the interaction, but once formed by it the structure constitutes a part of the frame work within which further interaction proceeds. In a similar manner personality is formed by interaction and becomes part of the frame work for further interaction and change.⁴⁵ Thus to understand personality and social structure of the small group it is necessary to analyze interaction. The theoretical approach that seems warranted in the face of current evidence is one which views the small group as a dynamic system of action, "action determined by a complex of interdependent or interacting factors."⁴⁶

⁴⁴Bales, Interaction Process Analysis, pp. 31-40.

⁴⁵Ibid., p. 66.

⁴⁶Mary E. Roseborough, "Experimental Studies of Small Groups," Psychological Bulletin, 1953, 50, 275-303.

The analysis of this interaction has been attempted in controlled constructed groups and in natural field groups. Most laboratory experiments suffer from the double artificiality of a laboratory atmosphere and the use of temporary groups.⁴⁷ Yet it is the laboratory experiment that has developed more valid and reliable category systems. These category systems report more measurable data with generally a higher degree of reliability. There is a need for more careful control in field studies. The category systems developed with constructed groups need to be modified for application to field situations.

One serious barrier to more rapid advancement in this field of observing interaction has been the number of observer systems. The few presented in this chapter are not all of the systems that have been developed. Each system tends to be used only by its author.⁴⁸ Social scientists working in the same area develop their own procedures which complicate a comparison of the findings of the various researchers. Yet, because of the individual research design which the scientist has used it may have been necessary to develop a system of categories for the observation of a particular phase of interaction. Of the preceding systems one system is notable for its wide applicability. It is

⁴⁷Micheal Argyle, "Methods of Studying Small Social Groups," British Journal of Psychology, 1952, 43, 269-79.

⁴⁸Heyns and Lippitt, op. cit., p. 403.

unfortunate that the Bales' system is difficult to utilize because of necessary equipment and trained observers skilled in the operation of the interaction recorder. It would seem reasonable that some of the more reliable systems could be used in further experimentation, re-vamped and developed into a standardized measure. Standardization of these techniques of interaction recording would do much to develop the conceptual theory behind the development of these systems. The time has come in the experimentation to retest and consolidate various approaches to find the best system.

CHAPTER III

FACTOR ANALYSIS* AND ORGANIZATION

Factor analysis concerns itself with the description of group characteristics in order to make precise empirical measurements upon the group and thus be able to predict the success of group endeavor.¹ The factors or group characteristics which are observed and measured fall into three panels: population, structure and syntality.² These panels are felt to be exhaustive categories and encompass all group phenomena. The first panel consists of population variables that are the mean characteristics of the component group

*(An example of empirical research utilizing the principles of factor analysis will be found in the Appendix, Section II.) Basically factor analysis provides "principal components for any set of intercorrelated data." If items of a scale are constructed by the method of internal consistency and are subjected to factor analysis, the number of dimensions contained in the listing can be determined, as can the items making up each of the dimensions or principal components. See William J. Goode and Paul K. Hatt, Methods in Social Research (New York: McGraw-Hill Book Co., 1952), p. 286. As discussed in this chapter factor analysis will pertain to that particular application to small group analysis by Raymond B. Cattell and associates.

¹Raymond B. Cattell, "New Concepts for Measuring Leadership in Terms of Group Syntality," Human Relations, 1951, 4, 161-184.

²Raymond B. Cattell, "Concepts and Methods in the Measurement of Group Syntality," Psychological Review, 1948, 55, 48-63.

members. Such things as intelligence measured by one of the standard intelligence tests, height, weight and criminal record are within the province of this category. These individual attributes are clearly distinct from the characteristics of the whole group as a group. Items in the population panel are of such a nature that they could be measured before the individual becomes a member of the group.

Group characteristics or structural variables which arise from inter-group interaction are descriptive of the internal behavior of the group. Group structure is revealed from such determinents as status gradients, clique relations, the form of the leadership structure, and, in organized groups, what has been termed "the sociometry of working relations in formal organizations."³ This structural data must generally be inferred from observations on internal interaction, the processes and the different procedures of the group.

The third panel, syntality, represents the performance of the group acting as a whole, a complete entity. Syntality may be considered as a corresponding term to the group as personality is to the individual. Syntality represents the "togetherness" of the group.⁴ This characteristic is produced, in part, by the efforts of the group leader as he

³Ralph M. Stogdill, "Leadership, Membership, and Organization," Psychological Bulletin, 1950, 47, 1-14.

⁴Cattell, "Concepts and Methods in the Measurement of Group Syntality."

acts in group decisions relating to specific problems, as he guides any constructive acts toward the successful completion of a group project. Group acts of aggression or assistance toward other groups are also specific examples of syntality.⁵

Group syntality has more resemblances than differences in regard to the comparative idea of individual personality. But, certain differences should be pointed out for clarity of this concept. The dynamic make-up or synergy (the energy of the total group interest) of groups will vary far more than that of individuals both in strength and quality. The group is better qualified to handle certain problems than the individual. Group syntality will usually be far narrower in dynamic content than the dynamic expression of individuals. Group decisions are reached after consideration of more alternatives and consequences than are individual decisions, consequently the group action tends to be more potent and concentrated. Overall, it appears that syntality differs from personality more in dynamic structure than in ability or temperamental traits. This

⁵Cattell, "New Concepts for Measuring Leadership in Terms of Group Syntality." Cattell received stimulus for this idea of syntality from William McDougall, The Group Mind (New York: Putnam, 1920) who wrote, "The behavior of a group has more formal resemblance to the behavior of an individual organism than to any other natural entity, in the following respects: (1) the group, despite changes within its membership, maintains behavior habits and structure; (2) the group retains the memory of group experience and so possesses a form of learning ability; (3) group is capable of solving problems of individuals and sub-groups by group action as compared to the individual who solves his own problem; (4) the group experiences moods; and (5) group problem solving is much like individual problem solving."

does not mean that there is no difference in ability or temperamental traits, but that the major difference is seen in relative power of the personality vis-a-vis syntality.⁶

Groups differ from individuals most radically in the dynamic make-up or synergy. Synergy is the energy with which the group exhibits its syntality. Synergy fixes the degree of cohesiveness displayed by the group. Of the total group synergy, effective synergy is devoted to attaining the group goal while maintenance synergy is the portion that is used to maintain the group and the group process.⁷

When utilizing the three panels of description the factor analyst has this definition of the group in mind:

"an aggregate of organisms in which the existence of all is utilized for the satisfaction of some needs of each".⁸

From such a definition it would appear that there is a close affinity between the structural and the syntality variables. Participation as group leader may serve the need of an individual, but this does not produce syntality in itself. The distinction between syntality and structure is that structure is indicative of relations among and between the group members. The relationship of the leader with his

⁶Cattell, "Concepts and Methods in the Measurement of Group Syntality."

⁷Raymond B. Cattell, David R. Saunders and Glen F. Stice, "The Dimensions of Syntality in Small Groups," Human Relations, 1953, 6, 331-356.

⁸Cattell, "Concepts and Methods in the Measurement of Group Syntality," p. 50.

followers is structural. Similarly an observation of the internal interaction of the group as a single entity which directed the leader to deal with an outside force would properly fall into the syntality panel. The ratio of criticism to suggestion in developing the group plan would be syntality data; the pattern of communication that such suggestion and criticism took within the group would be data about group structure. Structure and syntality are equally attributes of the group while population variables are measures that represent the personality of the average member of the group.⁹

The primary relation to be expected once these panels have undergone further empirical investigation is that the proper combination of population variables with structure variables should enable the prediction of syntality. Except in instances where structure is imposed by the experimenter or as a result of traditional patterns brought from other group experiences by the individual members a combination of personality data and the environment should theoretically allow the prediction of emergent structure and the consequent syntality measures.¹⁰ It may be possible to achieve such goals with this system, but only with experimental groups

⁹Cattell, "Concepts and Methods in the Measurement of Group Syntality," and "New Concepts for Measuring Leadership in Terms of Group Syntality".

¹⁰Ibid.

where the variables can be closely controlled.

In the laboratory the group could be so timed as to eliminate a feedback condition resulting from success or failure with a group task. The measure of success may cause the group to reorganize itself for future situations. It is conceivable that such reorganization might change the structure of the group and even go so far as to change the personality variables. New leaders might be elected and all individuals below a certain ability level might be excluded. In natural situations it would be impossible to stop the group before feedback occurred, nor would this secession of action be desirable.

I. DETERMINING LEADERSHIP BY FACTOR ANALYSIS

Basically there are two ways of designating and measuring the member of the group that appears as leader. This individual may be discovered from observations of the structure produced by the inter-group interaction; or, observation of syntality change.¹¹ The factor analysts determine leadership by the latter method and define a leader as one who has a demonstrable influence upon group syntality. The effective measure of leadership is obtained from the comparative magnitude of the syntality change produced by the leader individual and the syntality produced by

¹¹ Raymond B. Cattell and Glen F. Stice, "Four Formulae for Selecting Leaders, on the Basis of Personality," Human Relations, 1954, 7, 493-507.

the average or model leader.¹²

In general four leadership categories are considered in this approach and denote four different observations of the phenomena. They are: (1) the persistent momentary problem solving leader who through some technical skill not possessed by the other group members is able to give advice or actually solve the problem that blocks succession of the group goal; (2) the salient leader is the power of the group who has a decided influence on the group syntality; (3) the sociometric leader is the popular or chosen leader in the true sociometric sense; and (4) the elected leader who through a selection process is the nominal leader of the group. It is entirely possible that one individual would fall into all the above categories, but it is rather improbable. Factor analysis is mainly concerned with the salient leader.¹³

Factor analysis appears to be a logical method for the determination of leadership. Syntality observations show the leader of the group as the individual who induces the group to work up to its capabilities. An individual who exhibits various leadership traits may not be a successful leader in some situations. If the situation, by itself, is the consideration there is a tendency to evaluate leadership

¹²Cattell, "New Concepts for Measuring Leadership in Terms of Group Syntality."

¹³Cattell and Stice, loc. cit.

on the basis of structure.¹⁴ Leadership, as determined by syntality observations, should be viewed from a consideration of both personality and structure. With such experimentation it will no longer be possible to speak of good and bad leaders, but only of leaders that have good and bad effects on the production of increase in a dimension of group syntality.¹⁵ Good or bad should be considered in terms of increase or decrease of a particular syntality dimension. Some of the syntality dimensions which have been considered are integration, cohesiveness and synergy.

II. ASPECTS OR ORGANIZATION

Much of the contemporary work utilizing theory of organization is being done in the realm of leadership by The Ohio State Leadership Studies.¹⁶ The definition of leadership used by these studies relates leadership directly to the organized group and its goal.¹⁷ Under this concept

¹⁴Alvin W. Gouldner (ed.), Studies in Leadership (New York: Harper and Brothers, 1950).

¹⁵Cattell, "New Concepts for Measuring Leadership in Terms of Group Syntality."

¹⁶Ohio State Leadership Studies conducted at Ohio State University are based on three assumptions. They are: (1) group organization is a recognizable social phenomena in our society; (2) that as such it is a legitimate subject for scientific study; and (3) that the variables of organization can be defined as to permit their scientific study.

¹⁷In this case leadership is defined as the act of influencing the activities of an organized group in its efforts toward goal setting and goal achievement.

group and organization are different terms, not synonymous. A group is considered to be a unit consisting of a number of individuals who are aware of the unity and act in a unitary manner.¹⁸ Organization denotes a special type of well-developed group. Organization may be defined as a social group where the membership is differentiated as to individual responsibilities for the task of achieving a common goal.¹⁹ The concept of organization with its implication for the differentiation of responsibility permits the study of leadership as an aspect of the relationships between members who are coordinating their efforts in achieving common goals.

It may not be easy to determine when a group becomes an organization. If a group possesses leaders it is an organization, for some of the members have differentiated role relations from the others in relation to certain tasks.

If individual members have differentiated responsibilities in relation to certain group goals, then the group is an organization. Continued presence of leaders and differentiation of responsibility in relation to common goals are indicative of organization.²⁰ All social groups have some degree of organization. Thus leadership is one aspect of organization. Before leadership can be present there are

¹⁸Mapheus Smith, "Social Situation, Social Behavior, Social Group," Psychological Review, 1945, 52, 224-229.

¹⁹Stogdill, loc. cit.

²⁰Ibid.

three minimal conditions: (1) a group of individuals with (2) a common task (3) and delegated responsibility. Leaders may be differentiated from other members to the extent that they influence the activities of the organization in its efforts to achieve the group goals.

Organization is also founded on a system of stable expectations regarding differential responsibilities and relationships among the members. Responsibility is an aspect of organization. Responsibility means the duties that an individual is expected to handle and also to whom he is accountable in the discharge of those duties. The accountability will set the individual's status within the organization hierarchy.

Studies have shown that within every formal pattern of organization an informal pattern of organization will develop. This informal pattern develops side-by-side with the formal organization. Informal organization usually refers to the friendship groups and clique patterns based on close association, mutual interests and opposing antagonisms which may develop within the structure of the formal organization.²¹

An organization in operation seldom appears to function in the manner that the organizational chart decrees.

²¹Pritz J. Roethlisberger and William J. Dickson, Management and the Worker (Cambridge; Harvard University Press, 1939) and George C. Homans, The Human Group (New York: Harcourt, Brace and Company, 1950), pp. 131-55.

The actual work and interaction patterns usually are at differences with the responsibility patterns of the organization. Two fundamental sets of variables appear to define the operations of an organized group:

- I. Variables which define formal organization
 - A. Responsibility variables (the work one is expected to do)
 - B. Formal interaction variables (the persons with whom one is expected to work)

- II. Variables which define informal organization
 - A. Work performance variables (the tasks one actually performs)
 - B. Informal interaction variables (the persons with whom one actually works)²²

When one examines formal organizations in actual operation one finds that the individual members do not in all respects act in accordance with the specific definitions of their expected roles. This should be expected in as much as the specific social situation and the personalities of the members involved can not be anticipated by the formal organization. The personal relations that develop among the members achieves stability and affect the members' expectations of one another. Informal organization is an effective means of social control for it also directs the members. The values, power structure and behavior expectancies of this informal organization may be at variance with those of the formal organization. This fact may be known by the members.

²²Stogdill, loc. cit. Note the slight difference that does exist in the two sets of variables. The formal organization expects certain conduct from the individual; the informal organization is the actual conduct of the individual.

Some of the Ohio State Leadership Studies have considered this point of variance to find that the morale and effectiveness of the organization depend upon the extent of these discrepancies.²³ The implication of such findings is that within a deeply hierarchical organization the most effective leader is one who recognizes the structure and conforms closely to the expectations of the informal group.²⁴

III. STRUCTURAL DIFFERENTIATION.

It should be noted that a group may be differentiated in other respects than responsibility. A number of people in an organization with the same degree of responsibility may form several clearly distinguishable friendship cliques. Or, by distinguishing the communication network of the group,

²³E. L. Scott, Perceptions of Organization and Leadership Behavior (Columbus: Ohio State Univ. Research Foundation, 1952) and Ralph M. Stogdill and Kile Koehler, Measures of Leadership Structure and Organization change (Columbus: Ohio State Univ. Research Foundation, 1952)

²⁴Cecil A. Gibbs, Leadership (Chap. 24 of Vol. 2 of Handbook of Social Psychology, ed. Gardiner Lindzey, 2 Vols. Cambridge: Addison-Wesley Publishing Company, 1954), p. 896. In as much as leadership has been one key to knowledge about small groups, particularly by the organizationalists and the factor analysts, Gibb's comment (p. 917) after an exhaustive study of literature relative to leadership research conducted by these two orientations as well as others shows leadership to be "interactional phenomenon, and interaction theory seems to be best fitted to provide a framework for studies of leadership. The emergence of group structure and the differentiation of function of group members depend on the interaction of those members, and are general group phenomena. An individual's assumption of the leader role depends not only on the role needs of the group and upon his individual attributes of personality, but also upon the member's perception of him as filling the group role requirements. These, in turn, vary

the leader and his secretary might be in identical or closely connected positions yet these two will vary greatly in the division of responsibility. A group that can be thus differentiated into its various parts because of a relative degree of stability is said to be structured.²⁵

The structure of a group consists of its distinguishable parts, or positions, and of their arrangement with respect to one another. The positions of a group are conceived of as relatively homogeneous parts which, in principle, may contain any number of people. It helps greatly in the task of predicting an individual's behavior in a group to be able to specify his location in the group's structure.²⁶

With this conception of group structure, the exact way in which a group will be differentiated will depend upon the particular research design that is placed upon the group. The particular research design may only wish to make one differentiation or, the design may dictate that differentiation should be made in several categories in order to evaluate the individual group member in his various functional roles.

Bales in his work with the problem-solving sequence finds four kinds of differentiations generated in the following manner: (1) differential degree of access to resources, (2) differential degree of control over others, (3) differential degree of status in the scale of importance, and (4) differ-

as the situation and the task alter. In general, it may be said that leadership is a function of personality and of the social situation, and of these two in interaction."

²⁵Dorwin Cartwright and Alvin Zander, Group Dynamics (Evanston, Ill.: Row, Peterson and Company, 1953), p. 416.

²⁶Ibid.

ential degree of solidarity or identification with the group in relation to the objects of the out-group.²⁷ The interaction patterns of the members become more predictable when this framework has been established in a particular group. The existence of the patterns gives a stability to the situation of action for the individual. Structure and functioning of the social system (situation of action for the individual) gives content to the expectations of the individual and acts to motivate him.²⁸ Because of the interactional background of this set of differentiations they are by no means unchangable as far as the individual is concerned. The on-going process may call for a change in the social position of the individual and thus change his differential roles.²⁹ To Bales the group becomes structured when these differential dimensions are in evidence.

Various single differentiations have been the basis for research with structured groups. Some of these are communication, power structure, locomotion structure, equilibrium, and the sociometric structure. A brief view of these particular differentiations of structure shows the theoretical variety that is necessary in the study of structure.

²⁷Robert F. Bales, Interaction Process Analysis (Cambridge: Addison-Wesley Press Inc., 1950), p. 73.

²⁸Ibid., p. 80.

²⁹Ibid., p. 82.

To describe the communication structure of any organization in a systematic manner it is necessary to specify for each position in the structure which of the other positions are connected to it by a direct channel of communication. The total pattern of individual positions and communication links make up the structure. In this manner every member of the group is located. One person may be in a central location (connected to everyone else in the group) and thus receive communications from everyone and in turn communicate with everyone. This individual should be aware of all information in the entire group. Another individual may be in a peripheral position (removed from the group center of communication by several links). This person will only communicate with the person to whom he is linked; he will most probably not know the same degree of information as the central individual. A third possible place in the group communication structure may be that of potential bottleneck. This individual is the connecting link between two parts of the group (sub-groups). Current research is attempting to discover the predictability of a piece of given information reaching all group members in a specific time period as certain features of the communication structure are varied.³⁰

Power structure of the group is determined in a

³⁰Harold H. Kelley, "Communication in Experimentally Created Hierarchies," Human Relations, 1951, 4, 39-56; and George A. Heise and George A. Miller, "Problem Solving By Small Groups Using Various Communication Nets," Journal of Abnormal and Social Psychology, 1951, 46, 327-336.

similar manner, but the pattern that evolves is concerned with directed linkages. The pattern must show who has power over whom and who is under the power of whom. The analysis of the power structure may show individuals exercising power over others while not being under the power of any one or, some individuals may have power over some others and in turn be under the power of other individuals or, some individuals may have no power of their own and only be under the power of other individuals. This pattern will probably be true only in relation to a specific matter. As the item under consideration changes the power structure may also change. Power, as a concept for this type of research, is usually thought of as influence.³¹

The locomotion (ability to move) structure of a group is based on whether an individual can change his position directly from one position to another. In formal organizations the way to "move up the ladder" is usually quite explicit. Promotion from stock clerk to company president is through a recognized advancement system. In some organizations some positions may be final; the vice president in charge of experimentation may never be the president of the firm because line of promotion is through the vice president in charge of

³¹Theodore M. Mills, "Power Relations in Three-Person Groups," American Sociological Review, 1953, 18, 351-357; Jacob I. Hurwitz, Alvin Zander and Bernard Hymovitch, Some Effects of Power on the Relations Among Group Members (Chap. 32 of Cartwright and Zander, op. cit.), pp. 483-92; and Ronald Lippitt, et al., "The Dynamics of Power," Human Relations, 1952, 5, 37-64.

sales. Structural features such as these will influence the attractiveness of different positions to the group members and the moral of the total organization.³²

Utilizing a set of interaction categories (see p. 22) Bales has explored the equilibrium structure in small groups.³³ Essentially equilibrium is a question of balance within the group. The balance of questions to answers and negative reactions to positive reactions are phases of the problem. "Interaction is a process consisting of action followed by reaction."³⁴ The implication of such a theory as a device of interpretation is that the determining components of the process are complex. These components should be sought in the balance of the system as a whole, rather than in a search of "supposedly" isolated factors.

The understanding of a repeated phenomenon in this type of approach lies in showing how it fits into a system, or constellation of interlocking systems, as one link in a closed, repetitive cycle of activities or orbit which constitutes the moving steady state of the system as its equilibrium is persistently disturbed and reestablished.³⁵

Bales believes that the group should not be studied in its dissected structural parts but, rather, as a whole

³²Cartwright and Zander, op. cit., p. 423.

³³Robert F. Bales, The Equilibrium Problem in Small Groups (Chap. 4 of Working Papers in the Theory of Action, Talcott Parsons, Robert F. Bales and Edward A. Shils. Gen-
coe, Ill.: The Free Press, 1953), pp. 11-61.

³⁴Ibid., p. 117.

³⁵Ibid., p. 128.

unit with structural differences in fluctuation. Bales wishes to know the group through its structural parts in interaction. This may be at variance with those who approach the group through a single structural factor. This is a difference in method of approach to scientific knowledge. The contribution of this knowledge is the important thing. In the future it is possible that both methodological approaches will arrive at the same goal.

Another approach that must be noted as a structure pattern is the work of determining the sociometric structure of the group. The pattern that develops in this instance is much like the communication pattern with the exception that the pattern is based on friendship choices. Chosen individuals are linked together. Everyone may chose everyone else in one group while in another there may be cliques of individuals linked together. One individual may not be linked to any one else. As in the communication network each individual will have a place in the sociometric structure. An individual may be central in relation to the other group members, another may be peripheral, another isolated and a fourth may be the only person that is located in two clique groups.³⁶ It is probable that the cohesiveness and

³⁶Joseph L. Moreno, Who Shall Survive? (Beacon, New York: Beacon House Inc., 1953), pp. 459-550 relating to the application of sociometric structure in a community study. Technique applied in non-human group by Margaret Altman, "A Study of Behavior in a Horse-Mule Group with Animal Sociograms," Sociometry, 1951, 14, 351-354.

stability of a group is dependent upon such a sociometric structure as it possesses.³⁷ Emphasis on individual choice and sociometry will be discussed in the next chapter.

In the first portion of this chapter factor analysis with its three panels of population, structure, and syntality were discussed, particularly in the light of research in the syntality panel. That portion of the chapter devoted to discussion of organization and structural differentiation should be considered as material for the second panel of factor analysis, that of structure. The difference in emphasis represented by these various theories is not to the detriment of small group knowledge. It is a matter of approach. Factor analysis with its particular view toward syntality hopes for sufficient knowledge to predict structure. The theories of organization and structure view group structure in an attempt to predict group performance and result.

³⁷Cartwright and Zander, op. cit., p. 422.

CHAPTER IV

THEORIES OF THE INDIVIDUAL IN SMALL GROUPS

In previous chapters, discussion has evolved around the group as an entity. Interaction, goals, norms, behavior and syntality were presented as group phenomena. Individual members received small consideration. It will be remembered that J. L. Moreno criticised Bales' theory of action because the theory operates without consideration for the actor-subject.¹ It is this concern for the actor-subject and his consequent position in the group as dictated by his individual preference that lead to the theory of sociometry, "the mathematical study of psychological properties of populations, the experimental technique of and the results obtained by the application of quantitative methods".²

Another theory that is built around the individual and his relations with the group is the psychoanalytic approach largely developed by Freud.³ This theory remains and is being utilized, to some extent, today. This is the idea that an individual's earliest experiences in groups

(An example of empirical research utilizing sociometric techniques will be found in the Appendix, Section III.)

¹See P. 25-26.

²Joseph L. Moreno, Who Shall Survive? (Beacon, New York: Beacon House, Inc., 1953), pp. 15-16.

³Sigmund Freud, Group Psychology and the Analysis of the Ego (London, Hogarth, 1922).

basically directs and colors his behavior and feeling in groups for the rest of his life.

These two theories will form the basis of this chapter. How does the individual fit into the social structure?

I. THE THEORY OF SOCIOMETRY

The origins and development of sociometry are closely linked to one man - J. L. Moreno. A major step that is probably responsible for the increased development of the theory came in 1934 with the first publication of Who Shall Survive?⁴ This book is not simply a report of research of various group studies in a school and institutional setting but, it contains the speculative theory, methodology, and projected results of a broad social significance. It is this foundation laid by Moreno that has resulted in the sociometric approach today.

To say that Freud did not influence Moreno in the development of sociometry would be erroneous. Freud influenced Moreno to develop a different system. Moreno felt that the then current systems of analytic character, of which the psychoanalytic was "the farthest developed and most influential"⁵, lacked two essential elements to be a satisfactory system of universal life assessment. These analytical systems

⁴Published Washington: Nervous and Mental Disease Publishing Company. There is currently a new edition, see Moreno, op. cit.

⁵Moreno, op. cit., p. li.

had in common "the tendency to associate the origins of life with calamity and show strong inclinations towards the negative".⁶ Moreno felt that the two cornerstone elements of such a system should be spontaniety and creativity.⁷

In this conception these two elements should not be considered similar nor identical processes. Moreno believes that "the universe is infinite creativity".⁸ Creativity is the potential, the ability, the life of the individual. Yet, without spontaniety this potential will never be realized; the life will be inoperative. Creativity without spontaniety is lifeless; spontaniety without creativity is futile and abortive.

As practiced today the sociometric approach is representative of the subjective frame of reference, the individual viewing the group through his own eyes. To record this subjective evaluation the sociometric measure is employed. A sociometric measure is the means of assessing the attractions or the attractions and repulsions within a given group. Each member of the group privately selects a number of other group members with whom he would like to participate in some specific activity. He may also be asked to indicate those group members with whom he would not like to participate.

⁶ Ibid., p. lii.

⁷ Ibid., pp. 39-40.

⁸ Ibid., p. 39.

To be a true sociometric device the measure should be constructed to meet six requirements.⁹

(1) The subjects of the test should know the limits of the group. The test places no restriction within the group, but does exclude non-group individuals. For example, a test given to Boy Scouts and including an expression of two most preferred camping companions would require that the choices made be from the members of the troop or patrol taking the test. No boy outside of the group could be chosen.

(2) The subjects should be permitted to make as many choices or rejections as they desire. In current practice many sociometric tests are administered with a limited number of choices or rejections specified. Undirected choice of as many or as few as the subject prefers helps to correctly identify the group's true sociometric picture.

(3) Specific criteria should be indicated as the reason for choice or rejection by the subject. Each choice or rejection should be made with a particular activity in mind. The activity, of course, should be meaningful to the subject. Boy Scouts could not select three others for a game of bridge in a meaningful manner, nor could an adult select three other adults for his team in a neighborhood rope tying contest.

(4) Results of the test should be used in restructuring the group. This requirement amplifies motivation for

⁹Ibid., pp. 92-110.

the subject. The individual will choose more carefully and give a truer picture of his attractions and repulsions. The subjects must understand that they are playing a decisive role in determining with whom they will associate in the proposed activity.

(5) The subjects should be allowed to make their choices and rejections privately. It should be impossible for members of the group in question to identify the responses with any member of the group.

(6) The questions should be gauged to the level of comprehension and understanding of the members of the group. Very young children cannot comprehend the questionnaire, the popular form for the sociometric test; but, will be able to respond properly in a verbal interview. The actual wording of the test, whether written or oral, must be within the grasp of the respondent.

The sociometric test taps the social aspects of the individual's projection. Because of its usual simplicity, its lack of resemblance to what the subject usually associates as a "test" and knowing that it may result in a reorganization of the group to the individual's advantage the test is usually successful in uncovering the actual network of relations that exists in the population tested. Choices in sociometric testing must always be related to the life situation of the subject.

The sociometric test focuses on the organization, the psychological structure of the group. The test has proven well fitted to handle the task for which it is designed. The test has penetrated the overt displays of group life to reveal the network of interrelations on which behavior is based. Yet the test does not allow a complete exploration of the individual's relationships with other individuals. Exploration is possible only to the point that the construction of the test permits.¹⁰

In actual practice there are variations on the six requirements for a sociometric test. As a consequence it is necessary that a report of research utilizing this method should state all the relevant conditions of the study. In many circumstances the test may be used only in modification.

One method of modification is the limit placed on the number of choices the subject may make.¹¹ This practice has the disadvantage of not viewing the complete range of interpersonal reactions to which the measure has access. Individual variance in the number of choices can only be scored when unlimited choice is allowed. Unlimited choice is necessary to distinguish the unchosen person from the isolate. Yet, it may be desirable to restrict choice because of the

¹⁰Helen M. Jennings, Leadership and Isolation (New York: Longmans, Green and Company, 1950), pp. 3-24.

¹¹John G. Thorpe, "An Investigation into Some Correlates of Sociometric Status within School Classes," Sociometry, 1955, 18, 49-61, requires subjects to make three choices each for three criteria and one rejection. A typical use of test.

time involved both for the administration of the test and the eventual scoring. Rapport may be lost because the test is exhaustive.

Frequently the technique is applied without the promise of restructuring the group. If the promise is made it acts to increase incentive and the sensitivity with which the subjects will report choices and rejections. In many cases because of the nature of the group or the criterion of selection, it would be impossible to restructure the group. Restructuring the group does not appear as an indispensable condition of the sociometric test for it appears that subjects frequently give careful and accurate judgments without the benefit of personal gain.¹²

Some related devices, similar to the sociometric test, are used to indicate dimensions that cannot usually be found through the true sociometric measure. This author participated in such an experiment. In place of the usual monthly rating of officers (leading five and bottom five in the company) based on leadership in a future combat experience each subject was to make a sociometric prediction of "Who will choose you?".¹³ This type of query presents interesting

¹² Gardiner Lindzey and Edgar F. Borgatta, Sociometric Measurement (Chap. 11 of Vol. 1 of Handbook of Social Psychology, ed. Gardiner Lindzey. 2 Vols. Cambridge: Addison-Wesley Publishing Co., 1954), p. 408.

¹³ At the time of the experiment the author was at Fort Benning, Ga., attending a school for company grade officers. The "buddy" report, as it was called, was held in low esteem by the great majority of the 212 officers in the company. From personal communication with other subjects it appeared that the most prevalent answer was "Nobody!".

possibilities for correlation with other psychological data for social prediction. To be successful this type of test must be sufficiently motivated.

Another related procedure is the use of time estimates to measure choice intensity. The investigator asks the subjects to estimate the proportion of time each would like to spend in an interacting activity with the other members of the group. The use of time element permits weighting the choices. This technique may be varied by asking the subjects to estimate the actual amount of time spent in interaction with other group members.¹⁴

Another related technique to the sociometric test is the use of identification questions. Here the subjects are presented a list of various behavior descriptions and asked to match these descriptions with members of the group. The descriptions are varied along types of positive and negative continua so that it is possible to achieve an ordering of the subjects that bears a correspondence with sociometric data. In this manner it is possible to detect the manifest personality of the individuals composing the group.¹⁵

Data obtained from the application of the sociometric test is only material, not yet social fact.¹⁶ The data must

¹⁴Ralph M. Stogdill, "The Sociometry of Working Relationships in Formal Organization," Sociometry, 1949, 12, 276-286.

¹⁵Lindzey and Borgatta, op. cit., p. 410.

¹⁶Moreno, op. cit., p. 95.

be collected and presented in logical fashion so the inter-relations are apparent. To present sociometric data Moreno developed the sociogram, a geometric method of structural analysis.¹⁷ This method is used to present the relationships so that they may be studied. Numerous types of sociograms have been developed, but they all develop the pattern of social structure of the group and show the position of every individual within the group. "Sociograms are so devised that one can pick from the primary map of the community small parts, redraw and study them, so to speak, under the microscope."¹⁸

Various patterns develop within the sociogram and, it is these patterns that are the basis for the analysis of the group. Here are a number of the basic patterns that develop.¹⁹ A true sociogram is prepared in two colors, red and black. The red circles and lines represent attraction; the black circles and lines represent rejection. The "overchosen" individual is represented by a red circle surrounded by other red circles with lines connected to the center individual. If this person receives five or more choices he is referred to as a "star". The "rejected" person is represented by a black circle connected by a black line to the circle of the person who rejects him. Mutual choices or rejections are represented by red

¹⁷Ibid., p. 96.

¹⁸Ibid.

¹⁹Ibid., pp. 137-39, 255-57.

circles connected by red lines and black circles connected by black lines respectively. Many individuals with mutual choices or rejections are called "chains". The "isolate" is the individual who neither receives nor makes choices or rejections. He is represented by a dotted black line.

There are many varieties of patterns that may develop; these are only the basic ones. Because of this complexity of number and color of pattern the sociogram has been criticised. The main fault, other than poor drawings, lies in the fact that the purpose of the sociogram was to present an attractive visual device. The sociogram is drawn for the purpose of analysis of data; it should be attractive, but this is not the main consideration.²⁰

As with any technique there are advantages and disadvantages to the use of sociograms.²¹ The first and most apparent advantage is the sociogram's dramatic and attention compelling qualities. Correctly prepared, the sociogram presents a graphic group portrait. For small groups the difficulty of constructing sociograms is slight compared to the labor required for some of the other analytical techniques that have been discussed. A distinct advantage to the use of sociograms is that the existing relations within the entire group are presented at one time rather than being divided into various indices and scores.

²⁰Lindzey and Borgatta, op. cit., p. 411.

²¹Ibid., pp. 412-13.

The main disadvantage lies in the preparation of the sociogram. The representativeness of the diagram is dependent upon the social scientist who prepares it. Depending upon the particular spacial groupings represented the investigator can create different impressions of the group. It is now popular to utilize quantitative techniques to accompany the sociogram so as to assure correct presentation of the data.

II. RELIABILITY AND VALIDITY OF SOCIOMETRIC MEASURE²²

The main issue in discussing the reliability of sociometric measure is the effect of environmental forces upon the group being measured. The sociometric tester believes that each test-retest must vary with the passage of time and change within the group. The variables in sociometry are susceptible to environmental change. The task is to distinguish the elements of change directly attributable to actual changes in the variable under study as opposed to the elements of change that are a result of inconsistency of the test.

The problems posed by interpretive reliability are not great. The major stumbling block is the use of the sociogram without quantitative data. However, reliability can be increased in this case by utilizing conventional methods of sociogram construction.

²²All material for this discussion of reliability and validity has come from Lindzey and Borgatta, op. cit., pp. 420-24; and Jane S. Mouton, Robert R. Blake and Benjamin Fruchter, "The Reliability of Sociometric Measures," Sociometry, 1955, 18, 7-48.

In most situations it is not possible to provide definite answers on sociometric test reliability. At least fifteen different studies have attempted to determine the reliability of the sociometric measure. The results of these studies offer tentative generalizations. (1) There appears to be a relatively high degree of consistency in the sociometric pattern over a period of time. (2) Where quantitative evidence has been supplied there is great consistency of choice scores and indices although the particular choices and variations may vary. (3) Reliability is usually greater when test subjects are adults rather than children. (4) Least important choices, in the minds of the subjects, show the largest degree of inconsistency. (5) Stability of sociometric choice increases during the period of time that the group has been in existence; as the group becomes better organized the pattern stabilizes.

If the validity of the sociometric measure is conducted under the conception of whether the test measures what it is supposed to measure, the answer is a categorical yes. Sociometric tests measure verbal choice behavior and thus needs no further demonstration. More satisfactory indications of validity are provided by comparison with case studies and behavioral observations.²³

Actually a better consideration of validity of the sociometric measure is the question of extent to which the

²³Jennings, op. cit., pp. 27-31.

test controls or relates significant variables to sociometric choice patterns. Results have usually been valid when correlated with information derived from direct observation of the group, its formal organization and structural properties when applied to the use of sociometric testing to determine the group leadership.²⁴ It appears that there are valid relations between aspects of behavior measured by sociometric technique, on one hand, and demographic, cultural, intellectual, attitude, and personality variables on the other.²⁵

Sociometric measures provide only "one of the many possible means of viewing interpersonal relations".²⁶ To be a valid measure, the data received from a sociometric testing should be correlated with data from other sources. Sociometry appraises the psychological aspects of the individual and should be correlated with data from the physical, cultural and sociological setting of the group.

In general, it appears that the measures are of value to the social scientist concerned with group processes or the individual in a group setting. The value of the measure will be increased by the development of more stringent quantitative analysis of sociometric data and by the use of this data in conjunction with comparative data gathered through other means.²⁷

²⁴Lindzey and Borgatta, op. cit., p. 429.

²⁵Ibid., p. 436.

²⁶Ibid., p. 442.

²⁷Ibid., p. 444.

III. RELATED FREUDIAN CONCEPTS

Small group analysis has received impetus from a variety of disciplines. Social psychology, sociology, and psychology have been the largest contributors to the fund of knowledge that surrounds the topic. As Freud contributed materially to the views of mental phenomena shared by today's psychologists he has also contributed to the theoretical thinking of the small group analysts. Many concepts from Freudian psychology of the individual have been used to describe individual behavior in group settings. Several basic concepts of this nature are worthy of note.

The underlying theory is that human behavior represents a compromise action between inner drives (libido and aggressive) and needs and the inhibitions and impressions reaching the individual from his environment. Behavior, of course, is influenced by a multitude of factors to the degree of inevitable frustration. Healthy growth of the individual calls for a strengthening of the ego to the point where it can reconcile the aims of the drives, the conscience and reality. As the ego develops, personality develops.

Personality is not the product of present environment alone; it is built up from myriad earlier situations that have called for individual adjustment. According to Freudian psychoanalysis the meaning of behavior, as developed above, holds true for all situations, individual and group. Group

behavior is thought to be the behavior of individuals in a process of social and emotional interaction. In this manner groups can be conceived as psychological wholes with organization, structure, goals, and climate. These group properties develop through the interaction of the individuals composing the group.²⁸

Individual behavior practically always takes place in and is related to an environment which contains not only physical objects, but also other persons, collectivities, culturally presented values and various cultural resources. Individual behavior is generally seen in the group setting.

An example of the influence of Freudian psychology in current group study is the nature of ascribed properties of intervening variables.²⁹ Two of three major theoretical trends relative to these ascribed properties are influenced by Freudian psychology. Briefly the two are the phenomenological trend and the trend toward a sui generis model.

By its very nature the phenomenological trend would contain much Freudian theory as the investigation proceeds from lowest to highest complex of intervening variables.

²⁸Saul Scheidlinger, Psychoanalysis and Group Behavior (New York: W. W. Norton and Co., 1952), Chapter 6 presents basic Freudian data concerning group behavior patterns.

²⁹Talcott Parsons and Edward A. Shils, Toward a General Theory of Action (Cambridge: Harvard University Press, 1951), pp. 279-84. Intervening variables are defined "both by the assumed functional relations of such intervening variables to the independent and/or to dependent variables and by the postulated, ostensive properties also attributed to such intervening variables". (p. 282.)

It is the attempt of this work to ascribe introspectively derived empirical characteristics to the intervening variables.

The trend of theory toward a sui generis model develops a set of explanatory structures and processes drawn from similarities in other disciplines. Freud's concept of a "water reservoir libido" is primarily of this type.

Freudian theory is also coupled with early sociological thought under the common frame of reference called a "theory of action".³⁰ Freud's theory of internalization of moral values as an essential part of the structure of personality is a landmark in the development of the science of human behavior. Most convergent with this theory of the superego was the Durkheim theory of the social role of moral norms.³¹ The main effort of current work along this line is the development of a theory of personality and a theory of social system through the analysis of the fundamental phenomenon of the internalization of moral norms in such a manner as to maximize the general implications into a theory of action.

The general direction of this effort is to add to the Freudian concept of the superego. Freud made only a beginning at the analysis of the role of a common culture in personality .

³⁰Talcott Parsons, The Superego and the Theory of Social Systems (Chap. 1 of Working Papers in the Theory of Action, Talcott Parsons, Robert F. Bales and Edward A. Shils, Glencoe, Illinois: The Free Press, 1953), p. 14.

³¹Ibid.

The same analysis should be projected from the internatization of moral standards to the internalization of the cognitive frame of reference for interpersonal relations and for the common system of expressive symbolism.³²

The essential intent, however, is to contribute to the development of a common foundation for the theoretical analysis of human behavior which can serve to unify all of the sciences which take this as their subject matter. The massive and fundamental fact is that Freud formulated the concept of the superego and fitted it into his general analysis of human motivation. This and the parallel formulations in the field of sociology are the solid foundations on which we must build. I believe it can truthfully be said that we are now in a position to bring the theory of personality and the theory of the social system within essentially the same general conceptual scheme. Freud's contribution of the concept of the superego has been one of the important factors making this possible.³³

Whether or not such a unification of theories is possible, Freud has contributed to the fund of knowledge that is being built up around the concept of small groups. The contribution is currently one of direction. Freudian psychoanalysis is one direction for the development of new material, new empirical data that will indicate a new and more advanced direction. An abstract idea of this nature will require a great deal of empirical study before it can be either accepted or rejected. Until the empirical work is done this belief in a theory of action provides a frame of reference to the social scientist.

³²Ibid., p. 21.

³³Ibid., p. 28.

CHAPTER V

THE STATE OF SMALL GROUP ANALYSIS

The previous chapters have examined five theoretical approaches through the various methodologies that have been utilized by various social scientists working with small group phenomena. Each theoretical approach appears to have contributed to increased knowledge in this social area, but, individually, each theory does not seem to encompass the total field of small group behavior. It is impossible to determine from the previous analysis which of the separate approaches possesses the most comprehensive frame of reference. In the future, if the purpose of this type of research is to understand the small group and its behavior, the research probably will be based upon an integration of the existing theoretical approaches. It is also within the realm of possibility that new theories and approaches will be developed and integrated into the research.

Various existing theoretical approaches have produced a great amount of empirical data which are now being repeated and expanded through experimental replication. Tentative hypotheses newly conceived and those suggested as a result of prior experimentation are currently undergoing scientific validation. The scientific study of small groups is proceeding in the same manner as the scientific study of any phenomena.

Work that has been done thus far is valuable as a basis for future experimentation on, and prediction of, social behavior.

On the basis of the five approaches that have been reported, an integrative step should be taken to increase the knowledge of small groups and to provide a synthesis of phenomena that have previously appeared as more or less isolated data. Previously small groups have been studied with one particular behavioral phenomenon in mind at any one time. Researchers have been concerned with such facets of group behavior as leadership, syntality, communication structure, clique pattern, interaction and sociometric choice to name only a few. In no discovered instance has a single group been examined to show all the behavioral phenomena that must certainly be present in each group during the group's existence. By experimental concentration on any one facet of group behavior the total group picture appears to have been ignored. This approach is not to be condemned, for it has enabled social scientists to determine all the various behavioral phenomena that can be present in one small group, but the scientific task now is to determine whether all these separate phenomena can be interrelated to develop the total group picture. The pattern should be generalized to apply to many, if not all, small groups.

To understand the small group it is necessary not only to know the facets of behavior of the small group but also to

know the valid relationships among the various behavioral aspects of group life. The resultant work would be not only a labor of analysis but also a task of synthesis.

I. POINT OF DEPARTURE FOR SYNTHESIS

The five theoretical approaches that have been presented are sufficiently substantial to be integrated as the beginning research to gain the desired goal of synthesis. The approaches, as presented, do not disclose any conflict precluding their integration. They represent the work of social scientists in specific areas within the scope of human behavior. Synthesis would tie the specific areas into a united whole.

This desired synthesis may never be complete because of new knowledge which will be presented as current techniques are revised and new techniques are developed. This chapter can be considered as only one step in a great number that must be taken to approach a synthesis. Integration of the existing theories for more thorough research will be the initial step.

The weakness of the five theoretical approaches in terms of developing knowledge of the whole group is related to the limited objectives of these approaches. For example, interaction studies have viewed the phases of the problem-solving sequence without consideration for and comparison with group structural variables. Factor analysis has

concentrated largely on leadership phenomena without considering the individual member needs for expression. Sociometrists accord the actor-subject the lion's share of attention without complete consideration for the group. Organizationalists differentiate between the formal and informal organization of the group but do not pursue the effect such organization will have on the group as a single entity. In view of the sizeable and serious investment of resources in the study of small groups it would be more satisfactory to concentrate on the larger group picture. From the total group picture and the resulting body of knowledge, deductions and inductions in all areas may be made, thus avoiding the necessity of atomistic studies.

A higher degree of productive data will result from knowing the total group picture. More economical and more efficient application of the existing approaches in an integrated technique will result in knowledge for a variety of purposes. Principles resulting from experimentation designed to uncover the total group picture can be generalized to apply to therapy, increased productivity, and knowledge to understand the macrocosm.¹

All of the five approaches are valid, and when viewed together, are supplementary. Briefly, interaction analysis

¹A macrocosm is seen as a qualitative observation that can be made on a larger scale. By creating on a small scale a (representation of a) larger portion of reality, the larger portion of reality will be understood. This is a laboratory device to study social systems, not just small groups.

provides the means of discovering organizational and structural data. Factor analysis provides three panels for categorizing the resulting data as well as directing attention to the group syntality. The sociometric approach gives status to the actor-subject and provides a useful tool, the sociometric test, to discover the place of the individual in the group. Organizational theories discover the facets of various structural phenomena. Freudian theories give emphasis not only to the personality of the individual group member but also to the cohesiveness of the group entity. Each theory supplements the other theories. Integration of research in this manner is therefore both efficient and economical.

II. A HYPOTHETICAL DESIGN

To show the integration of the various theoretical approaches and the considerations and principles that could develop from such a scientific attack the following hypothetical research design has been established. The design concentrates on syntality to make sure that all the various group behavioral phenomena have been considered. More specifically it views syntality exhibited to an out-group entity.

The design is predicated on the assumption that certain interrelationships exist within the internal structure of small groups. The communication and sociometric structures

are interrelated almost to the point of identical pattern. The power and locomotion structures are dependent upon the stability of the equilibrium structure for their stability. As these structures are interrelated there is a reciprocal relationship between the formal organization and the informal organization, making the structures of the formal organization dependent on the structures of the informal organization and vice-versa.

For example, in a rifle squad the designation by higher authority of men to succeed in command or leadership will be acceptable to the members of the squad only in so far as they agree to accept the order of succession. If the men fail to accept a designated leader who has succeeded through the established locomotion structure the squad will, in all probability, operate with such reduced efficiency that the higher authority will be forced to make a re-evaluation of the leader. The new designation will usually conform to the opinion of the squad members, if the group's choice is technically proficient.

The syntality of any group will be manifestly effected by the functioning of its structure. In cases of this nature it is evident that the salient leader, who has a demonstrable effect on the group syntality, is also the sociometric leader, the choice of the group members.

If this assumption is true it is then imperative that the entire group process be viewed and these patterns of

interrelationships be established to clearly define the operation of syntality with entities of the out-group.

The object of this experimentation will be a "carrier" platoon that has been established in a basic training unit of the United States Army.² Because of the nature of its composition this group generally presents a united front to any outside group or individual. Liason of the group is effected through recognized individuals, who though not necessarily integral members of the group, are recognized as the only available channel for expression of group desires and needs.

²"Carrier" platoons were established at many of the training centers in the United States Army within the continental United States to provide basic military training for individuals who were under sentence of a court martial for minor offenses. The military object of this plan was to speed replacements to theatres of operation without undue delay. The majority of the men in these "carrier" platoons were second offenders and long AWOL (absent without leave) cases. These individuals had succeeded in prolonging their military training to such an extent that Continental Army commanders felt that the only sure way to insure the entrance of these men into the replacement stream was to give them basic training under military guard while serving stockade sentences. The plan was, in effect, an effort at rehabilitation.

Each man was placed on limited parole for the purpose of training and assigned to a company undergoing basic training. Within the division there were generally three such "carrier" platoons in operation at the same time, undergoing various phases of basic training. The maximum number of parolees that would be assigned to such a platoon was twenty, and in actual practice the group was about twelve. One officer would be assigned to the platoon with one non-commissioned officer for every four parolees to supervise the group. The platoon comes into existence each day at the post stockade. As a group it continues throughout the training day, which in most instances lasts sixteen to eighteen hours. The group is then returned to the post stockade where individual group members are released to their respective cell blocks. In effect the "carrier" platoon is the only effective group that the parolee knows. It becomes his major outlet for expression.

These recognized individuals are the officer and cadre that are assigned as supervisory personnel. The actual peer leader of the "carrier" platoon must discuss and seek approval for all group decisions with these individuals. The hypothesis that is to be tested is related to this restricted channel. The peer leader duplicates the processes that the group utilized to reach syntality in dealing with an out-group individual who is recognized as an intermediary capable of having demonstrable influence upon the fulfillment of group desires. In some instances the intermediary must take the group request to a higher authority for final decision while in some instances the intermediary may become the final authority and issue a decision. This latter instance is only possible when the decision is of a minor nature. He can not give a decision on matters requiring a policy change.

In other words, the peer leader, presenting the group request (an example of group syntality), will demonstrate facets of the group structure. The process is a miniature duplication of those personality and structure factors that produced the syntality. This then is the hypothesis: The process of exhibiting syntality to individuals of the out-group is identical with the in-group process to gain syntality.

Testing this hypothesis would accomplish two desired objectives in small group research. First it would aid in the goal of synthesis of data regarding small group behavior.

Secondly, it would give direction to the study of interaction between the group and out-group objects. Previous studies have been content to determine the group problem solving process without examining how the decision is put to use. Figuratively, the machine was created, but the manner in which it operated was not determined. Similarly, the various structural patterns of the small group have been determined, yet the determination of possible structural interrelationships has largely been ignored. A scientific investigation of this nature would attempt to correct these errors of omission.

Another point to be considered, once the data has been collected which will bear on correlation of interrelationships is the analytical technique to be used. Because of the diversity in previous experimentation, a variety of analytical techniques have been used for reporting data and conclusions. The resulting data from such proposed experimentation should be analyzed by a single empirical technique so that inter-group relationships could be compared. This phase of methodology would enable a synthesis of data.

In conducting the experiment, data must be collected for each of the three panels of population, structure, and syntality. A classification of data into these three categories gives assurance that each contributing factor will be noted.

Inasmuch as population data may be gathered before the group actually comes into existence, the specific group that

is to be the object of the experimentation is so constituted that such data can be gathered easily before the group is established. Before a "carrier" platoon is constituted it is necessary to wait until sufficient individuals have been collected who are in approximately the same stage of basic training. For the purpose of this experimentation the "carrier" platoon will be established from those people who have completed the fourth week of basic training, or one-fourth of the full basic training cycle. It usually takes about four weeks to accumulate personnel who will fall into this category before it will be profitable to establish the "carrier" platoon. In this period of time it will be possible to interview extensively each individual who will become a member of the group. The interview will cover such points as family background of parents, siblings, environment, and economic status; criminal background; prior job experience; attitude toward the military and proposed membership in the "carrier" platoon; ethnic background and vital statistics of weight and height. If possible each man should also have a thorough physical and neuro-psychiatric examination. Once the "carrier" platoon is formed the mean information of the group will be immediately available. Outstanding deviations from this mean will have been determined so that the experimenters could be aware of any possible reasons for deviations in structural phenomena of the group.

The structure of the group will be observable in part from the first time that the individuals are brought together to form the group. The first structuring will be the placing of men in the ranks, a formal structure. From that original structuring the group will expand to produce a sociometric structure, a communication structure, an equilibrium structure, a power structure and a locomotion structure. The communication, power and locomotion structures may be of both a formal and an informal nature; deviations from the formal structure must be noted and reasons found for the development of the informal organization.

The data which will substantiate conclusions made about the group structure will come from interaction observation, sociometric tests and interviews with the individual group members. It is obvious that in this situation trained observers must be utilized.

The trained observers could be members of the Human Resources Research Institute of the United States Army.³ If possible it would be advantageous to utilize these people in the joint duty of researchers and officer and non-commissioned personnel who supervise the "carrier" platoon. These experimenters would have been used to gather the

³Units of the Human Resources Research Institute are established at all major US Army posts in the United States. Their mission is the discovery and implementation of programs designed to make the most economical use of manpower. Because of the experimental nature of the programs the personnel of the unit have a wide background in social research and military knowledge.

population data, so now would be adequately informed as to the possible development of group structures. Interaction observation would be a continuous process while the group is together as a group, but would be most concentrated during periods when formal training did not prohibit the group from natural patterns of interaction. Periods of rest and dinner would require constant observation.

Because of the mobility of the group and the natural setting for its existence it would be virtually impossible to employ exhaustive category systems for the observation of interaction. Interaction recorders, tape recorders and one-way mirrors would not be feasible. It might be necessary for the observers to develop a field category system.

Rather than develop a new category system it would be possible for the observers to modify an existing category system. The system to be modified should be one that has proven to be valid and reliable. For example, Bales' system of categories appears to be well-developed and to have had considerable success as an interaction measure. By using the four problem areas of positive reactions, negative reactions, questions and attempted answers a four category system could be devised. Another possible adaptation for the same system would be in the light of the six problem areas of the system: orientation, evaluation, control, decision, tension management and integration.

Of course, before any adaptation of a system is used to collect scientific data the adaptation must be proven reliable and valid. While making either a new system or an adaptation the experimenters would keep in mind the major requirements for an observer system of interaction observation in a field situation using naturally existing groups. They are simplicity, flexibility and adequacy.

The sociometric tests and subsequent attitude interviews will be administered by the same experimenters. Because of the guarded nature of the group and its distrust of out-group entities it is imperative that the experimenters receive group approval and acceptance. One method of achieving this end is intelligent and sympathetic handling of interviews and observational contacts.

Concurrently with the development of the group structure the group will begin to present examples of group syntality. At first the group will be characterized by weak synergy, but as it develops more and more stable structures the synergy should become stronger. Observations of group cohesiveness and coalition patterns will help determine the degree of synergy that the group possesses. The syntality of the group is exhibited in the decisions that the group makes; in the leader of the group as he guides the membership in actions designed to achieve the group goal; and in the acts of assistance or aggression on the part of the leader or the group

toward out-group entities, either individuals or other groups.

The period of the experiment can be broken into two segments, the first about five weeks in length and the second about seven weeks. The first segment would allow time for the group to become established as a group, the structure would begin to show stability and a consequent equilibrium pattern would be noticeable and observable. In this first period the observers will have had time to fully explore the group scientifically. In all probability one or two new men would have been assigned to the "carrier" platoon which would call for a partial restructuring of the group, both in formal and informal organization.⁴ The personality variables of the new member may be of such magnitude that the group would be completely restructured. These possibilities would be excellent objects of group research. The group, at this time, may be so large numerically that clique patterns are present in the organization. At any rate, before the second phase of the experimentation begins, the group should be evidencing stability phases.

Another necessary development within the group is the designation of a peer leader to deal with the experimenter-officer of the group. This peer leader may be a combination

⁴Also some of the group members will be released from the "carrier" platoon before the experiment is completed by reason of release from the post stockade upon completion of sentence. The size of the group will thus remain nearly constant.

of persistent momentary problem solving leader, salient leader, sociometric leader and elected leader. He will most probably be both a salient and sociometric leader. Of course, this designation must, in some manner, come from the group.

The second phase of the experiment will be that portion of the experiment designed to test the hypothesis. The established group will be presented with a number of problem solving situations that will require the approval of a group decision by a higher authority than the experimenter-officer. For example, it is the desire of the group to fire automatic weapons with live ammunition as a portion of their training. It will be the job of the peer leader to explain and convince the experimenter-officer of the group decision. The experimenter-officer then must obtain a decision from a higher authority on the group decision.⁵

In this instance the interaction of the group in reaching the decision to enter this phase of the training becomes the object of research. The group interaction pattern will then be compared with the interaction pattern of the peer leader and the experimenter-officer. Is the

⁵In one instance of the author's experience with groups of this nature while on active duty with the United States Army a "carrier" platoon reached such a decision as this without prompting and presented such convincing arguments that command action was taken to allow the group to participate in live fire exercises. The reason for the prior prohibition was that "prisoners" could not be trusted with loaded weapons.

pattern which produced the group syntality the same as the pattern of the group exhibiting its syntality through its peer leader? It is now obvious that the hypothesis is based on the premise that syntality is the group "personality."⁶

It might appear that the use of the experimenter-officer as an intermediary would be wasted, that the experiment could be conducted with the peer leader directly contacting the ultimate authority. There are several reasons why the use of the intermediary is necessary. First, the United States Army requires the use of the chain of command. Second, the officer-experimenter could make valuable suggestions to the peer leader that could be taken back to the group for further consideration. This action would present further interaction for observation. Third, this action would insure that the group decision, in its final plan, would be thoroughly considered as a complete plan before the recommendation is placed before the final authority. Inasmuch as the "carrier" platoon represents a group of men in an actual situation whose decisions represent actual group goals, it is desirable, in the eyes of the group, that the majority of their decisions be accepted, if at all feasible. Fourth, the use of the intermediary helps to establish a

⁶This use of the term "personality" does not carry a connotation of group mind or existant consciousness. The use of the term personality with syntality denotes a consideration for the general group characteristics and the sum-total of group behavior. It is the group acting as an entity.

degree of rapport between the experimenter-officer and the group, a useful aid to this type of research.

As the group continues to be presented with problem solving situations it is probable that a proficiency pattern will develop. Interactional shortcuts will appear in the group interaction and structural patterns. As time progresses and subsequent decisions are reached, syntality proficiency will increase. Subsequent changes will occur in structural patterns. In accordance with the hypothesis, as the group pattern changes does also the syntality pattern as exhibited by the group peer leader change accordingly when dealing with the experimenter-officer?

In the second phase of the experimentation it will be necessary to continue individual interviews with the group membership in an attempt to discover sociometric change and attitude change that may disclose reasons for structural change. Interview and observation should maintain an effective cross-check on the resulting data.

III. THE EFFECT OF SUCH EXPERIMENTATION

This experimentation cannot continue indefinitely. The second phase is completed as soon as the individual members of the "carrier" platoon have completed sixteen weeks of basic military training. At this point the group will break up with the individuals moving into replacement channels.

Inasmuch as the analytical evaluation of data should be progressing concurrently with the experimentation, evaluations and conclusions should be made at the end of the training cycle. It is hoped that the experience will not be unique; replication should be accomplished with another carrier platoon.

The experience with the particular "carrier" platoon will be unique in some respects because of certain natural variables that may or may not be duplicated in future experimentation. The variables are of such type that they might be encountered in any experiment using natural groups as the object of observation. However, general principles developed will apply to all small social groups:

One variable is the gain and/or loss of individuals to the group membership. The experimenters are powerless to prevent the loss of men in this situation. The individuals who come into the group may change the population mean sufficient to produce structural change. If the change in group membership is slight and slow the experimenters can easily keep pace with the group. If the change should be rapid or occur at an inopportune time in the experimentation, the experimenters must realize that the group has, in all probability, changed so radically that it has become a new group.

The manner in which the higher authority handles the decisions of the group will effect further group efforts

to gain syntality. A higher authority with an appreciation for such a group will act in a manner conducive to the experiment, although if the group decisions are not accepted by the higher authority, the group will be forced to act in a different manner to gain syntality approval. This acceptance variable will tend to produce a unique experience. It may cause the group to exhibit more aggression than would ordinarily be the case. The "tele" response becomes a major variable that might require control on the part of the experimenters.

Utilizing a group of this nature in an environment that continually presents problem solving situations over which the experimenters have no control is another natural variable that may either speed or retard the group's natural structural development. The group may be working on one of the experimentally directed problem solving sequences when the environment may suddenly present a more challenging problem. At any rate, the environment will present problems to the group that the group must meet. It is the responsibility of the experimenters to turn such problems and the group's attempt at solution into scientific data. Properly handled in this manner such environmental problems need not be a major variable that will make the situation unique.

An experiment of this nature should produce a high degree of productive data. The resultant knowledge will

present principles that will be applicable in a variety of purposes. The productivity of groups could be increased by the application of these principles. The data will have implications to individual therapy in a group situation. The principles can be applied to some macroscopic phenomena. The experiment will result in generalized data that can be universally applicable to all small groups regardless of purpose of the group.

The interest of increased productivity arises when individuals exist together in a group that is established by an organization that expects a certain level of productive behavior from the group to the benefit of the organization. This interest in increased productivity may also mean increased satisfaction for the individual group member. An experiment of this nature will produce a higher degree of productive behavior for the sponsoring agency. Data collected from research on this "carrier" platoon may lead to new concepts and practices on the part of the United States Army in an attempt at more successful rehabilitation of military prisoners. It may cause the rehabilitated soldier to be a more proficient soldier, adequately capable of participating in military group life. The environment of the proposed test is predominantly military so it is conceivable that some of the conclusions may direct improvements that would be applicable throughout the entire military society.

The experiment, although not designed to act as such, may prove to be a therapeutic experience for the individual participating member. He may learn techniques of group behavior that will enable him to gain more satisfaction from group participation. Such groups can mean increased productivity for the military in the form of a better trained soldier and for the individual in the form of satisfaction through group participation.

The reason that the armed forces are interested in increased productivity for small groups is obvious - all of the services are made up of small groups. If a particular group is able to do a task faster, better and safer it is advantageous to train all groups to handle the task in a similar manner. An infantry division is composed of better than seventy rifle squads; an Air Force B-29 has a crew of about sixteen men; the Navy is made up of fire control crews, kitchen crews, gun crews and many other small groups that must function if each ship is to function. The armed forces are composed of many small groups, dependent upon interaction processes to function smoothly. Today it is necessary to know how many such small groups, satisfactorily functioning, are available for use.

The perspective of understanding the macrocosm will be furthered by such proposed experimentation. To understand this perspective the object of experimentation should

not be emphasized as a military group, but rather as a group existing within the society. If it is not possible to achieve this divorcement, the group should be considered as a part of the military society which in turn is a part of the larger social order. Studies of this nature will help place the small group in proper relation to other groups in the operation of the society.

If the proposed hypothesis is substantiated, the small group will have been successfully connected to an out-group entity. Generalizing from this proof it is conceivable that small groups are chained together in a similar manner to form larger groups and subsequently the macrocosm. Of course, a generalization of this kind needs empirical proof before it can be accepted. The proposed experiment has started such scientific investigation in the right direction.

If the data fail to substantiate the hypothesis, they are not wasted. In this instance consider the small group as the macrocosm. Scientific data have been collected, analyzed, and verified showing the macrocosm in operation. All of the possible interrelationships have been determined; the place of each separate structure in the structural panel is charted. Population data have been correlated with structural data and these compared with syntality data. This investigation has proposed integration of theories of small group behavioral phenomena. From this study alone, it is impossible to

understand the macrocosm completely. The contribution of such a study becomes the impetus it gives to other social scientists.

The concept of macrocosm in regard to small group analysis is not too clear. The most popular idea is that "a small group may bear many general resemblances to larger-scale social systems."⁷ Here the study of small groups is a study of social systems, of the developing culture and of personality. These three may be related to a common denominator - the social process out of which they arise and undergo subsequent change.

A study of the macrocosm implies that small group studies are microscopic studies in relation to one or more macroscopic systems.⁸ In this instance the theory of action is the large macrocosm composed of organizational roles, personality systems and structural patterns which are considered as smaller macrocosms. The microscopic phenomena of interaction and interpersonal communication are the key to understanding the macrocosm.

This study will have at least accomplished an ordering of behavioral phenomena that can serve as a model for future experimentation in an effort to understand the macrocosm.

⁷A. Paul Hare, Edgar F. Brogatta and Robert F. Bales, Small Groups: Studies in Social Interaction (New York: Alfred A. Knopf, 1955), p. v.

⁸Talcott Parsons, Robert F. Bales and Edward A. Shils, Working Papers in the Theory of Action (Glencoe, Illinois: The Free Press, 1953), pp. 190-93.

The model acts as a point of departure from which future experimentation toward synthesis of small group analysis may proceed. The correlations and interrelationships that are established in this experiment will be subjected to verification.

The experiment is an attempt at both analysis of data and synthesis of the analytical material. However, if this type of research is unable to develop theories and directions that lead to further information about the larger social order, still the effort has not been in vain.

Small group studies have enabled the social scientist to understand certain social phenomena that could not be empirically viewed in any other manner. Social behavior such as cooperation, ascendance, submission, cohesion and coalition can not be studied with the individual in isolation. Leadership, rejection and role analysis can be studied adequately only when the individual subject is placed in a group context. In these and other instances the group is the necessary frame of reference for scientific research.

These particular social phenomena are the result of group action on the individual, individual action on the individual in a group setting, or are representative of the collective action of various individuals expressing themselves in a unity of group decision. In these instances the group becomes the sine qua non, a major variable essential to the empirical knowledge of human behavior.

The reliability and validity of an integrated approach such as this remains to be demonstrated by other social scientists. Verification will come from further experiments like this where various separate approaches will be combined to achieve the total group picture. Verification will also come when the generalized principles from experimentation such as this are applied to specific groups to obtain the desired goal of increased productivity or therapy or understanding of the macrocosm.

The resources for the study of small groups are not dwindling. More specialized studies relating to small group analysis are being reported. This effort is a partial waste of social experimentation. Social scientists could better advance the knowledge relative to small group analysis by utilizing integrated techniques and approaches to firmly develop the total group picture. The data resulting from such analysis, because of its generalized nature, would have wide acceptability and wide applicability. No matter what the desired goal of the individual social scientist the integrated approach would serve admirably. And, if synthesis is the goal, the integrated approach is the first necessary step.

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APPENDIX

APPENDIX

REPRESENTATIVE EMPIRICAL WORK IN GROUP ANALYSIS

I. INTERACTION ANALYSIS

Analysis of interaction, particularly in regard to frequency and sub-periods within the total continuous period of interaction, has been conducted with the aid of a category system. Bales and Strodtbeck's work in phases in group problem solving is typical.¹

"Phases in Group Problem Solving" presents a method of testing the empirical existence of different phases in the group process and some evidence that under certain conditions a certain type of phase movement tends to appear. The present hypothesis is restricted to instances in which the groups are working toward the goal of group decision on a full-fledged problem. Briefly, the phase hypothesis is the proposition that under these conditions groups tend to move in their interaction from a relative emphasis upon problems of orientation, to problems of evaluation, and subsequently to problems of control, and that concurrent with these transitions, the relative frequencies of both negative reactions and positive reactions tend to increase.

The conditions of the experiment are those variables which exist prior to the period of observation such as indi-

¹Robert F. Bales and Fred L. Strodtbeck, "Phases in Group Problem Solving," Journal of Abnormal and Social Psychology, 1951, 46, 485-495.

vidual personality differences, member cultural similarities, and the organization of the group. Further conditions are established in that a task is required in which the problems of orientation, evaluation, and control are largely unsolved at the beginning of the observation. Individual members may possess facts relevant to decision, but the group must be largely ignorant and uncertain about possible solution.

To test the hypothesis the experimenters utilized data that had been gathered in prior experimentation and appeared to meet the conditions established for this particular experiment. The groups involved had been observed for a purpose other than this experiment. Some were constructed groups with assigned tasks; others were natural groups that had been observed in a problem solving situation. The results are based on eight cases that fulfill all conditions and fourteen cases involving truncated tasks. In all instances the interaction was observed and recorded in accordance with Bales' interaction categories.

All twenty-two cases available to the experimenters, when considered as an aggregate, show significant departure from a random distribution of acts between phases. This is largely attributable to the inclusion of cases which do not meet all conditions. The eight cases which meet all conditions do not show a significant departure from a random distribution of phase movements. However, all of the acts of the twenty-two

cases are summed by type of act and phase, the values for each type of act have maxima and minima which correspond exactly with the particular phase postulated for individual cases under the specified conditions. Inasmuch as these findings may be accidental, the suggestion is offered that in addition to the external conditions specified, the interaction process should be considered a system with internal tendencies which make each part of the process a condition to the other parts. These "internal" conditions are thought to be similar to some degree from case to case and to exert a constant "biasing" effect.

Finally, the general method of testing for the existence of any given phase pattern seems to open the way for experimentation on problems of determining the effects of various patterns of process under various conditions such as the effects on the motivation and satisfaction of participants in their performance of the group task.

II. FACTOR ANALYSIS

Primarily, factor analysis has been used with small groups as a device to discover what leadership is, i. e., by what evidence we know leadership exists and how leadership is to be measured. In general the existence of a leader is detectable from the internal organization of the group as seen in observations of process and interaction and from the

effectiveness of the total performance of the group. For all that goes under the heading of internal organization the single term of "structure" applies. The observations of the group as a group will be labeled "syntality."

In order to exactly describe a group and its characteristics a third descriptive panel of "population" is added. These three panels of group characteristics are described at length in Chapter III. All that can be said at this time regarding the interaction of variables expressed in terms of observations from these three panels is that there is complex interaction and that some sort of mathematics suitable for expressing multiple reciprocal influence will eventually need to be used.

"New Concepts for Measuring Leadership, in Terms of Group Syntality"² is an attempt to re-focus the investigation of leadership on observations of the group acting as a group. There are many cogent arguments for basing the assessment of leadership upon syntality as much as possible and upon structural observations only when the former is impossible. Structural observations are often incorrect as with "the power behind the throne." There is poor general agreement between ratings dealing with popularity when made by different kinds of observers. Member estimates do not agree with leader estimates of influence procedures.

²Raymond B. Cattell, "New Concepts for Measuring Leadership in Terms of Group Syntality," Human Relations, 1951, 4, 161-184.

In view of this orientation the leader is defined as the person who has demonstrable influence upon the group syntality. Leadership is measured by the magnitude of the syntality change, from the mean, produced by that person. This definition of leadership and leadership measurement proceeds regardless of whether leadership is explicit or implicit, formalized or spontaneous, permanent or transitory.

Leadership investigation can no longer be handled by the stereotype of a single leader and a mass of followers, but must be met by the conception of different problem-solvers rising to different occasions. The present theory generalizes such observations on the basis that since every man affects the syntality measure, every man is more or less a leader.

This type of leadership measurement leads to some other reorientations. For example, leadership behavior and procedures can no longer be arbitrarily defined as behavior associated with the person put in the formal leadership position. Leadership procedures must first be located empirically, by examining coefficients of association, to detect "that behavior which is found empirically to be more frequent in men who have greater measured effects on syntality."

This study is largely based on a survey of relevant leadership studies that have been conducted. The concepts developed are justified by deficiencies and directions

established in the previous studies. The author of the study drew heavily on his extensive empirical experience in work with leadership phenomena. This particular development of concepts is not a statistical study.

III. SOCIOMETRIC CHOICE ANALYSIS

Choice and spontaneity are the important considerations in the application of a sociometric test. An excellent example of the use of these considerations is the Parent Test developed by J. L. Moreno.³

The Parent Test is so named because it brings all girls newly arrived at a detention home face to face with all the housemothers who have a vacancy in their cottages. This specific test was administered and developed at the juvenile girls' detention home at Hudson, New York. It was to determine the best assignment for each girl as she entered the home, and, as such, allowed restructuring of the group, a principle of sociometric testing. In the administration of the test each new girl is allowed to meet and become acquainted with each housemother who has a vacancy in her cottage. Immediately after each meeting both housemother and the girl have an opportunity to express their separate impressions. After all girls have met all housemothers the Parent Test is administered.

³Joseph L. Moreno, Who Shall Survive? (Beacon, New York: Beacon House Inc., 1953), pp. 459-70.

The Parent Test requires each girl to express three choices in order of preference with which housemother she would desire to live. The girl is then given the chance to express her feelings and motivations for feeling more drawn to one housemother than another. The housemothers are similarly tested to register their three choices of girls to live with them. The housemother is also asked to give her impressions of each of the girls and the motivations for her preferences. Both housemother and girl respond freely because they know that the procedure is constructed with the aim of advancing their own preferences. The test is spontaneous or spontaneous interaction in that the participating individuals have not met before nor have had the opportunity to establish expectancy patterns.

Successive replications of the Parent Test indicates that mutual rejection between housemother and girl is the poorest risk for assignment. If the housemother rejects the girl and the child may still want her, the assignment is still a poor risk. If the two are mutually attracted, this is the best basis for assignment. If the housemother should want the child, but is rejected by the child the assignment risk is medium. These rules appear to be valid providing that the motivational feelings behind the expression of preference do not point to disadvantages for the child, or if other tests do not suggest other assignments which are better.

The Parent Test is not the sole determinant for assignment. Initial assignment of an individual to a cottage is also based on two additional sociometric tests, psychodramatic tests, and the organization of the individual's outside home group.