

COHESIVENESS AND PERFORMANCE
IN
DAY CAMP GROUPS

COHESIVENESS AND PERFORMANCE
IN
DAY CAMP GROUPS

By
MARY E. VALENTICH

A Thesis
Submitted to the Department of Sociology
in Partial Fulfilment of the Requirements
for the Degree
Bachelor of Arts (Hon.)

McMaster University

March 1963

Thesis Title: Cohesiveness and Performance in Day Camp
Groups

Author: Mary E. Valentich

Supervisor: Mr. R.K.N. Crook

Number of Pages: iv, 72

Scope: An investigation of the relationship between co-
hesiveness and performance in fourteen Day Camp
Groups.

Acknowledgement is made to the staff of the Burlington Recreation and Parks Department without whose co-operation this study would have been impossible.

TABLE OF CONTENTS

Acknowledgement	iii
Chapter One - Introduction	1
Chapter Two - Day Camping in Burlington	13
Chapter Three - Methodology	20
Chapter Four - Analysis of Results	38
Chapter Five - Conclusion	58
Appendix	63
Bibliography	69

INTRODUCTION

In the study of groups two major traditions may be discerned. One is the approach of the older, sociological and historical schools of thought; the other is that of the newer, experimentally-minded schools. Olmsted designates the former, the "societies-as-groups" approach and the latter, the "groups-as-societies" approach.¹

In the nineteenth and early twentieth centuries sociologists were chiefly concerned with the analysis of large-scale societies. Groups within a society were viewed as cells in a social organism. The significance of groups characterized by intimate membership ties was generally overlooked. There were, however, three men who drew attention to these groups: Le Play, Simmel and Durkheim.

Le Play concentrated on the family as an important element in social solidarity.² Simmel insightfully discussed such topics as friendship, marriage and the significance of numbers for social life.³ Durkheim pointed

1 M.Olmsted, The Small Group (New York: Random House, 1959), p. 16.

2 For a discussion of the Le Play School see H.Becker and H.Barnes, Social Thought from Lore to Science (2nd ed.; Washington; Harren Press, 1952), pp.817-822.

3 G.Simmel, The Sociology of George Simmel, translated, edited and with an Introduction by K.Wolff (Glencoe, Ill. Free Press, 1950).

out that without some groups to serve as a moral base for the individual, anomie would become widespread.⁴ Of these three, Durkheim has been the most influential in the development of sociology.

American interest in the study of face-to-face groups was sparked by Cooley's formulation of the concept of the primary group.⁵ For Cooley a primary group was a small, informal one characterized by a high degree of mutual identification, expressed in the use of the term "we". He hypothesized that primary groups were the sources in childhood of moral norms which operate in the life of the adult as well as the agencies of the "stabilization" of the adult in relationships outside his primary groups.

Cooley's treatment of the primary group, not only drawing attention to the nature of the relationships among group members, but also suggesting something of the functions of such groups for the society, is cited by Olmsted as helping to define the sense in which the sociological tradition understands "societies-as-groups".⁶

The "groups-as-societies" approach, stemming more from psychology than sociology, is characteristically not concerned with the relation of the groups studied to the society. The focus is on the role of the individual in

4 E. Durkheim, The Division of Labour in Society (Glencoe, Ill.: Free Press, 1947), p.15.

5 C. Cooley, Social Organization, (New York: Charles Scribner's Sons, 1909), pp.23-24, 26-28.

6 M. Olmsted, The Small Group, p.18.

the group. The research setting is usually the laboratory.

Small Group research leans heavily on this tradition. At present, Small Group research is characterized by a diversity of approaches. At least seven may be discerned:

- (1) The Group Dynamics school founded by the late social psychologist, Kurt Lewin, which considers social phenomena as occurring in a field of forces, that is, as part of a totality of coexisting facts which are conceived of as mutually interdependent;
- (2) The sociometric approach developed by Moreno and Jennings, which sees effective bonds as the crucial social fact;
- (3) The formal organization approach which is primarily concerned with developing a satisfactory conception of the nature of the relationships within the formal organization;
- (4) The factor analysis approach exemplified by the work of Cattell at the University of Illinois, which seeks to determine the major dimensions of groups;
- (5) The Interaction Process Analysis of Bales and the Harvard school which focuses on the "problem solving" behavior of individuals in interaction;
- (6) The psychoanalytic approach which stresses the emotional, primarily unconscious elements in group process and their effects on personality development; and

(7) The social group work approach, usually in a nontherapeutic setting, which is chiefly concerned with personality development through group experience.

It is not intended to elaborate on these perspectives.⁷ Attention has been drawn to them in order to indicate the background of the present research project, entitled "Cohesiveness and Performance in Day Camp Groups".⁸ In particular, this project is in keeping with the approaches of Group Dynamics and sociometry.

Research investigating the relationship between cohesiveness and performance has been done in a variety of settings. Military, industrial, and educational groups -- all have been studied. The results have been contradictory: some indicate a positive correlation between cohesiveness and performance; others, a negative one.

A major source of confusion stems from the fact that researchers have defined cohesiveness in a variety of ways. Cartwright and Zander distinguish at least three different meanings:

(a) attraction to the group, including resistance to leaving it;

7 For further information see: M.Olmsted, The Small Group; R.Fariss, "Development of the Small-Group Research Movement", Group Relations at the Crossroads, ed. by M. Sherif and M.O. Wilson (New York:Harper and Bros.,1953) pp. 155-184.

8 Despite its imprecise definition in the past, for present purposes the concept "group" will be retained. What is meant by "group" in this thesis is, a "system of social action involving a plurality of interacting individuals". See T.Parsons, Essays in Sociological Theory: Pure and Applied (Glencoe,Ill.: Free Press,1949) p.6.

- (b) morale, or the level of motivation of the members to attack their tasks with zeal; and
- (c) coordination of the efforts of members.⁹

Because of the difficulty of developing a concept which adequately contains all three meanings they suggest that cohesiveness refer to the phenomena of attraction to the group.

Cartwright and Zander state that if the attraction of the group is a function of the individual's needs and the properties of the group, the attraction to the group is, in Lewinian terms, a function of the resultant forces acting on the member to belong to the group. Reference must be to the "resultant" forces since a group may have both attractive and repelling features. Therefore, the cohesiveness of a group is defined as "the resultant of all the forces acting on all members to remain in the group".¹⁰

Certain comments should be made on this conceptualization. First, since cohesiveness is limited to referring to the attraction of the individual to the group, it is, as Cartwright and Zander recognize, identical with more general conceptions of human motivation. Since the area of human motivation is by no means a narrow one, it may be difficult to treat, as they suggest, in any adequate

⁹ D. Cartwright and A. Zander, (eds.) Group Dynamics (New York: Row, Peterson and Co., 1953) p.76

¹⁰ Ibid., p.78. In terms of this definition, a certain minimal amount of cohesiveness is necessary for a group to exist at all.

formulation of group cohesiveness, "both the nature of the group and the motivational state of the persons involved".¹¹

Secondly, cohesiveness conceptualized in this manner may, as Gross and Martin suggest, result in "an emphasis on individual perceptions and minimize the importance of the relational bonds between and among group members".¹²

In their critique, Gross and Martin note that group cohesiveness is usually measured by sociometric friendship choices. The cohesiveness score, therefore, takes into account only one source of the attraction of the group, the members. Even after a satisfactory method of determining an individual's resultant attraction to the group is achieved the problem remains of combining the individual scores into an index of group cohesiveness.

In this matter, Cartwright and Zander write:

The simplest formulation of group cohesiveness would be that it equals the sum of the resultant forces on the members to remain in the group. Each member would be given equal weight. A formulation essentially of this type has been used in most of the research conducted up to the present, and on the whole it has proved satisfactory. There can hardly be any doubt, however, that the degree to which certain members are attracted to the group makes a critical difference, while the degree of attraction of other₁₃ members is relatively inconsequential to the group.¹³

For present purposes, cohesiveness is defined as "the resultant of all the forces acting on all the members to remain in the group".¹⁴ The operational definition,

¹¹ Ibid., p.76.

¹² N.Gross and W.E.Martin, "On Group Cohesiveness", American Journal of Sociology, LVII (1952), 546-553.

¹³ D.Cartwright and A.Zander, Group Dynamics, p.88.

¹⁴ Ibid., p.78.

taking into account only the attractiveness of the members of the group, is the extent to which the members of the group like one another.

In the investigation of the relationship between group cohesiveness and group performance, the former has usually been treated as an independent variable, that is, as having some influence on group performance. Schacter, Ellertson, McBride and Gregory, after distinguishing between the cohesiveness-morale formulation in which definitions center chiefly around particular aspects of group behavior and the cohesiveness-attraction formulation in which the definition of cohesiveness refers solely to the attractiveness of the group for its members, show how the derivations from these two formulations differ in treatments of the relationship of cohesiveness to group performance.¹⁵

They state:

The cohesiveness-morale formulation suggests that since a cohesive group is marked by good morale and since the members of such a group like one another and get on well together, it should follow that the more cohesive the group the greater should be its productivity.¹⁶

15 S. Schacter, N. Ellertson, S. McBride, and D. Gregory, "An Experimental Study of Cohesiveness and Productivity", Group Dynamics,

16 S. Schacter, N. Ellertson, S. McBride, and D. Gregory, "An Experimental Study of Cohesiveness and Productivity", Group Dynamics, pp. 401-402.

On the other hand, the cohesiveness-attraction formulation leads to a different set of derivations:

From this theory the derivation has been made that the greater the cohesiveness the greater the power of the group to influence its members. The power of the group will be equal to the magnitude of the force on the member to remain in the group....The greater the force to remain in the group, the more successful will be the attempts of the group to influence the member. If we conceive of group productivity as in part a function of the success of the group at influencing its members, it becomes clear that cohesiveness should be one of the determinants of productivity. Whether cohesiveness will increase or decrease productivity, however, is determined largely by the direction of group induction.¹⁷

Schacter et al. describe a laboratory experiment in which members of high and low cohesive groups, each working along on an individual task, experience positive (speed-up) and negative (slow-down) induction. The experimental results indicate that in the positive induction condition members of both high and low cohesive groups accepted group induction and increased their output markedly. In the negative induction condition, the members of the high cohesive groups were more accepting of group induction. While these results show the necessity of studying more carefully and, perhaps in a less artificial situation, the direction of induction and its acceptance, they do point up the fact that members of high cohesive groups exerted greater influence over each other than members of low cohesive groups.

¹⁷ Ibid., p. 402.

On the basis of findings indicating that individuals are more willing to agree with the opinions of others whom they like, Festinger et al. similarly conclude that persons who are attracted to each other have more influence over each other.¹⁸ Also, Back has shown experimentally that increasing the attractiveness of a group increases the power that the group has over the member.¹⁹

Therefore, it may be expected that the more cohesive the Day Camp group the greater the influence of the members over each other. Assuming that with few or no exceptions children with negative views on Day Camping will not be attending Day Camp, it seems reasonable to say that nearly all campers will to some extent value successful performance in Day Camp activities. Since in the Day Camp situation the goals of individuals are so related that any individual's goal can be achieved only if all the individuals also achieve their respective goals, it may be expected that individuals will influence each other in the direction of successful performance.

18 L. Festinger, S. Schacter, and K. Back, Social Pressures in Informal Groups: A Study of Human Factors in Housing (New York: Harper and Bros., 1950).

19 K. Back, "Influence through Social Communication", Journal of Abnormal and Social Psychology, 46 (1951), 9-23.

20 The cooperative nature of Day Camp activities is illustrated in Chapter II, pp 13-16

Thus it may be expected that the more cohesive the Day Camp group the higher the level of performance. In this thesis the null hypothesis being tested is that of zero or negative correlation between cohesiveness and group performance.

The planning of the research design involved taking into account certain limiting factors. For instance, it was not possible to set up an experimental design to test the above hypothesis, since "low" cohesive groups were not desirable from the employer's viewpoint. Another limiting factor was the writer's responsibility as Day Camp Director to set up and supervise a Day Camp program. Furthermore, the use of participant-observer techniques was precluded, since neither campers nor Leaders would accept the Director as simply another member of the group.

In light of these factors a research design was formulated. At the beginning of the summer it consisted of three Parts:

(1) In Part A it was planned to administer a Day Camp Questionnaire to a sample of campers in order to gain information regarding their backgrounds and attitudes towards Day Camping. Such information would be of direct practical relevance to Day Camping and only of possible relevance to the main concern of the project.

(2) In Part B it was planned to administer a Sociometric Test to all Day Camp groups. From the responses it would be possible to investigate the sociometric structure of

Day Camp groups as well as to derive a cohesiveness score for each group.

(3) In Part C these cohesiveness scores were to be correlated with group performance scores in order to test the null hypothesis of zero or negative correlation between cohesiveness and group performance.

It proved impossible to carry out fully Part B. Lack of time prevented administering the Sociometric Test to all the groups. Furthermore it was found that by the end of the first week of the two-week period campers generally did not know the last names of the other campers in their groups. Such information would have been necessary in order to investigate systematically the sociometric structure of the groups.

Nevertheless it was possible to derive cohesiveness scores for fourteen groups. Thus it may be seen that the main focus of the thesis is on the investigation of the relationship between cohesiveness and group performance.

A report on the methodology involved in the research design will be made in Chapter III. For clarity in exposition the three part division of the original research design will be retained. Thus Part A will deal with the Day Camp Questionnaire, Part B with the Sociometric Test while in Part C the procedure for obtaining the group performance scores will be described.

The analysis of the results will be presented in Chapter IV. Concluding remarks will be made in Chapter V.

The following Chapter is relevant for an understanding of the background in which the research was done.

DAY CAMPING IN BURLINGTON

The Chapter is divided into two sections:

(1) Program and (2) Administration.

Program

Day Camping is a form of summer recreation for boys and girls between the ages of seven and fourteen. Essentially it is an organized small group experience in outdoor living. It differs from resident camping in that it is on a daily basis and its fees are much lower.

The Burlington Day Camp program is designed to:

- (a) provide the child with an opportunity to have fun;
- (b) provide him with an opportunity for adventure;
- (c) help him develop along physical, mental, spiritual and social lines;
- (d) help him develop creativity; and
- (e) prepare him for more advanced forms of camping.

The activities of the Burlington program center around three themes. Two, Nature and Camping, are inherent in the program. The third is the advertised theme, for example, North American Indians or Campfires Around the World.

In the past the Day Camp program operated on a rigid schedule. At present the only scheduled activities in the daily program are opening and closing exercises, lunch and swimming. Within the framework of Day Camp activities a group plans its own program. This system of "loose" scheduling made it possible to carry out a research project without disrupting the operation of the Day Camp.

The daily program of activities begins the moment a child gets on the bus in the morning. On arrival at the camp site all the campers and Leaders assemble for opening exercises. This is a time for flag-raising, a prayer, announcements and the singing of the camp song. The only scheduled periods in the daily program when all the campers assemble are opening and closing exercises and lunch. During the rest of the day each group is usually on its own.

Day Camp activities are cooperative in nature. For instance, the successful completion of most Day Camp projects necessitates cooperation. Even prior to participating in a Day Camp activity campers must cooperate. For example, no one may go swimming until all the group members are at the swim area.

The emphasis of the Burlington program is on activities pertaining to Nature Lore, for example, hiking, plant and animal identification, and weather forecasting. Each group is encouraged to make projects such as terrariums, antariums and collections of various sorts.

Under Camp Lore are subsumed the countless skills involved in outdoor living. At Day Camp children are taught elementary skills such as firebuilding, cooking, knotting and lean-to construction.

In the Craft Program children gain familiarity with tools and materials used in common hobbies such as clay modelling, sheet metal craft, sewing, leatherwork, mosaic tile work, woodwork, painting and paper sculpture. Having gained this familiarity, children are encouraged to think up novel ideas for individual and group projects. Leaders guide campers in their craft activities: they do not teach a specific craft in a step by step manner.

The Sports Program includes swimming, team sports such as soccer, oil-can baseball and stick lacrosse, and various active games usually adapted to the advertised theme.

A group's daily program also includes quiet periods which are spent in quiet games, singing, storytelling or simply relaxing.

A Special Event, by definition any event out of the ordinary, refers in the Burlington Day Camp program to:

- (a) a cookout held during the first week of a camp period;
- (b) a campfire program followed by a camp sleepout. This latter event, which usually takes the form of a pageant, is held on the Thursday night of the second and final week of a camp period.

The planning and execution of the research design involved taking into account a group's daily activities as well as its preparation for a Special Event.

Administration

The Burlington Day Camp program is administered by the municipal recreation department. The program is almost entirely tax supported; fees cover only the cost of transportation and the cookout food.

Day Camping in Burlington is open to boys and girls between the ages of seven and fourteen. Registration takes place in June for any one of three camp periods. The cost for a two-week period is six dollars per child.

Burlington has two Day Camp sites, one for boys and one for girls. The former is leased from the Burlington Boy Scout Association, while the latter is a community park. Both are located approximately fifteen miles from the business section of the town. Access by bus is relatively easy.

Both sites have a large clear area, twenty or more acres of forest, a creek with a built-up swimming area, washrooms, a large building used for shelter during rain and a storage depot or Craft House. The boys' camp site is, however, more rugged than the girls'.

The sites are appropriate for approximately 150 campers per site at one time. The prescribed maximum number per camp period is 120. Table 1 shows the actual number of boys and girls registered per camp period during the 1962 Day Camp season.¹

1 See Appendix, p. 63.

There are always six groups of campers at each site per camp period. Members of the same group are usually within one year of each other in terms of age.

The July program is managed by a Day Camp staff composed mainly of high school students. The staff is divided into two units: one per camp. A unit consists of one Director, one Assistant Director, one Craft Supervisor, one Swim Supervisor, six Leaders and six Leaders-in-Training.

The Directors are hired in January, while the rest of the staff is hired in May. Elementary, Intermediate and Advanced Day Camp Training is carried on in cooperation with other communities during the last week of June. Three additional days of training in the first week of July are required for Burlington Day Camp staff members.

The Directors of a camp are responsible for the overall supervision of that camp. Their decision making power is effective in all phases of Day Camp program and administration. Generally this power is exercised only in matters pertaining either to coordination of the various activities or Day Camp policy.

The Leaders (one Leader and one Leader-in-Training) of a group of campers are responsible for guiding that group in its program planning. The Craft and Swim Supervisors are in charge of their respective areas.

The staff units alternate between the boys' and

girls' camps. The writer was in charge of:

- (1) The Girls' Camp - July 9 - 20;
- (2) The Boys' Camp - July 23 - Aug. 3; and
- (3) The Girls' Camp - August 7 - 17

Subjects for the research project were drawn from this sample of campers.

METHODOLOGY

Part A

Much has been said in Day Camp circles about the "needs" of the child and Day Camp's part in meeting some of these "needs". The conclusions reached have determined the nature of the Day Camp program. Yet no systematic attempt has been made to find out the child's views on Day Camping. Such information should be of relevance to program planning and to an understanding of the meaning of Day Camp to a Child.

As a preliminary step in gaining such information it was decided to devise and administer to a sample of boys and girls a questionnaire of an exploratory nature. It was hoped: (a) that by presenting the questionnaire in a non-threatening situation campers would not be afraid to answer as they thought; and (b) that campers would accept as worthwhile the Director's stated purpose in administering the questionnaire (to have the "best" program possible) and therefore, be motivated to consider the questions seriously.

Prior to the Day Camp season, the Day Camp Questionnaire was pretested on a small sample of children. It was found that seven and eight year old children understood

the questions, but had difficulty filling out the Questionnaire. Therefore, it was decided to conduct personal interviews with the younger Day Campers using the Questionnaire as a guide.

A sample of 60 girls was drawn from the July 9 - 20 period; a sample of 60 boys was drawn from the July 23 - August 3 period. Each sample is proportional to the total population of that particular camp period in terms of age composition. Sampling within each age grouping was random.

In the three-page Questionnaire, campers were asked questions pertaining to their background, their Day Camp experience and their other summer activities. They were also asked to describe their groups in terms of six statements. For example, with respect to the statement "Our group works like a team" the camper would check one of the following:

All the time _____
Most of the time _____
Sometimes _____
Hardly ever _____
Never _____

The Questionnaire was designed not to test any specific hypotheses, but to indicate areas for further research. Since the results do not bear directly on the cohesiveness and performance of Day Camp groups, they will not be reported, although brief reference will be made to them in Chapter IV.

Part B

The appearance in 1934 of Moreno's Who Shall Survive?¹ marked the establishment of the sociometric approach.¹

This approach sees affective bonds, and the propensity to form them, as the crucial social fact. Around this fact Moreno has built a broad theory of man, society and destiny.² In connection with, but separable from, this theory he has developed two techniques: psychodrama and the sociometric test. The latter has gained wide acceptance in Small Group research.

In a sociometric test each member of a group is asked to state with whom he wishes (and perhaps, with whom he does not wish) to associate. Moreno advocates that a sociometric test meet the following requirements:

- (1) The limits of the group should be indicated to the subjects.
- (2) The subjects should be permitted an unlimited number of choices or rejections.
- (3) The subjects should be asked to indicate the individuals they choose or reject in terms of specific criteria. Each sociometric choice or rejection should be made with a particular activity in mind, and the activity should be meaningful to the subjects.

1 J.L. Moreno, Who Shall Survive? A New Approach to the Problem of Human Interrelations (Washington: Nervous and Mental Diseases Publishing Co., 1934)

2 This theory has never gained prominence. Shils notes that Moreno himself has not made consistent use of the "theory" in his own sociometric studies. See E. Shils, "The Study of the Primary Group", The Policy Sciences - Recent Developments in Scope and Method ed. by H. Lasswell and D. Lerner (Palo Alto: Stanford University Press, 1951), p. 53.

- (4) Results of the sociometric test should be used to restructure the group.
- (5) The subjects should be permitted to make their choices and rejections privately, without other members being able to identify the responses.
- (6) The questions used should be gauged to the level of understanding of the members of the group.³

Certain interpretations of sociometric test data are unwarranted. For instance, Lindzey and Borgatta claim that sociometric techniques are designed to "provide a sensitive and objective picture of the interpersonal relations existing within a group".⁴ This is clearly not the case since the sociometric test records only the preferred and not the actual association of group members. Even the picture of preferred association may be distorted since subjects may not wish to admit certain feelings, either to themselves or to the investigator.

Northway, in stating that a sociometric test is a means for "disclosing the structure of the group itself",⁵ exemplifies another invalid interpretation of sociometric test data. Pro and con feelings do not constitute the structure of a group; they are only one kind of datum about group structure.

3 See G. Lindzey and E. Borgatta, "Sociometric Measurement", Handbook of Social Psychology ed. by G. Lindzey (Cambridge: Addison Wesley Publishing Co., 1954) I, 405 - 445.

4 Ibid., p. 405

5 M. Northway, Primer of Sociometry, (Toronto: University of Toronto Press, 1950), p. 1.

The Sociometric Test to be described in this section was administered on the first Friday of each camp period to the following groups:

- (a) five from the Girls' Camp - July 9 - 20;
- (b) four from the Boys' Camp - July 23 - August 3; and
- (c) five from the Girls' Camp - August 7 - 17.

The Sociometric Test consists of the following questions:

- (1) a. Suppose you were to be put into another tribe; which camper (or campers) from this tribe would you want to go with you?
- b. Which camper (or campers) from this tribe would you not want to go with you?
- (2) a. If you were going on a hike, which camper (or campers) from this tribe would you want to go with?
- b. Which camper (or campers) from this tribe would you not want to go with?
- (3) a. If you were to build a lean-to, which camper (or campers) from this tribe would you want to work with?
- b. Which camper (or campers) from this tribe would you not want to work with?

Except for slight differences in wording all fourteen groups received the same instructions. It was emphasized that the Test was not like a school examination; the "right" answers were their own honest answers. The campers were asked not to discuss the Test among themselves but to direct their questions to the Director.

With one exception, the Test meets Moreno's requirements.⁶ It may be seen that:

- (1) The limits of the group are made clear: campers may

6 See pp. 22 - 23.

choose solely from their own group. This includes absentee members.⁷

(2) Campers may make an unlimited number of choices or rejections. It is also possible to make no choice.

(3) The criteria in terms of which these choices and rejections are to be made are meaningful to the campers.⁸

(4) In terms of the research design and program administration it was impossible to use the results to restructure the groups. It may be noted that Leaders were not permitted to see the results until after their groups had received a group performance score.

(5) The campers were able to answer the questions without other members being able to identify the responses. Upon completion of the Tests, campers were asked not to discuss their answers.⁹

(6) Although some of the younger campers had difficulty in reading certain words, all the campers seemed to understand the questions.

Campers were asked to write the first and last names of those whom they chose and rejected. It was found however, that campers generally did not know the last names of others in their group. Since in every group there were

⁷ Absentees filled out the Test immediately upon their return.

⁸ The number of criteria in most sociometric tests is three. Thus comparison of results from different studies is possible.

⁹ According to Leaders' reports, campers generally did not discuss the Test.

at least two subjects with the same first name, it proved impossible to investigate the responses systematically. Three different scores were, however, derived from the responses.

These scores can be arrived at by assigning a unit weight to each of the positive and negative responses and summing different combinations of them. The three different scores and the methods of obtaining them are:

- (1) A score indicating the expressed attitude of one member of the group towards the rest of the group may be obtained by summing all of that individual's responses.
- (2) A score indicating the expressed attitude of the group towards any member of the group may be found by adding all of the responses made by the others about that particular individual. This score may be considered an index of popularity.
- (3) A score indicating the extent of group cohesiveness may be derived by adding all of the responses the group made. In this project, the mean score of each group is considered.

Reliability

With reference to sociometric test data it is possible to distinguish between interpretive and test reliability. Interpretive reliability refers to the extent to which two investigators agree in describing the same data in terms of certain scores. Interpretive reliability is usually quite high. Test reliability refers to agree-

ment between two sets of results from the same sample.

In this project time limitations precluded any re-testing. Should, however, a high degree of reliability be expected? Social preferences may vary over time; the sociometric test may or may not be sensitive to this change. What would be the meaning of the reliability coefficients obtained?

In this matter Lindzey and Borgatta write:

In most situations it is not possible to provide definitive answers to the question of just how stable sociometric measures are. Better, one might say that it is very difficult to divorce the stability of the measure from the instability of the phenomena being measured.¹⁰

Despite the difficulties involved in testing the reliability of sociometric data various reviews of sociometric studies show that a fairly high degree of reliability may be obtained.¹¹

Validity

A sociometric test possesses validity if it actually measures what it claims to measure. If the interest of the investigator is limited to interpersonal choice, as in this case, logical validation is claimed.

The validity of sociometric tests has also been

¹⁰ G. Lindzey and E. Borgatta, "Sociometric Measurement", Handbook of Social Psychology, p. 421.

¹¹ For further information see Ibid., pp. 405-445; M. Northway, Primer in Sociometry; J. Mouton, R. Blake, and B. Fruchter, "The Reliability of Sociometric Measures", Sociometry 18 (1955), 7-48.

indicated by showing the relationship between sociometric and other variables such as age, sex, education and performance. With respect to performance, Mouton, Blake and Olmsted conclude, however, that the results thus far reported indicate that "sociometric choices merit more intensive analysis as a basis for predicting a variety of performance criteria than they have yet received".¹²

Reviews of sociometric studies provide satisfactory indications of the validity of sociometric tests.¹³

12 J. Mouton, R. Blake and B. Fruchter, "The Validity of Sociometric Responses", Sociometry 18 (1955), 206

13 Ibid., 181 - 206; H. Jennings, Leadership and Isolation (2nd ed.; New York: Longmans Green, 1950); G. Lindzey and E. Borgatta, "Sociometric Measurement", Handbook of Social Psychology; M. Northway, Primer in Sociometry.

Part C

In order to test the null hypothesis of zero or negative correlation between group cohesiveness and group performance, the cohesiveness and performance scores of fourteen groups were correlated. The procedure involved in obtaining a group performance score will be described in this section.

Procedure

All the groups were rated while involved in a standardized situation, the making of a collage. A collage is a picture consisting of bits of flat objects which are pasted together in incongruous relationship for their symbolic or suggestive effect. In this case, the flat objects were scraps of newspapers, magazines and crepe paper, pasted on a three-by-nine foot piece of brown wrapping paper.

At a prearranged time a Leader would bring his group over to the craft area. He would ask the Craft Supervisor, Arti, for a craft suggestion. She would suggest a collage, since every group was making one for display purposes on Special Event Night. The Leaders (Leader and Leader-in-Training) and Arti would then lead the campers to a prearranged spot. Other group Leaders knew not to let their campers come over to this spot.

At this point, the Assistant Director would come over to the group and ask for the Leaders' assistance in a certain task. Arti would assent to their leaving, explaining to the campers that, since the collage was their "very own" project, the Leaders would, at any rate, not have been involved.

Except for slight variation in wording all fourteen groups received the same instructions. These included: an explanation of the nature of the group task, a demonstration on the use of the materials and a discussion of possible themes for the picture. Cooperative behavior was stressed as a means for "having more fun" and making a "good" collage.

Near the end of the ten-minute instructional routine the observer (the Director) would move to a table, located within five feet of the group, where paper work was usually done. Ostensibly involved in paper work, the observer, "hiding" behind dark sunglasses, would seem to pay no heed to the group.

At the close of the instructional routine, Arti would ask the campers to make their own decisions with respect to the collage: Directors or Leaders were to be consulted only in an emergency. She would then excuse herself in order to help another group.

Each group was observed for a forty minute time period during which the observer kept an interpretive running

account of strikingly significant member actions. Immediately after the observation period a group was rated along the following dimensions: Orientation, Group Atmosphere, Communication, Interest, Teamwork, Participation and Productiveness. With respect to each dimension a group received one of the following scores: 1-Very Low, 2-Low, 3-Average, 4-High, 5-Very High. The sum of the scores along the seven dimensions constituted the group performance score.¹⁴

The outlined procedure was given a trial run with the youngest group at the Girls' Camp (July 9-20). No difficulties were encountered. The fourteen groups in the research project were scored for performance on the first two days of the second week of each camp period.

The particular task was chosen for the following reasons:

- (1) It was possible to rate groups under standardized conditions;
- (2) Campers accepted the situation as part of the regular routine, seemingly, having no idea of being under observation for research purposes;
- (3) In that the successful completion of the task called for a fair amount of cooperation among group members, it was representative of Day Camp activities;
- (4) The task was appropriate for all age groups involved; and

(5) The scheduling of the task caused no great disruption in either a group or camp program.

14 The rating procedure is described on pp.33-35. It should be noted that the group cohesiveness scores were derived after all fourteen groups received their performance scores.

The Rating Procedure

The observer attempted to rate a group:

- (1) along one dimension at a time;
- (2) on the basis of the observation period, not on the group's possible future performance;
- (3) by comparing it to other Day Camp groups; and
- (4) as a whole, not just certain individuals in the group.

Comments on each of the seven dimensions will now be made:

- (1) ORIENTATION - arriving at a common definition of the situation.

The observer wishes to know whether the campers reach a common definition of the task in terms of the instructions given. Do they show they know:

- (a) that a collage is a group picture;
- (b) that it is to have a theme;
- (c) how to use the materials available; and
- (d) why they are making a collage?

- (2) GROUP ATMOSPHERE - the general affective tone of the group

The observer is interested in the attitudes of group members toward each other. To what degree may their attitudes be termed "friendly"? Is the atmosphere in general indifferent, cool or hostile? In order to answer these questions the observer notes whether:

- (a) there is laughing, smiling, or playfulness among group members;
 - (b) members want to hear and encourage new points of view;
 - (c) members respect individuals who express points of view different from their own;
 - (d) whether there is fighting, shoving or other violence; and also;
 - (e) how members speak to each other.
- (3) COMMUNICATION - sharing of information, ideas, opinions and signals.

In order to make a collage, campers must make some decisions, express ideas, ask questions and give answers. The observer wants to know how well members communicate. Do they:

- (a) speak clearly to each other;
 - (b) listen to each other;
 - (c) have obvious difficulty in understanding each other; and
 - (d) try to communicate information relevant to the situation?
- (4) INTEREST - the feeling of intentness among group members with respect to achieving their goal.

The observer wishes to assess the degree of interest that the members have in the project. Basing the rating on the whole period of observation, the observer notes:

- (a) whether they seem to feel the objective is important; and
- (c) how members treat ideas concerning the group project

(5) PARTICIPATION - taking part in activity.

The observer wants to know whether all group members contribute in some phase of the group activity, for example, cutting and pasting.

(6) TEAMWORK - action of members in which an individual subordinates his interests to those of the group.

The observer is interested in the degree to which members act as a unit in the making of the collage. Do members:

- (a) talk in terms of "we" rather than "I";
- (b) regard the objectives of the group as more important than private objectives;
- (c) help each other;
- (d) try to preserve group unity;
- (e) direct discussion to the whole group, especially when major decisions must be made; and
- (f) allow the less active members to make some contribution?

(7) PRODUCTIVENESS - the accomplishment of the group in terms the objective.

The observer notes:

- (a) whether the collage is nearly finished;
 - (b) whether it may be described as poor, average, or good; and
 - (c) how members evaluate the group's accomplishment.
-

In order to rate accurately, the observer should have a knowledge of Day Camp groups, familiarity with the dimensions, and practice in rating under the standardized set of conditions.

Reliability and Validity

Reliability may be defined in terms of agreement between independent observer. Since there was only one observer in this project, no measure of reliability can be reported.

With respect to observer systems, Heyns and Lippitt distinguish between two different meanings of validity.¹⁵ One is whether the rating system measures what it claims to measure; the other is whether observer scores predict anything. In terms of the former, Goode and Hatt indicate four approaches to the validation of the rating system: logical validation, jury opinion, "known" groups and independent criteria.¹⁶ Logical validation is almost always claimed. The ideal technique is independent criteria, but very rarely is there some satisfactory independent measure of the same variable. Heyns and Lippitt, therefore, assess validity in terms of the latter meaning, since it has been found that observer scores predict other measures.

15 R. Heyns and R. Lippitt, "Systematic Observational Techniques", Handbook of Social Psychology (1, 370-403.

16 W. Goode and P. Hatt, Methods in Social Research (New York: McGraw-Hill Book Company, 1952), pp.237-239.

ANALYSIS OF RESULTS

The analysis of results will be presented in two sections. In the first, the discussion will pertain to the testing of the null hypothesis of zero or negative correlation between cohesiveness and performance in Day Camp groups; in the second, the sociometric data will be examined.

Section A

Evidence indicating that the higher the group cohesiveness, the greater the influence of the members over each other has been presented.¹ Assuming that nearly all Day Campers to some extent will value successful performance in Day Camp activities,² these being such that an individual's goal can be achieved only if other group members achieve their respective goals, it may be expected that group members will influence each other in the direction of successful performance. Thus, the null hypothesis being tested is that of zero or negative correlation between cohesiveness and performance.

The cohesiveness and performance scores for the

¹ See pp.7-8.

² This assumption is supported by the Day Camp Questionnaire results which indicate that none of the 120 campers in the sample came solely because of parental wishes. All gave another reason (attraction or curiosity) for coming. Also most indicated liking most Day Camp activities.

fourteen groups are presented in Table II.³ It may be seen that each group has not one, but four cohesiveness scores derived by adding all the responses (a unit weight having been assigned to each of the positive and negative responses) made by members of a group. By considering separately the three criteria, being put into another tribe, going on a hike and building a lean-to, three cohesiveness scores, Co_1 , Co_2 and Co_3 respectively, may be derived.⁴

The Co_T scores, ranging from -2.06 to +28.07, approximate a normal distribution with 57.1 per cent of the scores falling between the mean and plus or minus one standard deviation, that is, between 13.96 and +6.98. The group performance scores, ranging from 14 to 29, also approximate a normal distribution with 64.3 per cent of the scores falling between the mean, 22.3 and +4.1.

From Table III it may be seen that there is no correlation between either the cohesiveness or the performance scores and the Day Camp groups considered as age groups.⁵ This is shown by the fact that an older, an intermediate and a younger age group may be in the top and bottom three of both the cohesiveness and performance scores.

In order to test the null hypothesis a rank order correlation coefficient was obtained between Co_T and the

³ See Appendix, p.64.

⁴ Why this was done is explained on pp40-41. Until otherwise specified, discussion will pertain to the Co_T scores.

⁵ See Appendix, p.65.

performance scores.⁶ The coefficient obtained, .58, was significant at the 5 per cent point. This permitted rejecting the null hypothesis,⁷ and accepting the alternative hypothesis of positive correlation between cohesiveness and performance. Thus, in Day Camp groups, cohesiveness may be considered a determinant of the level of group performance.

The finding of a positive correlation between cohesiveness and group performance is in keeping with Van Zelst's results which show that after sociometric reorganization, the output of groups of builders increased and labour costs decreased.⁸ Goodacre also found a positive correlation ($r' .77$) between cohesiveness and performance in his sample of twelve Army reconnaissance teams of six.⁹

In his study an index of cohesiveness was derived from responses to a series of questions in three criterion areas. When cohesiveness scores derived from each question were correlated with performance scores, it was found that two coefficients were low in comparison to the others. This inconsistency was attributed to the fact that the particular situations involved social interaction of a relatively

6 The method involved in obtaining a rank order correlation coefficient(r') is outlined in A. Edwards, Statistical Methods for Behavioral Sciences (New York: Rinehart and Company, Inc., 1960), pp. 193-197, 427-429.

7 In order to reject the null hypothesis, r' must equal or exceed .458. See Table VI, Ibid., p. 502.

8 R. H. Van Zelst, "Validation of a Sociometric Regrouping Procedure", Journal of Abnormal and Social Psychology 47 (1952), 370-403.

9 D. Goodacre, "The Use of a Sociometric Test as a Predictor of Combat Unit Effectiveness", Sociometry 14 (1951), pp.148-152.

less intimate degree of association.

In light of this finding it was decided to consider the extent of variation in the rank order correlation coefficients between each of the three cohesiveness scores (Co_1 , Co_2 and Co_3) and the performance scores. The null hypothesis in each case is that of zero or negative correlation.

From Table IV¹⁰ it may be seen that the rank order correlation coefficients between Co_1 , Co_2 and Co_3 , and the performance scores are .70, .49 and .41 respectively. Since .70 and .49 are significant at the 5 per cent point, the null hypothesis can be rejected and the alternative hypothesis accepted.¹¹ The third coefficient, while not significant, is in the expected direction.

These findings indicate that, in Day Camp groups, cohesiveness measured on the basis of liking and disliking in general (Co_1) is a better predictor of group performance than cohesiveness measured on the basis of liking and disliking in reference to a specific activity (Co_2 , Co_3).¹² Since it appears that, in Day Camp groups, friendship without reference to a specific activity is of greater significance.

10 See Appendix p. 66.

11 See Footnote 7, p. 40.

12 Jennings found that, when group members chose on the basis of liking in general, the sociometric structure (the "psychegroup") differed from the sociometric structure (the sociogroup) based on responses made with reference to a "work" criterion. She found that in actual association members aligned themselves in these structures. Her data suggest that "psychegroup" experience greatly influences behavior in work situations. See H. Jennings, "The Psychegroup and Sociogroup", Sociometry 10 (1947, 71-79).

in influencing behavior than friendship in terms of a "work" criterion (thus suggesting that friendship is more crucial to campers than the activities and thereby accounting for certain groups having above average cohesiveness, but slightly below average performance scores), further analysis will be in terms of Co_1 .

Although a positive correlation has been found between Co_1 and performance scores, it may be of interest to test the null hypothesis of zero or negative correlation between Co_1 and group scores on each of the seven dimensions of the performance variable. The results are presented in Table V.¹³

With one exception all the rank order correlation coefficients are in the expected direction indicating a positive relationship between Co_1 and the particular dimension. The exception is a coefficient of $-.17$ between Co_1 and Communication. Since there is evidence showing less difficulty in communication among friends,¹⁴ this indication of a slight negative tendency is somewhat unexpected. A probable explanation is that the rating technique is at fault. Rating Communication called for a high degree of inference. It may be, however, that communication difficulties arise only in groups attempting to cope with the group task, these groups being the more cohesive groups.

¹³ See Appendix, p. 66.

¹⁴ Hare lists seven studies on the circulation of rumor which support the assumption that friendship acts to reduce barriers in communication. See A. Hare, Handbook of Small Group Research, (New York: The Free Press of Glencoe, 1962), p. 216.

In the foregoing discussion, cohesiveness has been treated as an independent variable. When it is considered as a dependent variable, interest focuses on the conditions making for a greater degree of cohesiveness.

Cartwright and Zander point out that attraction to a group may be increased by heightening the member's awareness of need fulfillment through group membership.¹⁵ In a Day Camp setting this "heightening" may be one of the functions of a ritual such as a candle-lighting ceremony.

Since it has been shown that Day Camp activities are a source of attraction,¹⁶ it may be expected that attraction will increase as group members achieve success in performance. Thus, considering performance as an independent variable, the finding of a correlation coefficient of .70 between cohesiveness (Co_1) and performance supports this expectation.¹⁷

It has been shown that cohesiveness is affected by an emphasis on cooperation¹⁸ and by the degree of task interest.¹⁹ Support for these findings is given by results of this study which show a positive correlation ($r' .57$) between Co_1 and Teamwork and a positive correlation ($r' .75$) between Co_1 and Interest.²⁰

15 D. Cartwright and A. Zander, Group Dynamics, p.80.

16 See Footnote 2, p.38.

17 See Appendix, p.66

18 M. Deutsch, "The Effects of Cooperation and Competition upon Group Process", Group Dynamics, pp. 319-353.

19 K. Back, "Influence through Social Communication", Journal of Abnormal and Social Psychology 46 (1951), 9-23.

20 See Appendix, p.66

Section B

Although lack of information precluded accurate systematic analysis of the sociometric responses of the fourteen groups in the sample,²¹ it was decided to give some attention to the sociometric data, if only to indicate areas of interest for further research.

The discussion in this section is based on a consideration of two Day Camp groups:

(1) Boys' Group No. 6, consisting of 21 boys ranging in age from ten to thirteen years, and having the lowest cohesiveness score ($Co_1 = -.56$) and the lowest performance score (14); and

(2) Boys' Group No. 4, consisting of 18 boys ranging in age from eight to nine years, and having the highest cohesiveness score ($Co_1 = +10.6$) and the third highest performance score (26).²²

Descriptions of group behavior during the forty minute time period follow. These descriptions, based on the observer's commentary, are arbitrarily divided into ten minute periods.

Boys' Group No. 6

0-10 minutes:

Arti has just left. The boys, all sitting around

21 It will be recalled that most campers knew each other on a first name basis only.

22 It may be noted that the two groups stand in the same position in terms of Co_1 scores.

the three by nine-foot piece of brown wrapping paper are very noisily discussing the instructions. Suddenly two boys grab some magazines. Three or four quickly follow suit. Others grab the scissors. Within a few minutes each boy has a pile of magazines and a pair of scissors. The boys are leafing through the magazines and talking about the pictures. A few sit alone, most being in "groupings" of three or four.

Someone asks: "What scene are we making?" No one answers. One of the boys, Mercer, is moving around the members, handing out magazines and making sarcastic comments such as: "Boy, we sure have done a lot". At the end of the time period he and two other boys move about three feet away from the group. There they talk and look at the magazines.

10-20 minutes:

Boys start asking Mercer what they should do. Mercer comes back, listens to them and then says that their group will tell a story with the collage divided into Past and Present. He indicates the Present end of the paper and starts giving directions. All the group is around the paper. They talk about the theme, but reach no decision. Nevertheless most are busily ripping out pictures from the magazines. Mercer then says: "The theme is 'Natives through the Ages'".

Although this is the first mention of this theme, no discussion follows. It seems to be accepted. With two exceptions, all the boys are working. Some are more active than others. Mercer is particularly busy, giving directions, answering questions and moving around the group. Members are talking about the project, but, in general, they are neither giving nor asking each other for advice. They are, however, listening to Mercer. Mercer is being bombarded by questions. A rough indication of the amount of interaction being directed to Mercer is that in one minute his name was called fourteen times.

20-30 minutes:

Although most of the boys are working, activity is slowing down. Four boys are just sitting and watching the others. Two of these move to the end of the collage and talk to Harry. The three stop working and watch the others who are cutting and pasting. Occasionally there is some shoving, especially when someone who has left his place tries to get back in.

Some grumbling is being heard about Mercer's directions. "You nut, Mercer" is heard several times. Now an argument begins about the theme. Some members do not like it. Unable to reach a decision concerning a

theme, they turn to Mercer. Mercer becomes very angry and says: "I told you guys what to do before. Don't ask me any more questions. I've done enough". A few others chorus in with comments such as: "Don't ask Merce. Can't you do anything yourself?"

At this point (approximately five minutes having gone by) Mercer and three boys leave the group, moving about five feet away. They talk for a moment, then, pick up some magazines and move about ten feet away from the others.

Meanwhile another group of four boys has also moved away. The others stay around the collage, although occasionally a camper goes over to one of the groups. At the end of the period, two boys leave for a drink of water.

30-40 minutes:

Mercer and his group are talking quietly. The other group is fairly noisy, most of the noise coming from a thirteen year old who is the butt of group jokes. The campers at the collage are still working. Occasionally, Carleton asks Mercer a question. Mercer ignores him. Other campers tell Carleton to "shut up". Harry has been giving the group some guidance. Generally, however, he is quiet. Occasionally he stares at the boys who have left the collage.

Mercer's group is now (approximately five minutes have gone by) joined by three other boys. As more start to drift over, Mercer and two of the original group move away. About four boys are lying down. Some are still working. Two of these appear upset. Eventually they leave the group in order to get a drink. Some joking among those at the collage is for the first time being heard. At one point, however, only four boys are working on the collage. By the end of the time period, some start drifting back. Even Mercer comes to make a few comments just before the Leaders arrive.

Boys' Group No. 4

0-10 minutes:

Arti has just left. The boys, all sitting around the paper, are very excitedly talking about the project. Questions are heard such as: "What are we supposed to do?" and "Why are we doing this?". Answers, in accordance with Arti's instructions, are quickly and clearly given by other group members. Nearly all the boys are contributing to the discussion. They are not, however, all talking at once. In order to get a chance to speak, some members put up their hand. All are given the chance

to talk.

Although remaining around the paper, the boys are jiggling in their places. Finally, Roddy jumps up and starts distributing the magazines. Kennie gets up and starts distributing the scissors. The others remain in their places. Most thank the two boys.

Discussion continues on the choice of a theme. Roddy affirms emphatically: "We can make whatever kind of picture we want." Eventually a vote is taken on the theme, "War". Nearly all are in favour. Immediately they start planning the details of the theme.

10-20 minutes:

Everyone is participating: working together, consulting each other and helping each other. Remarks such as: "What do you think of this?" and "Please show me how to do this" are heard quite often. Roddy is giving a few directions to the group. These are accepted.

Some talk begins (approximately five minutes having gone by) about whether they really want to do "War". They vote and once more accept the theme, "War". Roddy goes to head of the collage and speaks for a few moments, encouraging the group to do "a good job".

Campers are cutting from the magazines. Three boys are appointed by the group to look after certain kinds of pictures.

20-30 minutes:

Nearly all are working. No one has left the group. There are moments of quiet, but usually the boys are talking to each other. There is some joking; occasionally, a sharp remark is heard. One boy has been teased throughout the proceedings. Some of the members start showing concern over the project. They worry about whether it is going to be good or not. Others console them by saying that their group will have the best collage in the camp.

30-40 minutes:

Campers continue working on the project. Some are not as active as they were in the earlier part of the period. Only two, however, just sit watching the group. One of these boys is the one who has been teased. Occasionally, Roddy and Kennie give directions. Members are still showing concern over the quality of the collage. Also they wonder whether they can finish it before the Leaders come back. By the end of the time period, however, the collage is nearly finished.

These descriptions point up the fact that, prior to the observation period, each group had developed a structure other than the formal one consisting of a Leader and Leader-in-Training who may, by virtue of their positions in the Day Camp organization, exercise power over their campers. In other words, in the course of interaction, reciprocities among individuals have been stabilized in terms of the respective contribution of individual members to the process of interacting towards the group's goals. Arising from the reciprocities have been expectations which over a time period have become standardized. These standardized expectations or social norms define a member's role. The group structure is the pattern of these roles.²³

Since role analysis is crucial to sociology, the role of "leader" in Groups No. 4 and 6 will be examined in reference to sociometric data.

If a leader of a group is defined as an individual whose orders govern, to some extent, the behavior of members of a group, then, Roddy in Group No. 4 and Mercer in Group No. 6 may be said to be leaders of their groups. Each was most influential in directing his group's activity.

23 It was, unfortunately, impossible to collect data on the development of group structure over the two week camp period. For a discussion of the development of group structure, see M. Sherif and C. Sherif, Groups in Harmony and Tension, (New York: Harper and Brothers, 1953), pp. 192-208.

Sociometry has tended to equate leadership and popularity. For example, Goodacre, in reference to a sociometric test, states:

A score indicating the expressed attitude of the group towards any member of the group may be found by adding all the responses made by others about that particular individual. This score may be thought of as an index of leadership or leadership potential.²⁴

In this thesis such a score is considered an index of popularity.²⁵ Thus, it is worth asking whether Roddy and Mercer are the most popular individuals in their groups.

It is found that Roddy is only the seventh most popular boy in Group No. 4. Mercer, in Group No. 6, is the third most popular. Therefore, it may be seen that the leader of a group is not necessarily the most popular.

It should, however, be noted that both Roddy and Mercer choose and are chosen by the most popular individuals in their groups. This finding is consistent with Bales' claim that, in the task-oriented group, leadership functions are often distributed between a task and a social-emotional

²⁴ D. Goodacre, "The Use of a Sociometric Test as a Predictor of Combat Unit Effectiveness", Sociometry 14 (1951),

²⁵ For derivation of the popularity score, based on responses made in terms of the three criteria of the Sociometric Test, see pp. 25-26. It may be noted that this popularity score takes into account both choices and rejections. Often, "popularity" scores are based only on choices.

leader who are in alliance with each other.²⁶

In discussing role differentiation in informally organized small groups, Sherif states:

The standardized expectations (norms) defining the role of leadership are more exacting, require greater obligations, greater responsibility than those for other positions in the group.²⁷

Should these norms become too exacting from the individual's viewpoint, it would seem that he has at least three alternatives: he may attempt to conform to the norms, to change or to reject them.

It will be recalled that in Group No. 6 Mercer rejected the role of leadership with respect to the group task.²⁸ A somewhat similar rejection occurred in Boys' Group No. 5, consisting^{of} eighteen boys aged nine and ten.

In this case, Doug stood out immediately as the leader: in the first fifteen minutes he helped to define the situation, he led the discussion, conducted a vote and organized the distribution of the materials. The rejection is described in the following excerpt from the observer's notes:

20-30 minutes:

At this point, some campers show concern over the quality of the collage. They say it isn't "good enough", that "more ideas" are needed. Someone suggests getting the Leader-in-Training who always has good ideas. Another remembers that they are not to consult the leaders. Then, Doug is asked for some ideas. He answers: "Don't ask me; I'm not in charge here."

26 For a critical review of Bales' Interaction Process Analysis see M. Cismesti, The Small Group, pp. 117-132.

27 M. Sherif and C. Sherif, Groups in Harmony and Tension, p.198.

28 See pp.45-46.

For a few minutes campers discuss whether their group needs a leader. Doug reaffirms several times that he is not the leader. Nevertheless, he conducts the vote on the question of whether the group should have a leader.

The majority is in favour of having a leader. They cannot, however, decide on one. Finally they turn to Doug and ask him to appoint a leader, someone with "good ideas".

Doug appoints a "new" leader who attempts to give the group some directions. Members, however, respond slowly. After a few minutes, the "new" leader says: "You don't need nobody in charge." No further mention is made of a leader.

It may be seen that Mercer and Doug rejected only the role of leadership with respect to the group task. When Mercer left the collage area, others followed him; when Doug later in the observation period, proposed plans for "surprising" their Leaders, the others eagerly agreed. It should be noted that while Doug gave no more directions with respect to the group task, he, in contrast to Mercer, remained working on the collage for the duration of the forty minute time period. It would seem that whether or not the group reached its goal was a matter of concern for Doug, but not for Mercer.

Confirmation of a contrast in attitude, at least toward other group members, is provided by the sociometric data. It will be recalled that a score indicating the attitude of one member of a group toward the rest of the group may be derived by summing all of that individual's responses.²⁹ Mercer's score is -30; Doug's is +6.

²⁹ For derivation of score, see pp.25-26.

Mercer and Doug also show a contrast in leadership style. For example, Mercer yelled his orders; Doug spoke in a normal tone. Hare, in reporting on research on leadership style, says that a common finding, particularly with children's groups, is that, when total personality is considered as a cluster of traits, there are two basic personality types among leaders.³⁰ He writes:

Some are self-oriented (authoritarian), rather hostile persons with a driving need to be in the center of the group's activities, while others are group-oriented (equalitarian), persons who are able to reduce tension in a group, work toward a group goal, and take a follower role when it is appropriate.³¹

This finding suggests that Mercer may be "self-oriented", while Doug may be "group-oriented". No information is, however, available on their personality traits.

It should be noted that searches for a trait or cluster of traits characterizing all leaders, have, on the whole, proved unsatisfactory.³² Gibb suggests approaching the study of leadership in terms of interaction theory:

In other words leadership is to be thought of as a function of personality and of the social situation and of the two in interaction.³³

30 Hare lists four studies reporting this finding. See A. Hare, Handbook of Small Group Research, p.293.

31 Ibid.

32 Gibb emphasizes this point in his review article. See C. Gibb, "Leadership", Handbook of Social Psychology, pp.877-917.

33 Ibid., p.915. This approach, like Bales', would attempt to treat the total situation. Presumably, the shortcomings of Bales' approach would be avoided. For example, the twelve categories in Bales' observational system were not built up inductively but were deduced from what seemed to be the properties of the small group as a social system.

In The Human Group, Homans presents an intensive examination of five groups for the purpose of developing a sociological theory which will state the interconnected uniformities detected in the behavior of men in groups.³⁴ With respect to leadership, Homans is concerned with showing that the leader gets his power only by conforming more closely than anyone else to the norms of the group. One might argue, however, that Mercer, because of his relatively high rank in the group, could deviate considerably from group norms and still retain the role of group leader. If the question of leadership is to be cleared up, Homans' hypotheses should be given some attention. As yet, however, measurements have not been developed through which values will be able to be assigned to the variables in the hypotheses. Furthermore, Olmsted notes a failure on Homans' part to distinguish components of these variables.³⁵

While sociometric data has been shown to be relevant to the problem of leadership, it may be seen that there is some difficulty in making sociometric comparisons of individuals from group to group. Although Bronfenbrenner has developed a method for making comparisons, as well as a means of identifying statistically significant departures from chance in choosing and rejecting, it is restricted to socio-

34 G. C. Homans, The Human Group (New York: Harcourt, Brace and World, Inc., 1950).

35 For a critical review of Homans' approach, see M. Olmsted, The Small Group, pp. 105-108.

metric tests requiring a fixed number of choices and rejections.³⁶

The difficulties of using sociometric data may be illustrated in another context. For instance, if it is wished to examine the sociometric structure of a group, a sociogram may be constructed.³⁷ There is, however, no standard method of presentation.

In the Appendix,³⁸ is a sociogram for Boys' Group No. 6. In terms of mutual choice, several triangular formations may be seen: O, R, N; O, N, E; O, R, L; O, L, N; and T, D, F. These formations are linked by choices of these and other individuals in the group. In terms of mutual choice, however, formation T, D, F, is linked only through M to the other formations.

Since the patterns of preferred association in terms of choice are interlocking, it might be expected that the group is able to cooperate in Day Camp activities. This is not, however, the case.³⁹ The above expectation would probably not have been made if it had been known that T (Harry) rejects nine boys, including R (Mercer), L, C, M and P. He makes only three choices, all of which are reciprocated. One of these choices is Q, a boy receiving the second highest number of choices. Q, however, makes only one choice, Harry, and rejects R (Mercer), P and L.

36 U. Bronfenbrenner, "A Constant Frame of Reference for Sociometric Research", Sociometry, 6 (1943), 363-397.

37 A sociogram is a pictorial rendering of choices in which individuals are indicated by circles and choices by arrows.

38 See p. 67.

39 See pp. 4 & 6

The point is that failure to take rejections into account makes the sociogram, as it is typically used, extremely misleading. Furthermore, analysis does not permit easy comparison from group to group. Moreover, there are times when it is impossible to construct a sociogram. For example, in a sociogram for Boys' Group No. 4, lines of choice between individuals would not be distinguishable from one another, since the number of choices per individual ranges from six to eleven. Despite its weaknesses, the sociogram remains popular.

Figure 1⁴⁰ represents an attempt at another kind of pictorial representation of the distribution of sociometric choice in Boys' Group No. 4. The number of boys choosing a given boy in terms of the first criterion is plotted along the vertical axis; the number of boys each chosen by a given number of others is plotted along the horizontal axis.

Figure 1 shows that in the most highly cohesive group the choices are fairly uniformly distributed among group members. From Figure 11⁴¹ showing the distribution of sociometric rejection in Boys' Group No. 4 it may be seen that eight people receive no rejections. The highest number of others rejecting a boy is three: only one boy receives three rejections.

For purposes of comparison, the distributions of choice and rejection in Boys' Group No. 6 are presented

40 See Appendix, p. 68.

41 See Appendix, p. 68.

in Figures III and IV, respectively.⁴² From Figure III, it may be seen that choice tended to focus on a small number of boys. Six boys, a fairly high number, received only one choice. The distribution of rejection⁴³ contrasts greatly with that of Group No. 4.⁴⁴ For example, in Group No. 4, the highest number of others rejecting a boy is three; in Group No. 6 it is eleven. Furthermore, the shape of the rejection curve differs at the bottom. In Group No. 4, the greatest number of boys are rejected by no one or by only one other each; in Group No. 6, only one boy is rejected by two or more.

An attempt was made to show the general shape of the distribution of choice and rejection in the other twelve groups. Because most of the sociometric responses consisted solely of first names, the results were inaccurate. What may be said is that, with respect to distribution of choice, groups tended toward either of the two shapes shown in Figures I and III,⁴⁵ or an irregular shape.⁴⁶ With three exceptions, the general shape of the distribution of rejection tended to be like that of Group No. 4, that is, with the majority of campers being rejected by no one or by only one other each.

⁴² See Appendix, p. 68.

⁴³ See Figure IV in Appendix, p. 68.

⁴⁴ See Figure II in Appendix, p. 68.

⁴⁵ See Appendix, p. 68.

⁴⁶ This finding should prevent overquick generalization about the distribution of choice. Homans shows this tendency. See G. Homans, Social Behavior: Its Elementary Forms (New York: Harcourt, Brace and World, Inc., 1961), pp. 156-157.

While presentation of sociometric data in this manner is illustrative, the problem of comparison from group to group remains. In general it may be said that if sociometric data is to be of use in the study of groups as social systems, researchers must first develop a more adequate methodology. Systematic investigation of sociometric data would then be possible. Such investigation should take the form of a general inquiry into the implications of interpersonal choice and rejection.

CONCLUSION

The present investigation was chiefly concerned with testing the null hypothesis of zero or negative correlation between cohesiveness and performance in fourteen Day Camp groups. Cohesiveness, defined as the resultant of all the forces acting on all the members to remain in the group, was measured by sociometric responses. Group performance scores were based on nonparticipant observer's ratings of groups engaged in making a collage. Groups were unaware of being under observation for research purposes.

The rank order correlation coefficients between Co_1 , Co_2 , Co_3 , Co_T (cohesiveness scores based on responses made in terms of "being put into another tribe", "going on a hike", "building a lean-to", and all three criteria, respectively) and group performance scores were .70, .41, .41, and .58, respectively. Since only $r' .41$ was not significant at the 5 per cent point, the other three null hypotheses were rejected.

The main finding is, therefore, that cohesiveness and performance are positively related in Day Camp groups. The significance of this finding is that it bears out the implication of the cohesiveness-attraction formulation for performance. In other words, it may be said that, given that to some extent nearly all Day Campers value successful performance in Day Camp activities, the more cohesive the group,

the more successful will be the attempts of the members to influence each other in the direction of successful performance.

The significance of the finding that cohesiveness based on friendship in general is a better predictor of group performance than cohesiveness based on friendship with reference to a "work" criterion is that it is related to Jennings' discovery that the small group, depending on the occasion, may align itself into a "psychegroup" or a "sociogroup" structure.¹ The findings supports Jennings' claim that members' experience in the "psychegroup" is of critical importance in influencing their behavior in the work situation.

In light of this factor, Co_1 rather than Co_T scores were correlated with group scores on each of the seven dimensions of the performance variable. With one exception, the coefficients were in the expected direction indicating a positive relationship between cohesiveness and the dimension.

The exception was a negative coefficient ($r' -.17$) between cohesiveness and Communication. The relationship of these variables deserves further investigation.

In this thesis, attention was given to the highest and lowest cohesive groups, Boys' Groups No. 4 and 6, respectively. In the discussion of leadership it was shown that the leader of the group is not necessarily the most popular individual in the group, although the two are usually in alliance. It

¹ The "psychegroup" is characterized by "personal", "spontaneous" relationships, the "sociogroup" by "impersonal", "formal" ones. The former is operationally defined by sociometric choices in terms of friendship in general, the latter by choices in terms of a "work" criterion. See Footnote, No.12, P.41.

was also shown that, in the highest cohesive group, choices were distributed fairly uniformly among members, while in the lowest cohesive group choice tended to focus on a small number of individuals. The groups were also contrasting in their distribution of rejection: in the highest cohesive group eight people were not rejected while, in the lowest cohesive group, only one boy was not rejected.

Limitations of this study may be noted at several levels. First, Group Dynamics' researchers have by no means solved the problems involved in reaching an adequate formulation of cohesiveness. For example, cohesiveness as operationally defined, in this study, takes into account only one source of attraction, that of the members of the group. Other difficulties have previously been discussed.²

Secondly, it should be noted that, while implications of the cohesiveness-attraction formulation have been borne out in this study, the Day Camp group is only one kind of group, namely, one which members may join or leave with "relative" ease. Generalization about the relevance of the cohesiveness-attraction formulation for performance in other kinds of groups is not yet possible. Most likely other variables will have to be taken into account, for example, supervisory practices in work groups, or the existence of formal disciplinary measures in military groups. It may be noted that much of the confusion in Group Dynamics stems from failure on the

part of researchers to determine what empirical limits should be imposed on any given generalization.³

There is a further problem with respect to the cohesiveness-attraction formulation and its implications for group performance. Although cohesiveness is treated as a group characteristic, its conceptualization in the Group Dynamics' tradition is essentially at the level of individual motivation. Thus, in studying the relationship between group performance and cohesiveness, the attempt is being made to explain social interaction in terms of a characteristic of the individual. This approach directs attention away from the explanation of social interaction in terms of a system of roles.

The following limitations should also be noted:

- (1) a research design which did not permit random sampling of groups from either all eighteen boys' or all eighteen girls' groups;
- (2) a rating technique which called for a fair degree of inference on the part of the observer; and
- (3) the use (although unavoidable) of group mean cohesiveness scores which may be biased by a few extreme individual scores.

In conclusion, it is suggested, on the basis of this project, that the following problems deserve attention:

- (1) the development of techniques for the analysis of socio-

³ For further discussion, see D. Cartwright and A. Zander, Group Dynamics, pp.4-5; and M. Olmsted, The Small Group, pp.109-117.

metric data which would permit comparison of results to be made from group to group;

(2) a systematic investigation of sociometric responses made in terms of different types of criteria, as part of a general inquiry into the implications of interpersonal choice and rejection;

(3) the testing of the implications of the cohesiveness-attraction formulation in experimental and "natural" groups, for purposes of developing the formulation or rejecting it in favour of more adequate one; and

(4) the accumulation of more adequate knowledge concerning the structure of the small group. With reference to Day Camp groups, attention should be given to role differentiation, including the Leaders as members of the group. Opportunity would be available to treat comprehensively the question of leadership.

APPENDIX

Table I

Day Camp Registration - 1962

Camp Period	Boys' Camp	Girls' Camp
July 9-20	122	* 125
July 23-August 3	* 117	126
August 7-17	124	* 142

* indicates that campers from that camp period were subjects in the research project.

Table II

Cohesiveness and Performance Scores
of Fourteen Day Camp Groups

Girls'
Groups:
July 9-
20

Group No.	No. in Group	Age	Co ₁	Co ₂	Co ₃	Co _T	Group Perf.
2	19	8	1.88	1.65	1.18	4.71	19
3	21	8 - 9	1.74	1.58	1.84	5.16	17
4	21	9	5.79	8.47	6.26	20.52	29
5	20	9-11	4.12	1.18	.47	5.77	24
6	21	11-13	4.67	5.44	4.44	14.55	20
3	20	8	2.8	3.27	5.47	11.54	20
4	18	8-9	10.6	9.07	8.40	28.07	26
5	18	9-10	2.31	2.38	3.88	8.57	24
6	21	10-13	-.56	-.5	-1.00	-2.06	14
2	26	7-8	7.71	5.00	5.86	18.57	27
3	25	8	4.78	8.43	6.43	19.64	20
4	23	9	6.09	6.05	7.00	19.14	22
5	20	9-10	5.44	5.11	3.33	13.88	27
6	22	10-12	8.00	9.06	10.25	27.31	22

Boys'
Groups:
July 23-
August 3

Girls'
Groups:
August 7-
17

* Co₁, Co₂, Co₃ and Co_T are group mean cohesiveness scores.
For derivation, see p. 39.

Table III

Co_T and Performance Scores
of Fourteen Day Camp Groups

Group	Age	Co _T	Group Perf.
*B-6	10 - 13	-2.06	14
G a - 3	8 - 9	5.16	17
G a - 2	8	4.71	19
B - 3	8	11.54	20
G a - 6	11 - 13	14.55	20
G b - 3	8	19.64	20
G b - 4	9	19.14	22
G b - 6	10 - 12	27.31	22
G a - 5	9 - 11	5.77	24
B - 5	9 - 10	8.57	24
B - 4	8 0 9	28.07	26
G b - 5	9 - 10	13.88	27
G b - 2	7 - 8	18.57	27
G a - 4	9	20.52	29

* B-6 refers to Boys' Group No. 6. G a - 3 refers to Girls' Camp (July 9-20), Group No. 3. G b refers to Girls' Camp (August 7-17).

* The rank order correlation coefficient between Co_T and Group performance is .58. See Table IV, p. 66.

Table IV

Rank Order Correlation Coefficients
Between Cohesiveness and Performance Scores

Co _T and Group Performance	.58 *
Co ₁ and Group Performance	.70 *
Co ₂ and Group Performance	.49 *
Co ₃ and Group Performance	.41

* indicates that r' is significant at the 5 per cent point. It (r') is significant if it equals or exceeds .458. See Table VI, in A. Edwards, Statistical Methods for Behavioral Sciences, p.502. For method of obtaining r' see Ibid, pp. 193-197, 427-429.

Table V

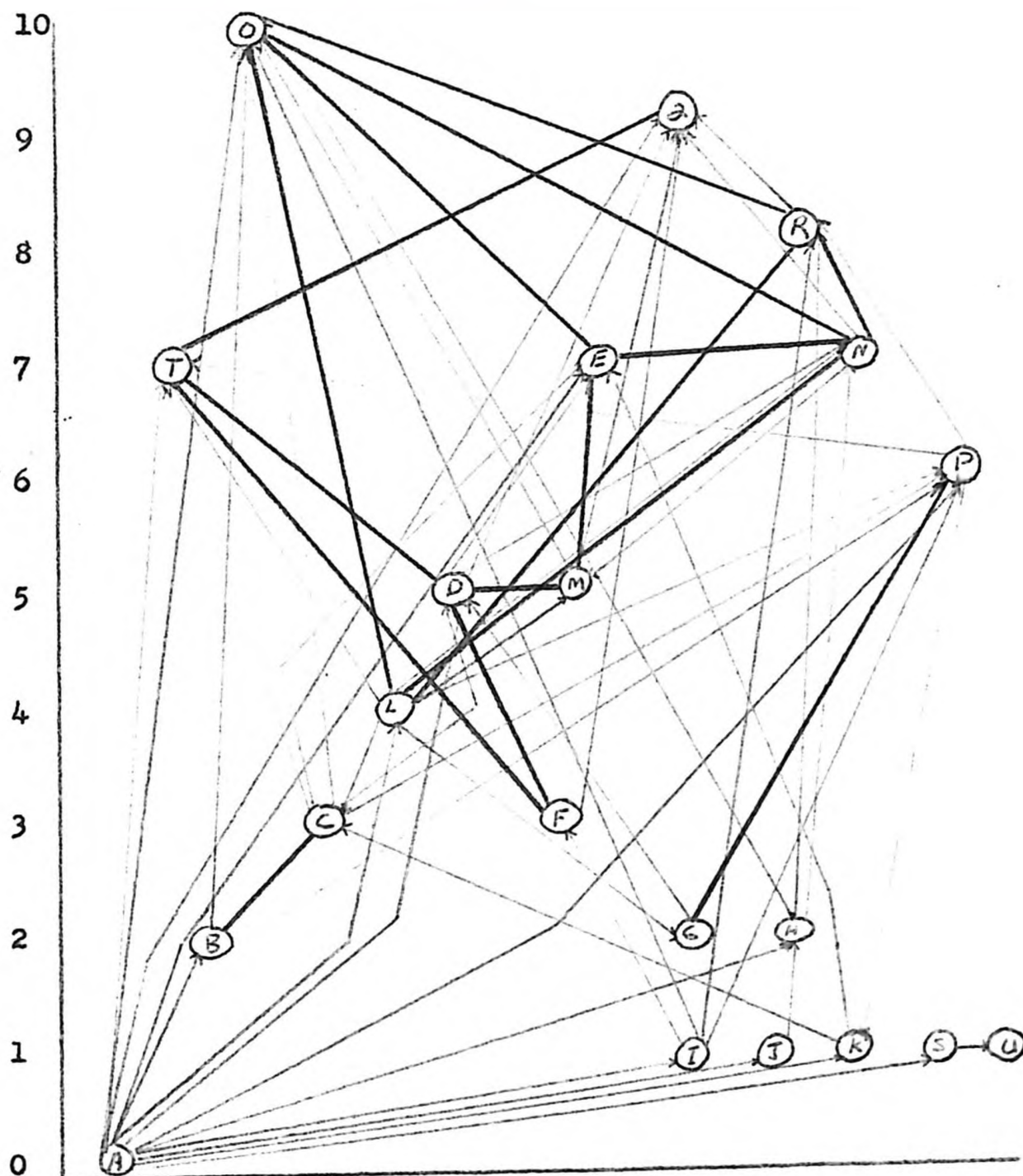
Rank Order Correlation Coefficients
Between Co₁ and the Seven Dimensions

Co ₁ and Orientation	.58 *
Co ₁ and Group Atmosphere	.39
Co ₁ and Communication	-.17
Co ₁ and Interest	.75 *
Co ₁ and Participation	.36
Co ₁ and Teamwork	.57*
Co ₁ and Productiveness	.25

Sociogram for Boys' Group No. 6

Based on responses made in first criterion area - "being put into another tribe".

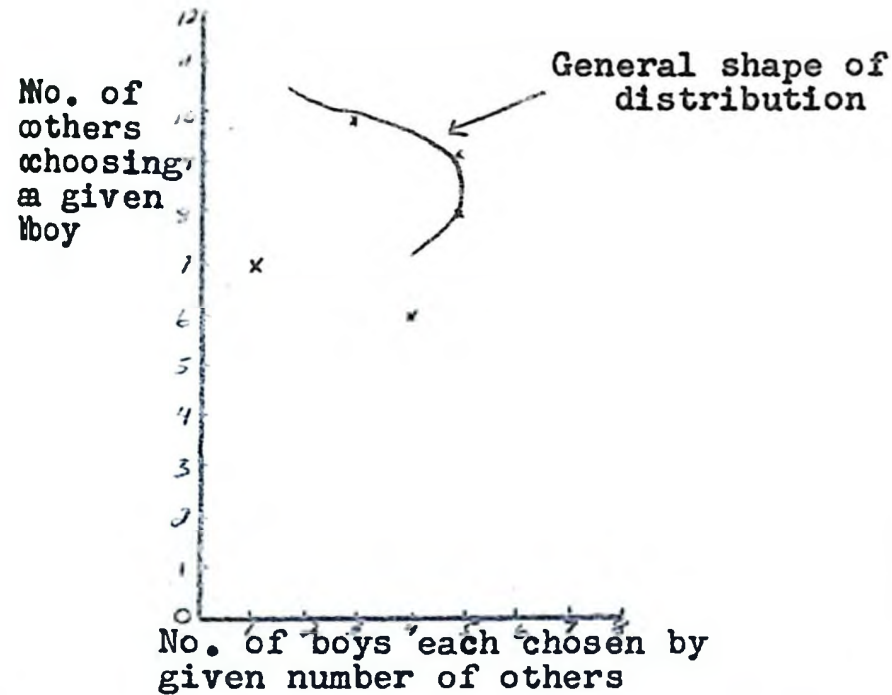
→ indicates choice
 — indicates mutual choice



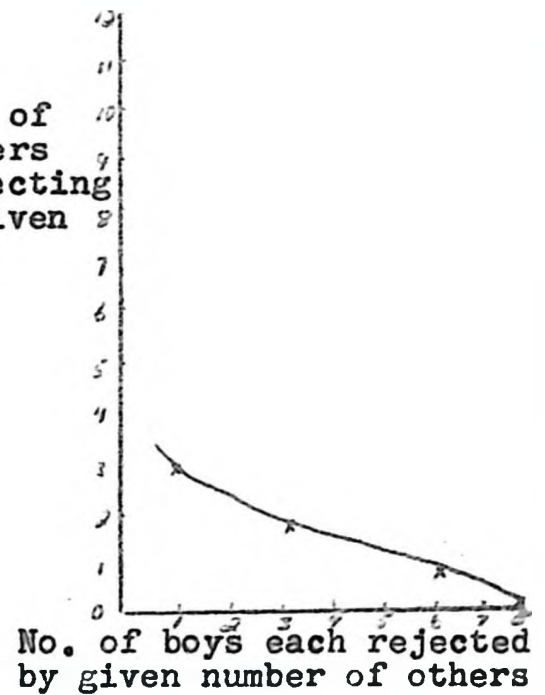
Number of
 Choices
 Received

Figure 1

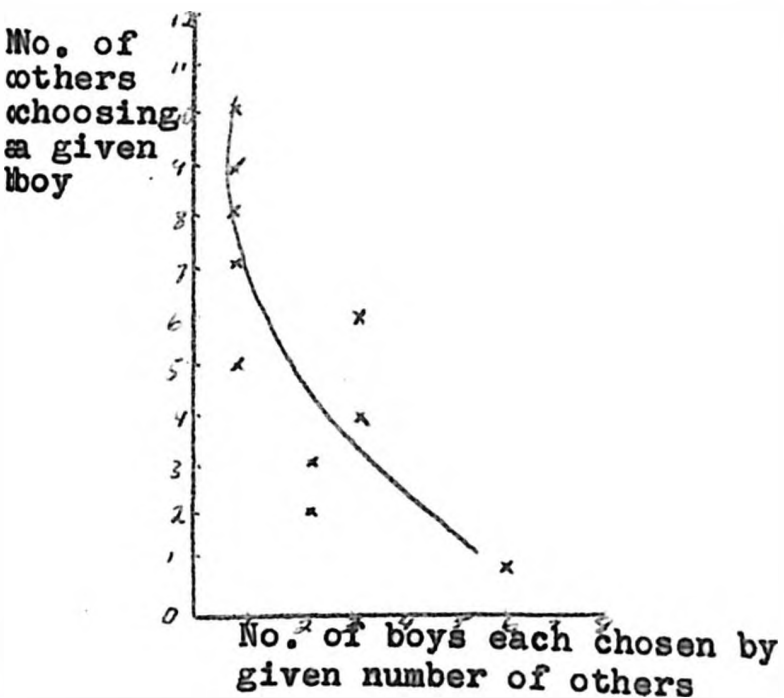
Boys' Group No. 4
 $Co_1: 10.6$
 Group Perf: 26

Figure 11

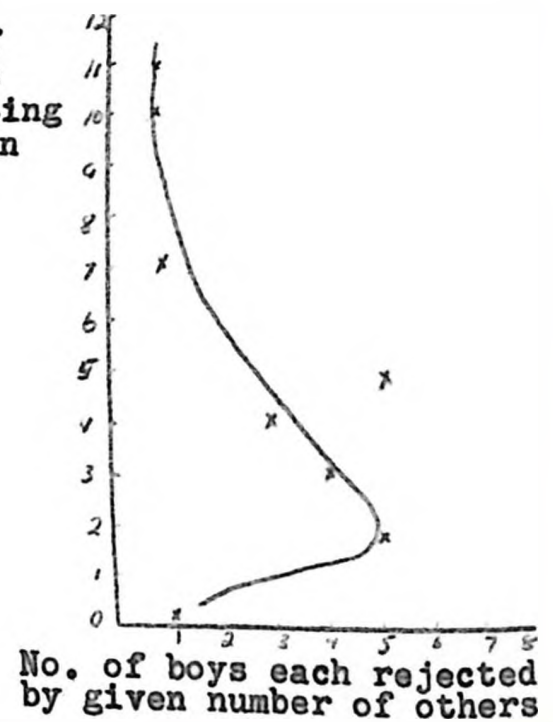
No. of Others rejecting a given boy

Figure III

Boys' Group No. 6
 $Co_1: -.56$
 Group Perf: 14

Figure IV

No. of others rejecting a given boy



BIBLIOGRAPHY

Books

- Argyle, M. The Scientific Study of Social Behavior. London: Methuen and Co. Ltd., 1957.
- Barnes, H. and H. Becker. Social Thought from Lore to Science. 2 vols. 2nd ed. Washington: Harren Press, 1952.
- Bjerstedt, A. Interpretations of Sociometric Choice Status. Sweden: Gleerup, 1956.
- Cartwright, D. and A. Zander, e.ds. Group Dynamics. New York: Row, Peterson and Co., 1953.
- Cooley, C. Social Organization. New York: Charles Scribner's Sons, 1909.
- Durkheim, E. The Division of Labour in Society. Glencoe, III.: Free Press, 1947.
- Edwards, A. Experimental Design in Psychological Research. New York: Rinehart and Co., Inc., 1960.
- _____. Statistical Methods for Behavioral Sciences. New York: Rinehart and Co., Inc., 1960.
- Festinger, L. and D. Katz, eds. Research Methods in the Behavioral Sciences. New York: Dryden Press, 1953.
- Festinger, L., S. Schacter, and K. Back. Social Pressures in Informal Groups: A Study of Human Factors in Housing. New York: Harper and Brothers, 1950.
- Goode, W. and P. Hatt. Methods in Social Research. New York: McGraw-Hill Book Company, 1952.
- Haimowitz, M. and N. Haimowitz, eds. Human Development. New York: Thomas Y. Crowell Company, 1960.
- Hare, A. P. Handbook of Small Group Research. New York: The Free Press of Glencoe, 1962.
- Homans, G. C. Social Behavior: Its Elementary Forms. New York: Harcourt, Brace and World, Inc., 1961.

- _____. The Human Group. New York: Harcourt, Brace and World, Inc., 1950.
- Jennings, H. Leadership and Isolation. 2nd ed. New York: Longmans, Green, 1950.
- Klein, J. The Study of Groups. London: Routledge and Kegan Paul, 1956.
- Lazarsfeld, P. and M. Rosenberg, eds. The Language of Social Research. Glencoe, III.: The Free Press, 1955.
- Martindale, D. The Nature and Types of Sociological Theory. Cambridge: Houghton Mifflin Company, 1960.
- Moreno, J.L. Who Shall Survive? A New Approach to the Problem of Human Interrelations. Washington: Nervous and Mental Diseases Publishing Co., 1934.
- Murphy, G., L. Murphy and T. Newcomb. Experimental Social Psychology. New York: Harper and Brothers, 1937.
- Northway, M. Primer in Sociometry. Toronto: University of Toronto Press, 1952.
- O'Brien, R., C. Schrag, and W. Martin, eds. Readings in General Sociology. Cambridge: Houghton Mifflin Company, 1957.
- Olmsted, M. The Small Group. New York: Random House, 1959.
- Parsons, T. Essays in Sociological Theory: Pure and Applied. Glencoe, III.; The Free Press, 1949.
- Rohrer, J. H., and M. Sherif. Social Psychology at the Crossroads: The University of Oklahoma Lectures in Social Psychology. New York: Harper and Brothers, 1951.
- Seidman, J. (Ed.) The Adolescent-A Book of Readings. New York: Holt, Rinehart and Winston, Inc., 1960.
- Sherif, M., and C. Sherif. Groups in Harmony and Tension. New York: Harper and Brothers, 1956.
- Sherif, M., and M. Wilson. (eds.) Group Relations at the Crossroads. New York: Harper and Brothers, 1953.
- Simmel, G. The Sociology of George Simmel. Trans., ed. and with an introduction by K. Wolff. Glencoe, III.: The Free Press, 1950.
- Sorokin, P. Fads and Foibles of Modern Sociology. Chicago: Henry Regnery, 1956.

Articles

- Albert, R. S. "Comments on the Scientific Function of the Concept of Cohesiveness", American Journal of Sociology, 59, (1953), 231-234.
- Back, K. "Influence through Social Communication", Journal of Abnormal and Social Psychology, 46, (1951), 9-23.
- Bales, R., and F. Strodbeck. "Phases in Group Problem Solving", Journal of Abnormal and Social Psychology, 46, (1951), 485-495.
- Bronfenbrenner, U. "A Constant Frame of Reference for Sociometric Research", Sociometry, 7 (1944), 40-75.
- Deutsch, M. "A Theory of Cooperation and Competition", Human Relations, 2, (1949), 129-152.
- _____. "Field Theory in Social Psychology", in G. Lindzey, ed., Handbook of Social Psychology. Cambridge: Addison-Wesley Publishing Co., 1954, pp. 181-222.
- Faris, R. E. "Development of the Small Group Research Movement", in M. Sherif and M. Wilson, (eds.), Group Relations at the Crossroads. New York: Harper and Brothers, 1953, pp. 155-184.
- French, J. "The Disruption and Cohesion of Groups", Journal of Abnormal and Social Psychology, 36, (1941), 361-377.
- Gibb, C. "Leadership", in G. Lindzey, ed., Handbook of Social Psychology. Cambridge: Addison-Wesley Publishing Co., 1954, pp. 226-243.
- Goodacre, D. "The Use of a Sociometric Test as a Predictor of Combat Unit Effectiveness", Sociometry, 14, (1951), 148-152.
- Gross, N., and W. E. Martin. "On Group Cohesiveness", American Journal of Sociology, 57, (1952), 546-554.
- _____. "Rejoinder", American Journal of Sociology, 57 (1952), 562-564.
- Heyns, R., and R. Lippitt. "Systematic Observational Techniques", in G. Lindzey, ed., Handbook of Social Psychology. Cambridge: Addison-Wesley Publishing Co., 1954, pp. 370-404.
- Jennings, H. "The Psychegroup and Sociogroup", Sociometry,

12, (1947), 71-79.

Lindzey, G., and E. Borgatta. "Sociometric Measurement", in G. Lindzey, ed., Handbook of Social Psychology. Cambridge: Addison-Wesley Publishing Co., 1954, pp. 405-448.

Lippitt, R., N. Plansky and S. Rosen. "The Dynamics of Power: A Field Study of Social Influence in Groups of Children", Human Relations, 5, (1952), 37-64.

Lippitt, R., and R. White. "An Experimental Study of Leadership and Group Life", in M. Haimowitz and N. Haimowitz, eds., Human Development. New York: Thomas Y. Crowell Company, 1960, pp. 312-326.

Mouton, J., R. Blake and B. Fruchter. "The Reliability of Sociometric Measures", Sociometry, 18 (1955), 7-48.

_____. "The Validity of Sociometric Responses", Sociometry, 18 (1955), 181-206.

Schacter, S., N. Ellertson, N. McBride and D. Gregory. "An Experimental Study of Cohesiveness and Productivity", in D. Cartwright and A. Zander, eds., Group Dynamics. New York: Row, Peterson and Co., 1953 pp. 401-411.

Shils, E. "The Study of the Primary Group", in D. Lerner and H. Lasswell, eds., The Policy Sciences - Recent Developments in Scope and Method. Palo Alto: Stanford University Press, 1951, pp. 44-69.

Thibaut, J. W. "An Experimental Study of the Cohesiveness of Underprivileged Groups", Human Relations, 3 (1950), 251-278.

Van Zelst, R. H. "Validation of a Sociometric Regrouping Procedure", Journal of Abnormal and Social Psychology, 47 (1952), 370-403.