

SOCIOMETRIC STRUCTURING OF FOUR ORGANIZATIONAL UNITS
IN RELATION TO SIZE AND EFFICIENCY

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by

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CHAPTER I

INTRODUCTION: THE PROBLEM, A STRUCTURAL APPROACH TO THE ANALYSIS OF ORGANIZATIONS, REVIEWED LITERATURE, AND HYPOTHESES

The Problem

Any organization is formed with certain goals in mind.¹ However, not all groups are equally successful in reaching their stated ends. Various studies subsequently cited reveal there is significant variation in the effectiveness of organizations both from the task and the human relations points of view. Contemporary sociologists specializing in organizational analysis are interested in identifying the major variables that account for these variations. In approaching this general area, the present study applies the comparative method to the study of four formal organizations which undertook, with varying degrees of success, a goal common to all.

According to Hare, group or organizational analyses can be undertaken at four levels: (1) explicating the publicly stated collective objectives or goals of the group, i.e., the formal task aspect; (2) studying the publicly affirmed objectives of each individual; (3) detailing the development and maintenance of the group structure suitable to the group's

¹Peter M. Blau and W. Richard Scott, Formal Organization: A Comparative Approach (San Francisco: Chandler Publishing Co., 1962), p. 1.

goals; and (4) analyzing the problems of individual socio-emotional adjustment, i.e., the psychological aspect.² Blau and Scott define social organization as the "observed regularities in the behavior of people that are due to the social conditions in which they find themselves rather than their physiological or psychological characteristics as individuals." The conditions influencing these social regularities they divide into two main types: (1) "the structure of social relations in a group ..."; and (2) "the shared beliefs and orientations that unite the members of the collectivity and guide their conduct."³ The structure of groups had been emphasized in common by these theorists. It is the level of inquiry and focal point chosen for this study.

Briefly, then, and in the most general terms, the problem dealt with here is that of the relation between a group's structure and its operational effectiveness. The study utilizes comparative data on role structuring in four organizations formed for the same purpose. It compares these structures with size and setting as major variables to be controlled.⁴

²A. Paul Hare, A Handbook of Small Group Research (Glencoe, Ill.: The Free Press, 1962), p. 247.

³Blau and Scott, op. cit., p. 2.

⁴The present investigation is one of a series in a continuing research project on organizational efficiency sponsored by the Kansas Agricultural Experiment Station, designed and directed by Professor Ralph E. Dakin, Department of Sociology and Anthropology, Kansas State University. Dakin designed the overall study to explore several aspects of the relative efficiency with which populations in a midwest state were organized

Control of size was deemed desirable because previous studies on the same data had indicated a definite relationship between size and efficiency.⁵ Control of setting was undertaken because it was the last possible comparison of group combinations that could be made. Thus, it systematically completed the methodological investigation.

to carry out the task of water conservation and control.

The method of selecting the four areas has been described as follows:

"Twenty-one areas of Kansas, which had been organized under the Kansas Watershed Act at the time research was begun (1959), were compared as regards the relative degree of efficiency with which they proceeded. Four of these were then selected for detailed study--two relatively large areas (each approximately 200,000 acres) and two relatively small areas (25,000 acres or less). One of the large and one of the small areas had been organized with relatively high degrees of efficiency. The other two had been relatively inefficient in organizing.

"The project objectives were to determine if and how these areas differed from each other in important social respects and how such differences might relate to organizing efficiency. Comparisons were to be made in terms of the publics to be organized, the area leadership, the task organizations, and various public and quasi-public organizations with which the task organizations would have to work. These were, in each instance, to be studied in terms of the basic socio-economic characteristics of unit populations, their attitudes toward the task issue, and their involvement in the program." Quoted from Jack Bert Slutker, "Organizational Variables in Relation to Efficiency: A Comparative Study of Four Watershed Organizations" (unpublished Master's thesis, Department of Economics and Sociology, Kansas State University, 1963), p. 2.

⁵Ralph E. Dakin, "Project 563, Social Variables and Watershed Efficiency," Confidential Preliminary Report (mimeographed), p. 9, by permission.

An Approach to the Structural Analysis of Organizations
and Reviewed Literature

To reveal structural features as they were related to size and efficiency in the four organizations, the following approach was used: sociometric results regarding choices for both task and emotional type leadership roles were analyzed. These data permitted comparison of structural clarity (member knowledge of role specialization), interrelations between roles or role correlations, relationship of informal to formal leadership, and degree of concentration of role choices in the four organizations.

Theory in the area of formal organizations is still limited due to the subject's early stage of development relative to other fields of sociology. However, enough empirical literature exists to support the choices of the variables and the tests used in this study. The literature covering the sociometric analysis of groups, factors affecting organizational efficiency, the effects of size on organization, perceptions of leadership roles, knowledge and participation in groups, role interrelationships, the interaction of formal and informal leadership, and the sociodynamic law⁶ was reviewed to formulate a theory and a design for this study.

⁶This law refers to the one third of a group's members receiving a greater number of sociometric choices than would be expected by chance. As the number of choices and group size increase, this same one third of the membership will receive the additional choices. Taken from J. L. Moreno, "Contributions of Sociometry to Research Methods in Sociology," Small Groups: Studies in Social Interaction, ed. A. Paul Hare, Edgar F. Borgatta, and Robert F. Bales (New York: Alfred A. Knopf, 1955), p. 103.

Sociometry appears to be a very promising method for the study of organizations. In designing this method, Moreno systematically emphasized the study of social structures, situations of interaction, and role structuring.⁷ The method has, to date, been applied to study group cohesion, group integration, cleavages in groups, group climate, the effects of size, variations in the forms of leadership, patterns of interaction between members, interaction characteristics in relation to the group's socio-cultural traits, and "interaction patterns and processes ... in relation to behavior."⁸

The use of sociometric methods seems singularly suited to the comparative analysis of organizational effectiveness from several standpoints. First, in terms of group effectiveness, Nehnevajsa has shown most sociometric structures are definite indicators of a group's success in reaching its goals.⁹ Second, from the standpoint of the psychological climate of groups, it has been shown that the sociometric leader is of major functional significance as regards the situations and relationships of members and thus, probably, also group effectiveness. He is the "creative improver of others' situations

⁷ Ibid., p. 100.

⁸ Jiri Nehnevajsa, "Sociometry," Contemporary Sociology, ed. Joseph Slabey Roucek (New York: Philosophical Library, 1958), p. 425.

⁹ Ibid., p. 432.

as well as his own."¹⁰ He is able to establish rapport and win the confidence of fellow members.¹¹ However, to be effective he must stay within the approved mores of the group. Therefore, the ideas of the rank and file are important in the emergence of a particular person as a leader and in setting the limits of his behavior.¹² Since the sociometric method asks for opinions of the rank and file membership, it can get at the reasons behind the development and maintenance of a particular group structure. From yet another point of view, this technique may be used to determine when important roles are being played by persons outside the formal leadership structure; also, it can be used to study the degree to which there is congruence of the informal and formal leadership systems as in a study by Jennings.¹³ In short, sociometry has been selected as the technique to get at the role structures of organizational units as they were perceived by the members.

These structures were then compared against two main variables, one of which was effectiveness. Effectiveness was chosen because it was the express purpose of a larger

¹⁰Helen H. Jennings, "Sociometric Choice Process in Personality and Group Formation," The Sociometry Reader, ed. J. L. Moreno. et al. (Glencoe, Ill.: The Free Press, 1960), p. 91.

¹¹Helen H. Jennings, "Leadership and Sociometric Choice," The Sociometry Reader, ed. J. L. Moreno. et al. (Glencoe, Ill.: The Free Press, 1960), p. 443.

¹²Ibid., p. 450.

¹³Ibid., p. 443.

investigation of which this study is a part,¹⁴ and because it is a standard well-tested variable in organizational studies. Effectiveness has been defined as "the extent to which an organization as a social system, given certain resources and means, fulfills its objectives without incapacitating its means and resources and without placing undue strain upon its members."¹⁵ For Kahn,¹⁶ Wiess,¹⁷ and French¹⁸ this definition is reasonable, for, as they point out, any group exists to accomplish its goals. Not only has effectiveness been regarded as a legitimate organizational problem, but the conclusion of one study stated: "Therefore, we are reasonably assured that the productivity criterion measure represents an organizational rather than an individual phenomenon."¹⁹ In this study, effectiveness refers to goal accomplishment per unit of time. The definition of effectiveness as given includes both the terms "efficiency" and "productivity"; therefore, the literature from both areas will be used to show the relevance of this variable

¹⁴ See footnote No. 4.

¹⁵ Basil S. Georgopoulos and Arnold S. Tannenbaum, "A Study of Organizational Effectiveness," American Sociological Review, XXII (October, 1957), p. 535.

¹⁶ Robert L. Kahn, "The Prediction of Productivity," Journal of Social Issues, XII (2, 1956), p. 42.

¹⁷ Robert S. Wiess, "A Structure-Function Approach to Organization," Journal of Social Issues, XII (2, 1956), p. 63.

¹⁸ John R. P. French, Jr., "Group Productivity," Groups, Leadership and Men: Research in Human Relations, ed. Harold Guetzkow (New York: Russell and Russell, Inc., 1951--second copyright, 1963), pp. 45-46.

¹⁹ Georgopoulos and Tannenbaum, op. cit., p. 540.

to the various tests of structural differences used in this study.

Productivity has been related to the size of the group by several investigators; comments of Caplow²⁰ and Hare²¹ will be given now. The first author mentioned supports an inverse relationship between group size and its effectiveness. The second writer described small groups as generally producing better quality results and large groups as generally producing a greater quantity; these conclusions relate effectiveness and size in different ways according to the organization's goals. Other studies have produced contradictory results. Dakin, for example, has found in a study of 21 units of organization that the larger units moved more "efficiently" toward their first objective (achieving formal organization) than did the smaller units when adjusting for numbers of people to be organized.²²

In addition to size, structure has been found to be a determinate of group productivity.²³ Effectiveness can be hurt not only by the wrong role structure but by an unclear one. That is, if the necessary roles are not clear to either the persons who hold those positions, or to the members of the group, then progress toward the association goal is hindered.²⁴

²⁰Theodore Caplow, "Organizational Size," Administrative Science Quarterly, I (March, 1957), pp. 499-500.

²¹Hare, op. cit., pp. 388, 224-225, 254.

²²Dakin, op. cit., p. 9.

²³French, op. cit., p. 53.

²⁴Biau and Scott, op. cit., p. 157; William S. Folkman, "Board Members as Decision Makers in Farmers' Co-operatives,"

Knowledge by the group's members of what the roles mean and who functions best in these roles is not the same as group agreement on one person as performing all leadership functions. In a study of Air Force bomber crews, Adams found technical productivity increased, then decreased with increasing status congruency.²⁵

Socio-emotional interaction is one role that apparently is related to organizational effectiveness. The findings are complex, as they were for the relationship between size and effectiveness. Hare²⁶ and Jacobson²⁷ have described a direct relation between the amount of socio-emotional interaction in a group and the organization's effectiveness. Mouton, Blake, and Fruchter²⁸ found a positive relation between group attractiveness and effectiveness in military crews, but also reported results on basketball teams and surveying teams in which there

Rural Sociology, XXIII (September, 1958), p. 243; Eugene Jacobson, "The Growth of Groups in a Voluntary Organization," Journal of Social Issues, XII (2, 1956), pp. 19 and 21; Ewart E. Smith, "The Effects of Clear and Unclear Role Expectations on Group Productivity and Defensiveness," Journal of Abnormal and Social Psychology, LV (September, 1957), pp. 213-217; E. Paul Porrance, "Sociometric Techniques for Diagnosing Group Ills," Sociometry, XVIII (December, 1955), pp. 349-350.

²⁵ Stuart Adams, "Status Congruency as a Variable in Small Group Performance," Social Forces, XXXII (October, 1953), p. 18.

²⁶ Hare, op. cit., pp. 254-255, 263, 375, and 380.

²⁷ Jacobson, op. cit., pp. 18-20.

²⁸ Jane Srygley Mouton, Robert R. Blake, and Benjamin Fruchter, "The Validity of Sociometric Responses," The Sociometry Reader, ed. J. L. Moreno et al. (Glencoe, Ill.: The Free Press, 1960), p. 384.

was a negative relationship. Finally, Martin, Dailey, and Gross contend "the energy which goes toward the maintenance of friendly interaction may reduce the total amount of energy available for carrying out of the group's major purpose of functioning."²⁹

Several of the studies on socio-emotional interaction were in conjunction with larger investigations concerned with the results of different types of leadership on group effectiveness. Most of these studies seem to agree that leadership does alter group effectiveness; they do not agree on how this change takes place. Hare has said higher productivity always results from skilled leadership.³⁰ The question now becomes, skilled in what way? For Kahn and Katz, the leader may be an able task or socio-emotional leader.³¹ They feel these two ways of improving effectiveness are independent³² even though Kahn found both traits present in the same person when analyzing successful foremen in an industrial situation.³³ As mentioned above in the discussion of sociometry, leadership may not always be of the formal type. This deviation from the

²⁹Torrance, op. cit., p. 347.

³⁰Hare, op. cit., p. 390.

³¹Robert L. Kahn and Daniel Katz, "Leadership Practices in Relation to Productivity and Morale," Group Dynamics: Research and Theory, ed. Dorwin Cartwright and Alvin Zander (2nd ed. rev.; Evanston, Ill. and Elmsford, N.Y.: Row, Peterson and Co., 1960), pp. 567-68.

³²Ibid.

³³Kahn, op. cit., p. 45.

organizational blueprint may affect effectiveness adversely or it may help further the group's goals.³⁴ As an example of the former case, Darley, Gross, and Martin found a substantial positive correlation between the percent of votes for formal leadership and group effectiveness.³⁵

To sum up this discussion of effectiveness, the term was first defined in terms of goal accomplishment or "productivity." These were then discussed in relation to size, roles (including socio-emotional interaction), leadership, and to formal and informal structures. All studies do not agree as to the relationship between size and effectiveness. There seems to be general agreement that unclear role structures can reduce effectiveness, but differences of opinion on the optimum balance for types of roles. The presence of skilled leadership has been deemed essential to group effectiveness, but the matter of how much of precisely what skills remains open. Finally, there seems to be general agreement that departures from formal blueprint leadership are to be expected but that excessive deviation may retard group effectiveness.

Size was the second main variable used as a standard against which to measure structural differences in the four

³⁴Ellis L. Scott, Leadership and Perceptions of Organizations ("Ohio Studies in Personnel," No. 82; Columbus, Ohio: The Bureau of Business Research, College of Commerce and Administration, The Ohio State University, 1956), p. 113.

³⁵John G. Darley, Neal Gross, and William C. Martin, "Studies of Group Behavior: Factors Associated with the Productivity of Groups," Journal of Applied Psychology, XXXVI (December, 1952), p. 402.

organizations compared. In this study, size refers to the physical area covered by each of the organizations. Most of the literature dealing with size refers to differences in number of members. Following the lead of Dakin, who reported on the same organizations used in this study, this author contends differences in physical size and differences in the number of members in a group have the same structural effect. Dakin said:

The physical size of an area seems to be a factor affecting certain of the variables which distinguish more efficient from less efficient areas. In the case of integration, for example, it was found that in the smaller areas, both more and less efficient, the social acquaintance scores were significantly higher than in the counterpart large areas. And, in the case of general associational participation, the participation scores in the small areas tended to be slightly higher than in the counterpart large areas. Physical distance seems to have, as might be expected, a depressing effect on communication and interaction.³⁶

There also seems to be an inverse relationship between size in members and intra-group interaction.³⁷ Using this idea Caplow drew on the number of members in a group in developing his categories of group size. For him the maximum and minimum members in each classification included a characteristic interaction pattern. In defending this procedure he offered the following explanation: "Changes in size are associated with unavoidable changes of structure at some point in the scale of

³⁶ Ralph E. Dakin, "Variations in Power Structures and Organizing Efficiency: A Comparative Study of Four Areas," Sociological Quarterly, III (July, 1962), p. 249.

³⁷ Charles H. Proctor, "A Summary of Findings from Community Studies Reported in Sociometry," The Sociometry Reader, ed. J. L. Moreno. et al. (Glencoe, Ill.: The Free Press, 1960), p. 501.

expansion but not at others. Each size category has definite interaction possibilities and limits."³⁸ In view of the cited evidence, the position is taken in this investigation that an increase in either membership or physical area of an organization will decrease the amount of primary informal interaction within a group and that this decrease will have the same structural effects, i.e., the group will become more impersonal and more task-oriented among other things. Therefore, the literature dealing with membership size is also applicable to discussions of physical area. This writing will be related to group participation, quality of interaction, and effectiveness.

In the passage by Dakin quoted above, it was mentioned that participation was inversely related to size of physical area. The same conclusion was reached by Warner and Hilander in a recent study concerning membership size.³⁹ This relationship between size and participation would seem to be at least a partial explanation for James' observation of an inverse relation between membership size and group activity.⁴⁰

Not only does the amount of participation vary by size of group, but the quality or type of interaction also seems to differ. Medalia found commanding officers viewed as less human-relations-minded as size of military unit was increased. He

³⁸Caplow, op. cit., p. 486.

³⁹W. Keith Warner and James S. Hilander, "The Relationship Between Size of Organization and Membership Participation," Rural Sociology, XXIX (March, 1964), pp. 30-34.

⁴⁰Verda and Irwin Deutscher, "Cohesion in a Small Group: A Case Study," Social Forces, XXXIII (May, 1955), p. 338.

explained this result not only in terms of the men's perceptions, but also in terms of their expectations of the commanding officer. That is, the men expected the commanding officer to be less human-relations-minded as the unit size increased and the commanding officer reacted accordingly; so he was, in fact, less human-relations-minded.⁴¹ Jennings arrived at about the same conclusion when she contended task-oriented behavior (sociotele) generally resulted in larger size groups and socio-emotional behavior (psychotele) in smaller.⁴² Moreno feels choices to the two role areas are not given to the same people.⁴³ Gibb, however, found choices to these areas did overlap.⁴⁴ Therefore, types of interaction probably are tendencies rather than all-or-none patterns.

Types of interaction may be used as a base from which variations in size and effectiveness may be related. Because an effective group tends to have both task and socio-emotional behavior, the smaller group would be more successful because both these types of behavior are possible in a smaller group.⁴⁵ By contrast, a group larger in either membership or in physical

⁴¹Nahum Z. Medalia, "Unit Size and Leadership Perception," Sociometry, XVII (February, 1954), pp. 65-66.

⁴²Cecil A. Gibb, "The Sociometry of Leadership in Temporary Groups," Small Groups: Studies in Social Interaction, ed. A. Paul Hare, Edgar F. Borgatta, and Robert F. Bales (New York: Alfred A. Knopf, 1955), p. 532.

⁴³J. L. Moreno, "Three Dimensions of Society," The Sociometry Reader, ed. J. L. Moreno et al. (Glencoe, Ill.: The Free Press, 1960), p. 120.

⁴⁴Gibb, loc. cit.

⁴⁵Hare, op. cit., p. 391.

area includes members with greater personal differences who have a correspondingly smaller chance to develop the socio-emotional behavior which would help in resolving these differences. That is, the larger a group gets the more one's social-emotional behavior will be directed towards his friends, and less toward the group as a whole. As a result cliques of members tend to form, making it harder for a large group to reach consensus.⁴⁶ However, a large group may be very effective precisely because its members do not have close interaction; they tend toward the task-orientation in their relations but do not become involved in time-consuming socio-emotional problems. These processes would then make it possible for a large group also to be very effective. In fact this has been found to be true. As previously noted, Dakin found large units working on a specific task to be generally more effective than small units working on the same task.⁴⁷

To sum up this discussion of size as a main variable, the assertion was made that group size could be thought of as either number of members or size of physical area. To support this claim, literature was presented showing an increase in either kind of size would reduce the quantity of primary informal action, and change its quality. This new definition of size was then related to participation, socio-emotional behavior, and to effectiveness. The studies cited agreed that

⁴⁶Ibid., pp. 224-225, 267.

⁴⁷Dakin, "Project 563 . . .," p. 9.

size seemed inversely related to participation and to socio-emotional behavior. The relationship between size and effectiveness is not clear, but the apparently contradictory results may be partially due to lack of consideration of task versus socio-emotional role behavior.

Groups may be thought of as role systems; as a result, a change in the nature of the group reflects a change in its role structure.⁴⁸ Role analysis is one of the uses for sociometry Moreno has emphasized.⁴⁹ Roles in two general areas were selected to reveal the structural patterns of the four organizations studied. This section of the review of literature will be devoted to a discussion of studies which have led the writer to classify and analyze roles and approach leadership in a special way.

The literature distinguishes between two basic types of roles: the task-oriented and the socio-emotional. Slater has stated that this differentiation is one of the first to occur in a group.⁵⁰ Norfleet agrees and adds a possible explanation to account for its existence: "the productivity of members is a matter of group agreement; leisure time companionship is a

⁴⁸Theodore M. Newcomb, "Role Behaviors in the Study of Individual Personality and of Groups," Journal of Personality, XVIII (March, 1950), p. 284.

⁴⁹See footnote No. 7.

⁵⁰Philip E. Slater, "Role Differentiation in Small Groups," American Sociological Review, XX (June, 1955), p. 308.

matter of individual choice."⁵¹

The effects of the socio-emotional role have been intensively treated in the literature. The inverse relationship that is reputed to exist between size and socio-emotional interaction⁵² should facilitate the winning of confidence of members by the sociometric leader in the smaller group.⁵³ Hare is of the opinion that groups having this positive emotional interaction are more effective.⁵⁴ Results reported by Jacobson support this idea.⁵⁵ However, support for what is commonly called "friendly relations" in a group is not unqualified. Torrance regards agreement on who is liked and who is disliked as producing a less cohesive group. He also quoted Martin, Dailey, and Gross as proposing that the effort spent on maintaining friendly interaction detracts from the group's end goals.⁵⁶ Thus, the socio-emotional role may be either positive or negative with regard to the organization's aims.⁵⁷

The socio-emotional role commonly discussed in connection with the other general role used in this study is that of

⁵¹Bobbie Norfleet, "Interpersonal Relations and Group Productivity," Journal of Social Issues, IV (Spring, 1948), p. 68.

⁵²Proctor, op. cit., p. 501.

⁵³Folkman, op. cit., pp. 246-252.

⁵⁴Hare, op. cit., pp. 254-255, 375, and 380.

⁵⁵Jacobson, op. cit., pp. 19-20.

⁵⁶Torrance, op. cit., pp. 346-47.

⁵⁷Mouton, Blake, and Fruchter, op. cit., p. 384.

task-oriented behavior.

Most of the literature this author found indirectly supported a positive relationship between task behavior and effectiveness. In general, some form of leadership, whether situational or personal, is regarded as desirable for an effective group. Jennings found in sociometric choices that "in those behaviors which 'make new events happen' or 'enlarge the kind and extent of activity,' the over-chosen [leaders] surpass the average citizen by over four times as great an incidence."⁵⁸ Therefore, the group with more leadership behavior would also have more task behavior following her lines of reasoning. Kahn and Katz, in trying to explain why some groups have high productivity and low morale in an industrial situation, suggest about the same idea. They say a leader may increase group productiveness in two ways, one of which is by his engineering skill and the other is by his ability to motivate men.⁵⁹ Jacobson, in describing the characteristics of highly active groups, points to the greater number of administrative functions performed by their chairmen when compared with the less active groups.⁶⁰ Although it may be argued that this behavior is a group maintenance function, this author prefers to think of it as organizing behavior necessary for the group to progress toward its stated goal. Group maintenance here would refer to maintaining socio-emotional activity.

⁵⁸Jennings, "Leadership . . .," p. 445.

⁵⁹Kahn and Katz, op. cit., pp. 625-26.

⁶⁰Jacobson, op. cit., pp. 19-20.

It is generally held that role clarity and effectiveness are positively correlated, as will be pointed out below. Rush found a positive relationship between initiating behavior and role clarity.⁶¹ However, he had no measure of the effectiveness of the military groups he studied, so naturally this correlation was not made. Contrary to the predictions relating to size and effectiveness, two authors propose a direct relationship between the absolute amount of task behavior and group size. Because much of the literature had predicted an inverse relationship between group size and effectiveness, the relationship between task behavior and group size should also have been inverse for the direct relation between task behavior and effectiveness which has been implied above to be upheld. Instead, Gibb presents data supporting Jennings' idea that groups based on a desire to work in a common unit are larger than those based on a socio-emotional criterion.⁶² Caplow points out that size may enable a group to perform certain tasks not possible in a small group and to organize its tasks more efficiently.⁶³ Therefore, following his reasoning it is possible for larger groups to perform more task behavior in terms of different kinds of tasks. Organizing other tasks is a task-oriented

⁶¹Carl H. Rush, Jr., "Leader Behavior and Group Characteristics," Leader Behavior: Its Description and Measurement, ed. Ralph M. Stogdill and Alvin E. Coons ("Ohio Studies in Personnel," No. 88; Columbus, Ohio: The Bureau of Business Research, College of Commerce and Administration, The Ohio State University, 1957), p. 70.

⁶²Gibb, op. cit., p. 532.

⁶³Caplow, op. cit., p. 500.

behavior itself, so again the larger size enables a greater amount of task behavior. Thus, it would seem task roles are positively related both to effectiveness and to size.

Borgotta and Torrance have explicitly stated the dissimilarity of these two roles.⁶⁴ Support for this position has come from empirical studies. For example, Rush found positive correlations between commanding officer consideration and harmony, between role clarity and initiating behavior, but no positive correlation between any factor of the first correlation and any factor of the second.⁶⁵ Examining the interrelations between these roles, however, we find that both roles may be found in one person, the roles may be found in two different people, or each role may be shared by several people.⁶⁶ For example, descriptions of the sociometric leaders have given both characteristics to one person,⁶⁷ and Halpin, Hemphill, and Kahn have related this pattern to effectiveness. The studies on organizational success were conducted on air crews, college departments, and industrial groups, respectively.⁶⁸

⁶⁴Edgar F. Borgatta, "Analysis of Social Interaction and Sociometric Perception," The Sociometry Reader, ed. J. L. Moreno et al. (Glencoe, Ill.: The Free Press, 1960), p. 293; E. Paul Torrance, "Group Decision-Making and Disagreement," Social Forces, XXXVI (May, 1957), p. 316.

⁶⁵Rush, op. cit., p. 70.

⁶⁶Gibb, op. cit., pp. 528, 532, and 535; Hare, op. cit., p. 149; Jennings, "Sociometric Choice Process ...," p. 94; Kahn and Katz, op. cit., pp. 625-26.

⁶⁷Jennings, "Sociometric Choice Process ...," p. 91.

⁶⁸Andrew W. Halpin, "The Leader Behavior and Effectiveness of Aircraft Commanders," Leader Behavior: Its Description

If, as indicated by the literature cited, these two roles are basic to the functioning of groups, then we need to consider the question of the impacts of variations in role clarity, role structure, and leadership functions on group performance. Social organization refers to "observed regularities in the behavior of people that are due to the social conditions in which they find themselves ..."69 The ability of group members to distinguish the various functions of these behavioral regularities from each other is called role clarity. A relationship between this ability and group effectiveness had been stated by Newcomb.70 This association is probably due to the existence of role structure for that too is found with group effectiveness.71 Role structure, in turn, is the way group members decide which roles are important to group functioning. These emphasized roles can be called the leadership functions. The importance of role clarity for both the role structure and the leadership has been well stated by Slater:

and Measurement, ed. Ralph M. Stogdill and Alvin E. Coons ("Ohio Studies in Personnel," No. 88; Columbus, Ohio: The Bureau of Business Research, College of Commerce and Administration, The Ohio State University, 1957), p. 64; John K. Hemphill, "Leader Behavior Associated with the Administrative Reputations of College Departments," Leader Behavior: Its Description and Measurement, ed. Ralph M. Stogdill and Alvin E. Coons ("Ohio Studies in Personnel," No. 88; Columbus, Ohio: The Bureau of Business Research, College of Commerce and Administration, The Ohio State University, 1957), pp. 81 and 85; Kahn, op. cit., p. 45.

69 See footnote No. 3.

70 Newcomb, op. cit., p. 285.

71 French, op. cit., p. 53.

But if implicit agreement on weights is lacking, each rater will be making a qualitatively different evaluation, and leadership consensus becomes almost impossible. Similarly, in making more specialized evaluations, a rater must decide what a specialist is supposed to do before deciding how well he does it. If there is no agreement in a group about what a given role should include, then roles will be performed in accordance with individual norms and will be evaluated in terms of personal criteria.

Using task and socio-emotional leadership functions, he goes on to state three ways role playing may be structured: (1) one person may perform both the task and socio-emotional functions for a group; (2) the group may have differing persons specializing in these functions; (3) a person may inflexibly play a certain role due to his personality structure.⁷² Benne and Sheats would concur with these three types of role structure.⁷³ Since the observed regularities making up social organization are due to social conditions, the roles, role structure, and leadership functions also vary with the situation. For example, high-choice status has been related to physical dexterity in recreational groups, to production skill in work groups, and to combat effectiveness in military groups.⁷⁴ Factors other than the group's goals, such as size⁷⁵ and closeness of

⁷²Slater, op. cit., pp. 308-310.

⁷³Kenneth D. Benne and Paul Sheats, "Functional Roles of Group Members," Journal of Social Issues, IV (Spring, 1948), p. 43; Godfrey Gardner, "Functional Leadership and Popularity," Human Relations, IX (4, 1956), p. 493; Jennings, "Leadership . . .," p. 448.

⁷⁴Hare, op. cit., pp. 145-146.

⁷⁵Medalia, op. cit., p. 65; Hare, op. cit., p. 254.

supervision,⁷⁶ may alter the criteria for a certain role. Therefore, it has been said that leadership is not just a set of personal traits applicable to any group, but instead a set of rules affected by the type of group and the situation.⁷⁷ Further support for situational leadership comes from a survey of literature by Stogdill. Reviewing material which attempts to relate personal factors with leadership, he concludes the results have been disappointing. Specifically, there is no "leader type" for all situations, but rather leader behavior seems to vary with each situation.⁷⁸

Not all authors, however, would endorse such a relativistic stand without question. Jennings feels certain personality traits would make it likely for certain persons to emerge as leaders in a number of situations.⁷⁹ For her, an example of such a trait would be freedom from self-concern to enable one to help others. At a minimum, Hare regards some kind of skilled leader as one of the characteristics of effective action in varying situations.⁸⁰ Two studies have produced results which the respective authors have interpreted as evidence for

⁷⁶Blau and Scott, op. cit., p. 157.

⁷⁷Graham B. Bell and Robert L. French, "Consistency of Individual Leadership Position in Small Groups of Varying Membership," Journal of Abnormal and Social Psychology, XLV (October, 1950), p. 764; Jennings, "Leadership ...," pp. 446 and 448.

⁷⁸R. M. Stogdill, "Personal Factors Associated with Leadership: A Survey of the Literature," Journal of Psychology, XXV (January, 1948), pp. 35-71.

⁷⁹Jennings, "Leadership ...," p. 446.

⁸⁰Hare, op. cit., p. 391.

leadership not being wholly situational. In both of these, group membership was varied. One found a consistency of leadership status.⁸¹ This would indicate that certain leadership traits (skills) are in constant demand for the effective performance of given types of tasks. The other found individuals affected performance in three-man groups when membership was altered but group task was unchanged.⁸² Gibb was quoted as having found the same persons to be leaders when the group was the same but its task was changed.⁸³ This would focus on the needs of participants and indicate that, when these needs are held constant (same group members), there is a constant demand for certain leadership traits to fill these needs.

In summing up this discussion of role systems, the following points should be stressed: complete analysis of such systems requires attention to two types of roles--the socio-emotional and the task-oriented. The evidence suggests that both have a bearing on group effectiveness. Role clarity (the ability of group members to distinguish between the various functions being performed and the persons performing them) is important to group effectiveness. Leadership is influenced by the situation, but certain traits seem demanded in given

⁸¹Bell and French, op. cit., pp. 764-67.

⁸²Seymour Rosenberg, Dwight E. Erlick, and Leonard Berkowitz, "Some Effects of Varying Combinations of Group Members on Group Performance Measures and Leadership Behavior," Journal of Abnormal and Social Psychology, LI (September, 1955), p. 199.

⁸³Bell and French, op. cit., p. 767.

contexts of tasks and membership. Finally, the assignment of roles varies in crucial ways: both task and socio-emotional roles may be performed by one or several persons within a group; conversely, one person may contribute to several roles without being the only person of the group to do so. Concentration of leadership roles in single persons seems to be found in groups where single commanders are appointed (as in military or in industry); shared leadership roles seem to be found in voluntary groups having elected officials.

So far, this review of literature has covered the appropriateness of the sociometric method for studying organizational structures; it has covered effectiveness and size as two variables to be better understood through the study of structural differences; finally, it has covered groups as role systems to be studied by the sociometric method.

In this investigation, effectiveness and size have been studied in relation to task and emotional behavior by the use of four tests. These tests were structural clarity or role information, role correlations, the congruence of formal and informal role structures, and concentration of votes within each role. Literature about each of these four tests will now be presented in the order named. Where possible, each pattern will be related to effectiveness and size and to task and socio-emotional behavior.

The first of these four tests is structural clarity. Much group and organizational literature focuses on participation in terms of the number of meetings members have attended,

the number of committee positions they have held and similar measures; in short, these approaches ask members directly about their personal levels of activity in the organization. That is, they focus on the amount of participation and take little note of the functional quality of activity. These studies have a certain quantitative bias.

In this study, questions about role behavior were used. These ask for the opinions members have of the functional contributions others make to the organization. It would seem to this author that organizations in which members have superior ability to give information on the role structuring of their units would be organizations having well-informed members and structures which clearly delineate roles on a functional basis. Such units should, for these reasons, be more effective. Support for this position is found in several studies. Harp, for example, found in a study of rural cooperatives a significant correlation between participation in and information about the cooperative.⁸⁴ In turn, both information and participation have been associated positively with effectiveness. In a study of voluntary organizations it was found that medium active organizations had more information about themselves than less active organizations.⁸⁵

The questions used in this study not only are a measure of information, but information may be used as a measure of

⁸⁴John Harp, "A General Theory of Social Participation," Rural Sociology, XXIV (September, 1959), pp. 282-284.

⁸⁵Jacobson, op. cit., p. 22.

role clarity. If the leadership behavior in a group is exceedingly generalized, members will not be able to differentiate between different role behaviors. When they cannot, they will not be able to name persons performing those functions. Therefore, clear role behavior may enhance members' information.

Several authors have stressed the direct relation between role clarity and effectiveness,⁸⁶ and Slater has emphasized the importance of role clarity in helping define the leadership role.⁸⁷ Several factors may qualify the relationship between role clarity and effectiveness. In one study of two Latin American communities, Proctor found less normative consensus in the community of several leaders than in the community of one leader.⁸⁸ Hare feels consensus is harder to reach in large groups than in small groups.⁸⁹ The reasons for this have been discussed above. Finally, agreement on those persons liked and disliked in a group seems to make it less cohesive, according to Torrance.⁹⁰ Thus, Norfleet's observation again seems appropriate; effectiveness of members is a matter of group agreement, and leisure-time activity companions

⁸⁶Blau and Scott, op. cit., p. 157; Folkman, op. cit., p. 243; Hare, op. cit., p. 375; Jacobson, op. cit., p. 19; Newcomb, op. cit., p. 285; Smith, op. cit., 213-17; Torrance, "Sociometric Techniques . . .," p. 349.

⁸⁷Slater, op. cit., p. 310.

⁸⁸Charles H. Proctor, "Informal Social Systems," The Sociometry Reader, ed. J. L. Moreno et al. (Glencoe, Ill.: The Free Press, 1960), p. 489.

⁸⁹Hare, op. cit., p. 267.

⁹⁰Torrance, "Sociometric Techniques . . .," p. 346.

a matter of individual choice.⁹¹ To sum up the literature presented here on role clarity: role clarity in the task area is necessary for proper group locomotion. This clarity may be prevented by the presence of several viewpoints within the group; these differing viewpoints may result from several leaders or from large group size. Agreement on those liked and disliked within the group will hurt group effectiveness. The amount of member information was felt to be an index of role clarity.

Another aspect of this study, which has been mentioned, forms the second test: this is the correlation between the two types of leadership roles. We need to know whether discreetly separated functions or overlapping functions are associated most closely with group effectiveness. To put it another way, we need to know to what extent there is overlapping of roles and whether general (multi-functional) or specialized (uni-functional) leadership structures are more effective. Literature is available which supports both points of view. Material supporting specialized or uni-functional leadership, which does not overlap, is followed by material supporting general or multi-functional leadership, which does overlap.

Several authors hold that leadership is specialized. Gardner anticipates Bales when he says that leadership is not all or none and that each person possesses it to a varying degree.⁹² Bales, as quoted by Slater, agrees but makes this

⁹¹Norfleet, op. cit., p. 68.

⁹²Godfrey Gardner, op. cit., p. 493.

statement clearer. Bales contends the group should not try to solve its socio-emotional problems and task problems simultaneously. Likewise, he feels no one person should try to solve both sets of problems at the same time in a group.⁹³ Therefore, Bales definitely feels these two role areas should be specialized because they cannot be successfully overlapped. Jennings also feels no overlap can exist between these two role areas. She feels leadership is a series of pair relationships because any one person can respond only to the needs of some members of the group, but not to all members. Because this is true, she feels many share in the leadership process which is the same statement Gardner made. For her, this dispersion of leadership functions is necessary in order to meet all the needs of the members of the group. Furthermore, like Bales, she feels the task and socio-emotional leadership do not overlap; that is, for any one member the same leader will not meet both his work needs and his leisure-time needs.⁹⁴ If leadership is specialized, then the requirements of the group ought to vary with the situation, and it should be difficult to find any but the most general similarity in leaders in different types of groups for the needs of group members will vary for different types of groups. For example, the reasons a person joins the Y.M.C.A. basketball team are very different from the reasons he joins a Masonic order. This has, in fact, been found to be true for, to

⁹³Slater, *op. cit.*, p. 308.

⁹⁴Jennings, "Sociometric Choice Process ...," p. 94; Jennings, "Leadership ...," p. 448.

quote Hare,

High-choice status has also been found to be positively related to skill in recreational groups, such as bowling teams, and also to combat effectiveness, ... to individual productivity in work groups ... and to influence in laboratory groups of children.⁹⁵

Therefore, the same factors which seem to cause non-overlapping and specialization of leadership functions also work to make leadership dependent on the situation. This position on uni-functional leadership would also seem to indicate that correlation between the different kinds of leadership would be low, particularly between the task and socio-emotional roles. Although a person who is very able at task-oriented behavior may meet the socio-emotional needs of others, if specialization does take place it seems unlikely that he would have an equal rank in the socio-emotional role. Therefore, a low correlation is predicted by this line of thought.

Several other authors, however, would contend leadership is overlapping and multi-functional. Jennings' statements, for example, could very well mean that one person could perform several role functions, and this would cause the leadership functions to be dispersed instead of specialized. This is essentially the point made by Benne and Sheats.⁹⁶ This statement would seem to misstate the issue for in true multi-functional leadership one person would serve in a number of leadership functions both task-oriented and socio-emotional in

⁹⁵Hare, op. cit., pp. 145-46.

⁹⁶Benne and Sheats, op. cit., p. 43.

each member's mind. In the situation described by Benne and Sheats, this overlapping of roles in the thinking of one person would not necessarily be true. Several studies involving appointed leaders in a work situation would seem to indicate that generalization does exist. Kahn found the best foremen in a manufacturing situation were both production and employee-oriented.⁹⁷ Using the same measure of consideration and initiating structure in testing opinions of aircraft commanders and college department heads, respectively, Halpin and Hemphill found the effective leaders were ranked high on both types of roles. Commenting on the basis of his results, Hemphill suggests an effective leader must have a minimum of both kinds of behavior and that an excess of one will not compensate for the lack of the other.⁹⁸ Slater says the same thing and suggests that the effective leaders will match the group's emphasis on the various roles. This would allow for the different situations in which groups emerge.⁹⁹ This last set of material presented would seem to argue that overlapping of roles does exist at least in work situations. Therefore, this literature would seem to indicate a high correlation between roles should exist in effective groups in contradiction to those authors advocating non-overlapping between roles.

To this author, Adams' study resolves these two conflicting positions very well. In a study of bomber crews, he

⁹⁷Kahn, op. cit., p. 45.

⁹⁸Halpin, op. cit., p. 64; Hemphill, op. cit., pp. 81 and 85.

⁹⁹Slater, op. cit., p. 309.

analyzed the ratings given to each crew on optical bombing scores, general performance, proficiency, crew coordination, radar bombing scores, morale, friendship, and confidence. His results were as follows: as crew status congruency increased between these various measures, technical productivity increased and then decreased. In explaining these results, he felt that up to a moderate amount of socio-emotional activity improves communication and tends to smooth out group differences, thus improving task performance; more than this amount interferes with task-oriented behavior and thus reduces group effectiveness.¹⁰⁰ In terms of role correlations, his explanation would seem to predict moderate correlations in highly effective groups and high or low correlations in ineffective groups. To this author, this position resolves the seemingly conflicting results regarding multi-functional leadership and uni-functional leadership and indicates what should be expected in a test of role correlations.

A third role test applied in this study was the proportion of sociometric leadership attributable to the elected officers as a measure of formal-informal structural congruity. Complete congruity is not anticipated. Some votes cast for persons outside the officer structure of an organization should be expected. To quote Blau and Scott, "In every formal organization there arise informal organizations."¹⁰¹ The apparent validity of the sociometric method to discover this pattern

¹⁰⁰Adams, op. cit., pp. 16-22.

¹⁰¹Blau and Scott, op. cit., p. 6.

was pointed out above. For example, Jennings has shown an overlap between the formal and informal structures of an organization;¹⁰² thus the sociometric method shows congruence as well as divergence. Deviation from the paper structure of an organization is of particular concern to investigators, for, to quote Scott, "The prestige system becomes of particular analytical importance if it deviates sharply from the formal status system." He goes on to say that this deviation may help or hinder the organization, depending on its aims.¹⁰³ Darley, Gross, Martin, and Moreno generally regard congruence as improving group effectiveness.¹⁰⁴

Vote concentration was the fourth and last test to be investigated in this study. It was designed to answer several questions. Is a certain role played by only one person within the organization or is this function performed by several persons? To what extent do each of these patterns appear in the sociogram? How are these interaction patterns related to size and efficiency? The literature discussing these questions is an extension of the trends already discussed.

One of the contributions Moreno feels sociometry has made to organizational analysis is called the sociodynamic law. This states that the sociometric leaders receive a greater proportion of the members' votes as the group becomes larger.

¹⁰²Jennings, "Leadership . . .," p. 443.

¹⁰³Scott, op. cit., p. 113.

¹⁰⁴Darley, Gross, and Martin, op. cit., p. 402; Moreno, "Three Dimensions . . .," p. 120.

With increasing size Moreno feels the sociometric leaders become known less and less as individuals and known more and more as symbols. He regards it as necessary for some persons to receive more votes than others in order for differentiation to occur.¹⁰⁵ This position agrees with that of Slater; the extra votes some persons receive are evidence of the role consensus which Slater regards as necessary for leadership.¹⁰⁶ The Latin American communities described by Proctor would be a good example of the results of unequal differentiation.¹⁰⁷ Moreno's sociodynamic law contradicts the positions taken by Hare and Northway. Hare believes role consensus becomes more difficult in larger groups. Northway feels a narrow range of scores which leaves few in the group not chosen is a better structure than one without these characteristics.¹⁰⁸ To this author, Norfleet's summary statement can again be used to resolve these contradictions. If the statements by Hare and Northway are taken to refer to socio-emotional behavior and Moreno's statement is taken to refer to task-oriented behavior there is no conflict. For example, Torrance observes that agreement on those persons liked and disliked produces a less

¹⁰⁵ J. L. Moreno and Helen H. Jennings, Sociometric Measurement of Social Configurations ("Sociometry Monographs," No. 3; New York: Beacon House, 1945), pp. 20 and 23.

¹⁰⁶ See footnote No. 87.

¹⁰⁷ See footnote No. 88.

¹⁰⁸ Mary L. Northway, A Primer of Sociometry (Toronto: University of Toronto Press, 1952), p. 34.

cohesive group.¹⁰⁹ By contrast, Norfleet implies a direct relation between vote concentration in task behavior and organizational effectiveness. The contradictions may be further resolved when Medalia's study is recalled. As the group gets larger, he found a shift from socio-emotional to task-oriented behavior on the part of the commanding officer.¹¹⁰ Hare's description of a large group fits the above statements very well:

In all of these groups, the expected amount of interaction between members is low, the amount of interaction received by the leader or central person is high, the expected differentiation in authority is high ..., and the expected amount of affection between members is low. This particular combination of characteristics tends to result in high productivity with low member satisfaction.¹¹¹

This description obviously differs from the following description of the ideal-type voluntary organization:

The ideal-type voluntary association is one in which, among other things, decision making is decentralized to include the membership at large in order to insure government by consent, though authority is also delegated through an elected leadership.¹¹²

To sum up the literature on vote concentration: within task-oriented roles, the sociodynamic law would seem to apply; within socio-emotional roles, concentration of votes seems inversely related to groups' effectiveness. As a group gets larger,

¹⁰⁹ See footnote No. 90.

¹¹⁰ Medalia, op. cit., p. 66.

¹¹¹ Hare, op. cit., p. 254.

¹¹² William Evan, "Dimensions of Participation in Voluntary Associations," Social Forces, XXXVI (December, 1957), p. 149.

centralized behavior is more permissible because socio-emotional interaction has become relatively less important.

Now that some of the literature relating structural differences to task organization has been reviewed, a theory will be presented which is an eclectic summary of this material. Group effectiveness here is considered as the progress a unit makes toward its stated goals. Size refers here to either the number of members in a unit or the physical area which it covers. When either variable is increased, the unit becomes more impersonal. Effective organizations are more task-oriented; large organizations are more task-oriented, therefore they are more effective. Both large and effective organizations will have greater task-role clarity and greater task-role concentration, but less socio-emotional role clarity and more decentralization of socio-emotional roles. Following Adams, moderate correlations are predicted between persons chosen for task roles and persons chosen for socio-emotional roles in effective organizations. In large organizations, however, the impersonality which characterizes these units will result in low correlations between the persons chosen for task and socio-emotional roles. In large or effective organizations, a greater proportion of those chosen as exceptional on task roles will be officers. This author interprets the literature as implying the opposite for socio-emotional roles. This pattern appears in large units because they have more formal interaction; in effective organizations, this prediction follows Scott. Due to the above patterns, the large or effective

organizations should have high correlations between persons chosen for the two task roles, and low correlations between persons chosen for the two socio-emotional roles.

Hypotheses

I. Structural Clarity

A. Information

1. Effectiveness

- a. Task roles--Effective organizations will have more information about themselves (i.e., manifest greater clarity of role structuring) than ineffective organizations.
- b. Socio-emotional roles--Effective organizations will have less information about themselves than ineffective organizations.

2. Size (impersonality)

- a. Task roles--The smaller organizations will have less information about themselves than the large organizations.
- b. Socio-emotional roles--The smaller organizations will have more information about themselves than the large organizations.

B. Role Choices

1. Effectiveness

- a. Task roles--Effective organizations will have proportionately more choices for task roles than will ineffective organizations.
- b. Socio-emotional roles--Effective organizations will have lower proportions of their choices going to socio-emotional roles than ineffective organizations.

2. Size (impersonality)

- a. Task roles--Large organizations will have higher proportions of their choices going to task roles than small organizations.

- b. Socio-emotional roles--Large organizations will have lower proportions of their choices going to socio-emotional roles than will small organizations.

II. Role Correlation

A. Effectiveness

1. Task roles--Effective organizations will have higher correlations within the task roles than ineffective organizations.
2. Socio-emotional roles--Moderately ineffective organizations will have higher correlations within the socio-emotional roles than will effective organizations.
3. Task versus socio-emotional roles--Effective organizations will have moderate correlations across these two types of roles.

B. Size (impersonality)

1. Task roles--Large organizations will have higher correlations within task roles than will smaller organizations.
2. Socio-emotional roles--Large organizations will have lower correlations within socio-emotional roles than will smaller organizations.
3. Task roles versus socio-emotional roles--Large organizations will have less agreement (lower correlations) between these two types of roles than small organizations.

III. Formal and Informal Structural Consensus

A. Effectiveness

1. Task roles--Effective organizations will have greater congruence on task roles between the formal and informal structures than will ineffective organizations.
2. Socio-emotional roles--Effective organizations will have a lesser congruence on socio-emotional roles between the formal and informal structures than will ineffective organizations.

B. Size (impersonality)

1. Task roles--Large organizations will have greater congruence on task roles between the formal and informal structures than small organizations.
2. Socio-emotional roles--Large organizations will show lesser congruence on socio-emotional roles between the formal and informal structures than will small organizations.

IV. Concentration of Votes

A. Effectiveness

1. Task roles--In effective organizations, task role choices will be more concentrated than in ineffective organizations.
2. Socio-emotional roles--In effective organizations, choices for socio-emotional roles will be less concentrated than in ineffective organizations.

B. Size (impersonality)

1. Task roles--In large organizations, task role choices will be more centralized than in smaller organizations.
2. Socio-emotional roles--In large organizations, choices for socio-emotional roles will be less centralized than in small organizations.

CHAPTER II

A STATEMENT OF METHOD

The methods used in this study will be described in four main sections: (1) the comparative approach; (2) efficiency and size; (3) the data used; and (4) analysis of data. The organization and ideas of the first three sections of this chapter draw heavily from Dakin's work and Slutker's description of it.¹

The Comparative Approach

The comparative approach attempts detailed study of the same aspects of two or more units in order, generally, to identify the crucial ways in which they differ. In the ideal situation, control of variables is such that, using the logical method of difference, the crucial difference as regards a single variable may be related to a significant difference in outcome.

Though in social situations, we cannot achieve direct or perfect control of all relevant variables, the comparative method yet has much to recommend it. It is the only method whereby we may discover relationships which hold in a general pattern cutting across individual cases.

¹See especially, Dakin, "Variations . . .," pp. 231-34; Slutker, op. cit., pp. 18-29.

In this study, the method has been applied in the intensive study of the role structuring of four organizational units, each of which was attempting to achieve the same goal in similar environments, but with significantly varying degrees of success. Each was attempting to achieve formal incorporation as a watershed organization under identical requirements of state and federal legislation. All were located in the eastern part of the same midwestern state within very similar physical environments and thus had about the same conditions of rainfall, temperature, and land resources. It must be noted, however, that the settings for these units did differ in certain respects other than those deliberately controlled (size and efficiency of movement toward the goal of incorporation). First, two of the territories attempting to organize contained urban communities while the other two did not. Secondly, two of the units attempting to organize had experienced perhaps somewhat more extreme damages from droughts on the one hand and floods on the other than had occurred generally through the eastern half of the state within which all were located.

These differences could not be avoided. At the time the four units were selected for study, only twenty-one such areas in the entire state had been organized (incorporated) successfully. Because size was deemed such a significant variable, it was necessary to select two large territories and two small, one of each size having been unusually efficient, one of each unusually inefficient in proceeding to organize from among the

ten large and eleven small existing units.²

Effectiveness and Size

The two variables, effectiveness and size, need to be clarified through operational definitions, which will be given in the order named. To provide an objective measure of effectiveness, an Index of Organizing Efficiency (IE_o) was developed through the following reasoning. To meet the requirements of state and federal law, all four groups had to go through the same steps. However, with minor exceptions, the time spent in achieving these steps was up to the people involved. The mean time taken to organize by the 21 watershed organizations in the state and the mean number of people to be organized were taken as standards against which the efficiency of any particular unit might be measured. These were presented as a ratio which, when multiplied by a constant, yielded 100 or normal organizing efficiency for watershed units in the state. Deviations above this figure represented greater effectiveness and deviations below it represented lack of effectiveness. The computation for each organization is given in the following formula:

$$IE_o = \frac{P \text{ (population of watershed)}}{t_o \text{ (time lapse 1st meeting to official organization)}} \times C_o$$

where C_o is a constant, calculated as follows:

$$C_o = \frac{\bar{t}_o \text{ (mean time lapse to organization)}}{\bar{p} \text{ (mean population)}} \times 100^3$$

²This statement of the comparative approach and its application in this study was provided the author by Dr. Dakin.

³Dakin, "Variations . . .," pp. 231-32.

This index is sensitive to the three criteria of organizational effectiveness proposed by Georgopoulos and Tannenbaum. These criteria are:

(1) organizational productivity; (2) organizational flexibility in the form of successful adjustment to internal organizational changes and successful adaptation to externally induced change; and (3) absence of intraorganizational strain or tension ...⁴

The index satisfied their first criterion because organizing was a specific short-range group goal representing for each unit the same tangible unit of production. It was also, incidentally, a legal prerequisite to progress on its long-range goal. The second of their criteria was met because an unsuccessful adjustment to either internal or external change would lengthen the organizing time. Their third criterion was met because internal strain again would lengthen organizing time. The index also appears to be a reasonable predictor of subsequent performance of units. The two units which formed rapidly in relation to the number of people to be organized (i.e., the more efficient units) have subsequently been more successful in progressing toward their long-range goals.⁵ Because the units were still in their beginning stages when the field work was done, progress toward the long-range goal could not be used as an index of effectiveness. However, the index chosen apparently circumvented this methodological handicap. Finally, the U.S.D.A. could provide the necessary

⁴Georgopoulos and Tannenbaum, *op. cit.*, p. 536.

⁵This was revealed by a recent status of watersheds report issued by the U.S.D.A. (mimeographed, 1963).

information for compiling objective Indexes of Organizing Efficiency on all watersheds. Specifically, the time taken for organization was the interval between the first public meeting and the date the last step necessary to issue a certificate of incorporation was completed. The population of each area could be estimated with reasonable accuracy.⁶ Thus, the Index of Organizing Efficiency seems to reflect accurately the group's ability to accomplish its short-range goal--that of organizing a given number of people in the shortest possible time.

The second main variable, size, was defined as the number of acres included in a single watershed organization. Two categories were used, "large" and "small." The former was any organization greater than 50,000 acres; the latter was any organization under this figure.⁷

The Data Used

So far in this chapter the advantages of the comparative approach have been presented and the operational meanings of effectiveness and size have been clarified. Now we turn to more detailed descriptions of the four areas researched and their indexes of efficiency.

⁶Slutker, op. cit., p. 21.

⁷The 21 areas ranged in size from 4,790 acres to 461,170 acres. The 11 small areas ranged from 4,790 to 37,280 acres, the ten large areas from 70,972 to 461,170 acres. It is readily seen that a major gap in size (with probable major sociological consequences as previously indicated) exists between the "small" and the "large" areas, so classified. The largest of the small areas is approximately half the size of the smallest of the large areas.

The following descriptions of the watershed areas are intended to accomplish two ends. First, they give an overall picture of the settings of the organizations studied. Second, they illustrate the use of the two main variables, efficiency and size, as operationally defined.

Area characteristics.--The universe consisted of 21 physical drainage areas in the eastern half of a midwestern state. These were the units which had received charters until April, 1959 as part of a state watershed law. These charters gave them "legal power to act in the planning, construction and maintenance of water retention and assorted structures and facilities." The 21 areas excluded two pilot units organized under different requirements. Four of the 21 organizations were chosen for intensive study on the basis of their Indexes of Organizing Efficiency.⁸ Two selected were considerably above average measured effectiveness for their type (one large, one small); the other two were considerably less effective (also one large, one small). The size and effectiveness of each group are summarized in Table 1.

These areas have been described further as follows:⁹

Area A.--This large area of about 320 square miles had nearly 95 percent of its people living in a county seat town of about 4,000 within its boundaries. In this efficient watershed

⁸Slutker, op. cit., p. 25.

⁹Ibid., pp. 22-26.

TABLE 1

BACKGROUND DATA ON WATERSHED ORGANIZATIONS: SIZES
AND INDICES OF ORGANIZING EFFICIENCY

Area	Type	IE ₀	Mean IE ₀ for Type*	IE ₀ Rank Order for Type
A	Large	220.5	146.6	2/10
B	Large	29.3	146.6	9/10
C	Small	1636.4	15.4	1/11
D	Small	9.8	15.4	7/11

*Ten small and ten large watersheds; this calculation excludes the unit designated as "C" above which has an unusually high IE₀, atypical of small areas.

unit, 4,400¹⁰ people were organized in 11 months when the average for large areas was 21.1 months.

Area B.--This area of about 280 square miles was technically 100 percent rural. However, there were villages of 150, 300, 350, 400, and a town of 2,400 within or immediately adjacent to its boundaries. This area of 4,800 people was organized in 36 months, making it the least effective of the units studied.

Area C.--This area with just under 20 square miles of open country had 90 percent of its population living in a community of over 12,000 located within the proposed watershed boundaries. In this unit, 14,200 people were organized in five months, much less than the average of 15.6 months for small areas.

¹⁰For all four areas, total populations included towns and villages immediately adjacent to as well as those within the watershed boundaries and the people in the open country within the area. Open country population was estimated by the work unit conservationist. Incorporated populations were taken from County Assessor data as reported by the Kansas State Board of Agriculture (Dakin, "Project 563 . . .," p. 6).

Area D.--This area of somewhat less than 40 square miles had a service center of 850 persons a few miles outside the drainage area. With this exception, the area was 100 percent rural farm, having no villages or towns located within its boundaries. The slightly over 200 people living within the area were organized in 12 months, a shorter time than the average for small areas. However, its population was only one eighth the average population of 1,699 for small areas; thus, it had a low Index of Organizing Efficiency. These characteristics of the four organizations are summarized in Table 2 below. The size is determined by the acreage within the boundary.

TABLE 2

BACKGROUND DATA ON WATERSHED ORGANIZATIONS:
SUMMARY OF CHARACTERISTICS

Area	Rural or Urban	Size	Measured Efficiency
A	urban	large**	efficient
B	rural	large**	less efficient
C	urban	small*	efficient
D	rural	small*	less efficient

*25,000 acres or less

** 175,000 acres or more

The sampling within the organizations.--¹¹Only the sampling taken of members will be considered in this study. All the officers were interviewed; however, their answers were not

¹¹Slutker, op. cit., pp. 28, 29, and 31.

used. The decision to concentrate on data from members was made primarily for statistical reasons. The universe of board members was relatively small (there was a total of only 37 board member-officers on all four areas). Because data had been gathered from all officers in the four organizations, these units could be treated statistically as a sample of the 21 area universe. On this basis, the number of units interviewed would be too small for the comparisons made in this study. However, the sampling of members was adequate and representative of each organization.

Probability sampling was used in deciding which members to interview. The members were first divided into "actives" and petitioners (persons who had "signed up" for the organization, but who were inactive). The "actives" were all persons named by board members as having attended one or more meetings of the organization or whose names were recorded in the organizational minutes of meetings during the organizing period.

Samples were drawn at random (using the Nth interval) from the lists of "actives" so compiled at levels required to obtain adequate numbers of actives for analysis from each organization. Petitioners (or inactive members) were all those who had officially signed a legal petition requesting formation of a watershed organization, but who, so far as we could ascertain, had never attended a meeting of the organization. The sample of petitioners was taken by sampling the petition documents, selecting names at the Nth interval. Alternate selections of members were made for unavailable respondents who were

on vacation, ill, deceased, moved from the area, or could not be located. The sample is summarized below in Tables 3, 4, and 5.

TABLE 3

BACKGROUND DATA ON WATERSHED ORGANIZATIONS:
SAMPLES OF PETITIONERS

Watershed	No. of Petitioners	No. of Petitioners Selected for Sample	Percent of Petitioners	No. of Petitioners Interviewed	Percent of Petitioners
A	576	58	10.0	52	9.0
B	300	46	15.0	46	15.0
C	1855	55	3.0	50	2.7
D	103	52	50.0	45	43.7
Total	2834	211	7.4	193	6.8

Source: Jack B. Slutker, Organizational Variables in Relation to Efficiency, unpublished Master's Thesis, Kansas State University, 1963, p. 31.

TABLE 4

BACKGROUND DATA ON WATERSHED ORGANIZATIONS:
SAMPLES OF ACTIVES

Watershed	No. of Actives of Record	No. of Actives Selected for Sample	Percent of Actives	No. of Actives Interviewed	Percent of Actives
A	29	29	100.0	24	82.7
B	40	20	50.0	20	50.0
C	40	20	50.0	20	50.0
D	29	29	100.0	22	75.9
Total	138	98	71.0	86	62.3

Source: Jack B. Slutker, Organizational Variables in Relation to Efficiency, unpublished Master's Thesis, Kansas State University, 1963, p. 31.

TABLE 5

 BACKGROUND DATA ON WATERSHED ORGANIZATIONS:
 SUMMARY OF SAMPLES INTERVIEWED

Watershed	Total N	Board Members	Actives	Peti- tioners	Total Non- officers
A	91	15	24	52	76
B	74	8	20	46	66
C	75	5	20	50	70
D	76	9	22	45	67

The roles used.--Specific roles selected to reveal structural differences are the focal point of this study. From the review of literature, it was concluded that examination of the two general role areas of task and socio-emotional behavior would get at significant structural differences and that these likely would be related to both size and effectiveness. Within each role area, two specific roles were chosen to check for homogeneity within the general role area and, if none was obtained, to test for the direction of differences. The four roles selected were innovating behavior, organizing behavior, harmonizing behavior, and friendships. The first two mentioned can be thought of as task behavior, and the last two can be thought of as socio-emotional behavior. The first three roles also were mentioned by Benne and Sheats as part of twelve classifications of member roles. They regarded the initiator-contributor (innovator) and coordinator (organizer) functions as "group task roles"; they regarded harmonizing as one of the

"group building and maintenance" roles.¹² This classification lends support to the reasoning used here. The fourth role, friendship, is a very common one in sociometric studies. It functions clearly in the socio-emotional area of providing psychological and social support for group members. Sociometric questions were used to gather data for all four roles. Part of a larger interview, these were the questions asked each respondent:

innovators--

Some people of a group have outstanding ability to think up new and effective ideas to solve problems which the group faces; they seem to be able to come up with the right ideas at the right time.

Can you name some outstanding people like this in the watershed organization?

organizers--

Some people of a group have outstanding ability to organize people and the work effectively; they seem to know how to get jobs done efficiently and who to get to do them.

Can you name any people of the watershed organization who are outstanding organizers like this?

harmonizers--

Some people of a group are outstanding for their friendliness and likeable qualities. At meetings they visit a lot with others, make other people feel good, and help to smooth over any trouble which develops between group members. Can you name some outstanding people like this who belong to the watershed organization?

friends--

Who are your best friends in the watershed organization?¹³

¹²Benne and Sheats, op. cit., pp. 43-44.

¹³Taken by permission from the files of Project 563.

For purposes of visual inspection to provide leads for statistical study, the members' and directors' responses to each question were first plotted on sociograms; one per role was drawn for each of the four organizations, making a total of 16. Members' votes included the responses of both the actives and the petitioners. These sociograms provided the data for all subsequent statistical analyses.

Analysis of Data

In the preceding section, the author tried to answer this inquiry: what questions were asked and to whom were they addressed? The purpose of this section is to tell what was done with the data so collected. First, the analytical procedure for holding size and efficiency constant will be described. Second, the four tests of these two main variables will be clarified.

Analytical procedure.--To study each role systematically, the following statistical approach was used: (1) differences in votes associated with effectiveness, size, and section of the state were compared, and (2) these three comparisons were tested internally for homogeneity. Specifically, the four organizations were combined into pairs and analyzed three ways: (1) the efficient units (A and C) were compared to the less efficient units (B and D); (2) the large units (A and B) were compared to the small units (C and D); and (3) the northern units (C and B) were compared to the southern units (A and D). The third comparison, section of the state, had two purposes. First of all, it seemed desirable for systematic analysis as it

was the final way in which organizations could be paired. It was found this remaining comparison involved two pairs of organizations in close proximity to each other. Therefore, for convenience in labeling, the combined northern units (B and C) were compared against the southern combined units (A and D). To insure the validity of the combinations, each of them was again analyzed for internal homogeneity. For example, within the effectiveness analysis, the homogeneity of A and C and of B and D were checked. The homogeneity of the other four combinations was determined in a similar manner. If the two types of organizations making up an analysis proved to be internally similar, then a significant difference between classifications was regarded as reliable. If the internal test revealed significant differences between units within a type, then that type was studied for its own pattern, and the main classification was regarded as unreliable. As an example of the approach to such an internal pattern, suppose organizations A and C of the effectiveness analysis were significantly different; this comparison would be labeled "size, efficiency held constant--efficient organizations." The ideas are summarized in Table 6.

The four main tests.--The second part of this explanation on data analysis specifies the four tests used to reveal the structural differences in the four watershed organizations. In general, the analytical procedure just described was used four times within each test--one for each role. The exceptions to this approach will be noted.

TABLE 6

A STATEMENT OF METHOD: GENERAL ANALYTICAL PROCEDURE

Effectiveness		Size		Section of State	
Efficient	Inefficient	Large	Small	North	South
C(small)	D(small)	A(effi-	C(effi-	C(small,	A(large,
:	:	cient	cient	effi-	effi-
:	:	:	:	cient)	cient)
:	:	:	:	:	:
+	+	+	+	+	+
A(large)	B(large)	B(ineffi-	D(ineffi-	B(large,	D(small,
:	:	cient	cient	ineffi-	ineffi-
:	:	:	:	cient)	cient)
:	:	:	:	:	:
:	:	:	:	:	:
Size, Effectiveness		Effectiveness, Size		Effectiveness and	
Held Constant		Held Constant		Size, Section of	
				State Held Constant	

Role clarity.--Overall role information. A direct relationship has been asserted between the extent of role clarity and the effectiveness of organizations. In this study, degree of role clarity which prevails in an organization has been measured by the extent to which knowledge versus ignorance of role players exists among the members. Overall role information was indicated by the ability of a member to name one or more persons for the specific role being studied. From inspection of the interviews, it appeared a few persons not giving a specific response answered "everybody"; for example, one or two respondents replied "Everybody's my friend." Such indefinite answers (as well as no name mentions) were interpreted as ignorance of the persons performing a role function. On this basis, persons interviewed were classed as respondents or non-respondents. The number of persons in each class was placed in

the appropriate cell of a four-fold chi-square table. For each role, nine such tables were designed according to the general analytical procedure described above.

Variation in information about specific roles. The method used to measure the varying overall or general role clarity in the four organizations has been described. Next, it was decided to test for variations in the degree to which the organizations featured clarity as regards each of the specific roles. It is theoretically possible, of course, that two organizations might have similar degrees overall of role clarity, yet one would feature remarkably high clarity of task roles and a low clarity of socio-emotional roles while the other featured the opposite situation. As the literature implies, such a difference might account for substantial differences in the functioning of the two organizations. To test for such variations in clarity by type of role, analyses were made on: (1) the number of votes cast for each of three roles; and, (2) the difference in votes cast between roles.

To see if one role had greater clarity than another, the number of votes cast for three of the four roles was compared against each other. Specifically, total choices for innovators, organizers, and harmonizers were placed in three respective cells of a three-by-two chi-square table. Types of groups and specific organizations were then compared in the manner described in the part on analytical procedure. It was assumed those roles with greatest differentiation in the members' minds would receive a greater number of choices; those role functions

less clear would receive significantly fewer choices. The friendship role was not part of this comparison because the wording of the question excluded it as a leadership function.

The second analysis made use of the same three roles. However, this time the absolute difference between each of the three possible pairs of roles was analyzed. The subtractions of the choices for organizer minus innovator, harmonizer minus innovator, and organizer minus harmonizer were entered in their three respective cells of a three-by-two chi-square table and compared according to the analytical procedure. The friendship role was not included in this analysis for the same reason that it was excluded from the first analysis.

Role interrelationships or congruity.--At issue here are the following questions: Are the same persons chosen for all four roles? If not, what roles are alike and what roles are different? Specifically, we need to appraise the extent to which the organizations feature role coincidence (multi-functional leadership) on one hand and role discreteness (unifunctional leadership) on the other and with what relations to size or effectiveness. To answer the questions, a Spearman rank order comparison was performed on role pairs. After the rank of each person within each of the four roles was assigned, the six possible pairs of roles were compared. This procedure was followed for each of the four groups giving a total of 24 correlations. Because these comparisons were not between different groups, the general analytical procedure obviously was not used here.

The analysis of the differences between the organizations as respects role coincidence was carried out by means of the t-test. Within one role correlation (for example, innovators versus organizers), four comparisons were made: units A versus B, A versus C, B versus D, and C versus D. This procedure was followed on each of the six possible role pairs, again resulting in 24 values. Like the last analysis, this approach does not follow the general analytical procedure.

To show how this second test of role correlations is related to the proposed hypotheses, specific predictions of the results will be made. The correlations between innovating and organizing roles should be high in the effective groups A and C but low between harmonizing and friendship roles if the classification of the first two roles as task behavior and the last two roles as socio-emotional behavior is valid. Thus, using the two task role correlations just named, comparison of A and C ought to yield a non-significant t-value because both correlations should be similar. Likewise, the t-value comparing the two correlations between innovators versus friends, and organizers versus harmonizers ought to be non-significant because both of these would be moderate. However, a comparison of the innovator versus organizer correlations between units A and B should be significant because the former figure would be highly positive and the latter figure would be low. The correlations between the task roles and the socio-emotional roles ought to be different in the effective organization, C, than in either of the ineffective organizations, B and D. For example, a

significant t -value would be expected when the innovator-friendship correlations of organizations B and C are compared because unit B would have a lower or higher correlation, and unit C would have a moderate correlation. Likewise, a significant t -value would be anticipated when the same role correlations of units C and D are compared because the latter organization would have a low or high correlation and the former organization would have a moderate correlation.

Informal versus formal structure.--The predictable presence of an informal structure in a formal organization raises several questions for this study. Is the informal structure different from unit to unit? If so, is this difference associated with size or effectiveness? It is the purpose of this general test to answer these questions. For each of the four roles, the member choices directed to all officers and their choices for all non-officers were totaled separately. Each of these totals was placed in its respective cell of a fourfold chi-square table and the general analytical procedure was run four times, one time for each role.

Concentration of votes.--None of the general tests so far described has been concerned with Moreno's sociodynamic law. It is the purpose of this general test to see if this effect did occur in this study. Two types of statistical analyses were used, the Kolmogorov-Smirnov test and the t -test. They will be described in the order named.

The Kolmogorov-Smirnov test. To adapt the data to the Kolmogorov-Smirnov test, the following steps were taken. First,

it was decided to place each person named into categories according to the number of choices he received for that role. Specifically, these classifications were chosen: persons receiving one vote each, those receiving two-to-four votes each, five-to-nine votes each, ten-to-14 votes, and persons receiving 15 or more votes each. The final figure in each classification represents the number of persons receiving the stated range of votes. Second, the cumulative percentage was figured with 100 percent being the number of persons chosen for that role. Third, the six possible pairs of organizations were compared. This approach was followed for each of four roles giving again 24 values. Obviously, the general analytical procedure (which results in 36 values) was not used for this analysis. The classifications in the Kolmogorov-Smirnov test were chosen by the following reasoning. Categories based on percent of votes for a particular role were rejected in favor of categories based on absolute votes. The latter seemed more meaningful due to the wide variation in the number of votes in the four organizations. For example, five votes in one group would be the same percent of the total votes as 15 votes in another group within the same role. Once absolute votes were chosen for purposes of the analyses, the actual categories were chosen by inspection. It was found most of the top sociometric leaders could be included in a classification of 15 or more votes. The other ranges were chosen in units of five votes with the exception of those receiving only one vote each. Here, it was felt one vote could not possibly be interpreted as consensus, but,

in the case of the three leadership roles, would provide information on lack of role clarity. For this reason, single choices were assigned their own category. In general, it was felt this series included categories sufficiently fine to be discriminatory of significant differences in role concentration, but not so fine as to be unduly influenced by the voting of one or two members.

This test, using the same procedure and classifications, was performed a second time with all four roles combined. For example, the number of persons receiving only one vote was totaled for all four roles for organization A. Similar procedures were followed in arriving at the numbers in the other classifications for unit A and for the other three units. Then the test was performed as described above.

The t-test. The t-test was felt to measure concentration of votes. To arrive at this interpretation, the following rationale was used. If five persons received two votes each, the mean number of votes would be two; if the same ten votes were all given to one person, the mean number of votes would be ten if those not receiving any votes were not included in the average. Thus, a higher mean in this case would indicate greater centralization of choices. As a result, the number of persons chosen for a role was chosen as the N and the number of votes each person received was regarded as a single X value. Two sets of t-tests were performed, one on the choices for all persons and one on the choices for just the officers. Within each set of tests, all six possible pair combinations of

organizations were compared and all four roles were analyzed, giving again 24 t-values for each set of tests. The general analytical procedure was not used of course in the t-tests.

CHAPTER III

RESULTS

The sequence of Chapter II used to present the four general tests will be followed here to describe the results. The order of analysis within each test also will be the same. These findings will be summarized only in relation to the hypotheses presented in Chapter I. The support or contradiction of these hypotheses will not be stated until Chapter IV. The explanations of the existent regularities also will be given in the next chapter. The patterns will be summarized here in the following sequence: (1) role clarity, (2) role correlations, (3) informal versus formal structure, and (4) concentration of votes.

Role Clarity

Information.--The data and statistical conclusions concerning voters and non-voters as a test of role clarity are given in Tables 7, 8, and 9. These tables deal with clarity as related to effectiveness, size, and section of the state, respectively. Each table also contains the respective tests for internal homogeneity described in the general analytical procedure. The main variables will be described first.

TABLE 7
 ROLE CLARITY: VOTERS AND NON-VOTERS, BY EFFECTIVENESS OF ORGANIZATIONS

Role	Effectiveness							
	Innovators		Organizers		Harmonizers		Friends	
Effectiveness	Efficient	Inefficient	Efficient	Inefficient	Efficient	Inefficient	Efficient	Inefficient
Voters	72	70	89	71	79	79	76	77
Non-voters	74	63	57	62	67	54	70	56
χ^2	0.30631		1.63289		0.79268		0.95843	
α	.7 > p > .5		.3 > p > .2		.5 > p > .3		.5 > p > .3	

Size	S (C)	L (A)	S (C)	L (D)	S (C)	L (D)	S (C)	L (B)
Voters	21	51	38	32	32	57	41	30
Non-voters	49	25	29	34	38	19	26	36
χ^2	20.07110**		0.90364		13.13140**		3.30979*	
α	p < .001		.5 > p > .3		p < .001		.1 > p > .05	

Size, Effectiveness Held Constant								

*p < .10

**p < .05

S = small physical area

L = large physical area

 α = probability level

TABLE 8

ROLE CLARITY: VOTERS AND NON-VOTERS, BY SIZE OF ORGANIZATION

Role	Size							
	Innovators		Organizers		Harmonizers		Friends	
Size	Large	Small	Large	Small	Large	Small	Large	Small
Voters	83	59	87	73	86	72	85	68
Non-voters	59	78	55	64	56	65	57	69
χ^2	6.60388**		1.81665		1.82090		2.94308*	
α	.02 > p > .01		.2 > p > .1		.2 > p > .1		.1 > p > .05	
Effectiveness	E (A)	I (B):(C)	I (D):(A)	E (B):(C)	I (D):(A)	E (B):(C)	I (D):(A)	E (B):(C)
Voters	51	32	21	38	21	38	21	38
Non-voters	25	34	49	29	19	36	27	29
χ^2	5.04306**		9.96559**		12.99407**		3.29547*	
α	.05 > p > .02		.01 > p > .001		.1 > p > .05		.5 > p > .3	
Effectiveness, Size Held Constant	I (B):(C)		I (D):(A)		E (B):(C)		I (D):(A)	
Voters	46	39	46	39	46	39	46	39
Non-voters	27	40	25	30	25	30	27	40
χ^2	0.03029		0.03029		0.03029		0.03029	
α	.9 > p > .8		.9 > p > .8		.9 > p > .8		.9 > p > .8	

*p < .10

**p < .05

E = efficient

I = inefficient

 α = probability level

TABLE 9

ROLE CLARITY: VOTERS AND NON-VOTERS, BY SECTION OF STATE

Role	Section of State						Friends	
	Innovators			Harmonizers				
Section of State	North	South	North	South	North	South	North	South
Voters	53	89	62	98	67	91	69	84
Non-voters	83	54	74	45	69	52	67	59
χ^2	15.09932**		15.00104**		5.86206**		1.80403	
α	p < .001		p < .001		.02 > p > .01		.2 > p > .1	
Effective- ness and Size	E S (C)	I L:E L (B):(A)	I S:E S (D):(C)	I L:E L (B):(A)	I S:E S (D):(C)	I L:E L (B):(A)	I S:E S (D):(C)	I L:E L (B):(A)
Voters	21	32	51	38	32	30	57	41
Non-voters	49	34	25	29	38	36	19	26
χ^2	4.88043**		1.63521		0.00092**		3.14716*	
α	.05 > p > .02		.37 > p > .2		.98 > p > .95		.1 > p > .05	
Efficiency and Size, Section of State Held Constant								

*p < .10

**p < .05

***p > .95

E = efficient

I = inefficient

S = small physical area

L = large physical area

 α = probability level

Effectiveness. The first part of Table 7 shows the combined efficient organizations compared with the combined inefficient organizations. None of the four roles analyzed this way were significantly different. However, when size was held constant, significant results were obtained as the second part of Table 8 shows. Specifically, when the small units, C and D, were compared, the inefficient unit D had proportionately more voters on all roles but friendship where there was no significant difference. When the two large units, A and B, were compared, the efficient organization, A, had proportionately more voters than the inefficient organization, B, in the task roles. However, there were no significant differences in the large units in the socio-emotional roles.

Size. When the organizations were combined into the two respective size categories (large and small), significant differences were found as regards role clarity on innovation and friendship. Both roles were perceived with significantly greater clarity in the large organizations. The difference as respects innovation was, however, not meaningful. The second part of the table shows that both the large and small classifications lack internal homogeneity on innovation. In the case of friendships, however, both classes are internally homogeneous. Therefore, the difference between categories seems to be valid with significantly more pervasive friendship role clarity in the large than in the small organizations.

When effectiveness was held constant, as was done in Table 7, significant differences at extremely conservative

levels of inference appeared in the efficient organizations. In all four roles, the large unit, A, had significantly greater proportions of voters than the small unit, C. Within the efficient units, three of the four roles--innovating, harmonizing, and friendship--had no significant differences in the proportions of voters. In the organizing role, however, significant results were found within the inefficient units at the .10 level of confidence. Specifically, a greater proportion of voters was found in the small unit than in the large unit.

Section of the state. As was mentioned in Chapter II, this heading was designed to test any possible effects due to differences in setting. Results are shown in Table 9. When the northern organizations were compared with the southern organizations, significant differences appeared in all except friendship, with the southern organizations appearing to have a consistently higher degree of role clarity. However, these apparent differences were partially negated by lack of internal homogeneity of the northern organizations on innovation and, possibly, of the two southern units on organizing. The role with regard to which differences were convincingly patterned was that of harmonizing. The northern and the southern organizations featured internal homogeneity and were significantly different at the .05 level. In the harmonizing role, the combined southern units may be said to have significantly more role clarity than the combined northern units. With regard to innovation and organization, apparent sectional differences

were somewhat clouded by the lack of innovating role clarity in unit C as compared with unit B, and the organizing role in unit D as compared with A.

Two additional tests of role clarity have been applied: (1) the absolute choices given to three roles: organizers, innovators, and harmonizers; and (2) the absolute differences between the three roles just mentioned. The findings are presented in Tables 10 and 11.

Absolute choices given to organizers, innovators, and harmonizers.--Table 10 reveals no significant differences in the distributions of voting for innovating, organizing, and harmonizing in relation to effectiveness, size, or section of the state. Likewise, none of the internal tests revealed any significant differences. In short, the organizations were relatively similar as regards distribution of the role clarity among the three roles analyzed. Moreover, in all units, any way they were classified, the organizing and harmonizing roles were consistently perceived at a higher level of clarity than the innovating role. This will be apparent in the discussion of the next test.

Differences among three roles.--These findings are presented in Table 11.

Efficiency. No statement can be made about the indicated differences in the combined efficient organizations because of the significant differences found in the internal tests. However, when size was held constant and effectiveness was analyzed, significant differences appeared. Within both the large

TABLE 10
 ROLE CLARITY, ABSOLUTE CHOICES ON THREE ROLES

Main Variables :	Effectiveness :			Size :			Section of State :		
	Efficient :	Inefficient :	Large :	Small :	Large :	Small :	North :	South :	South :
Organizers	177	139	189	127	112	204			
Innovators	126	136	148	114	84	178			
Harmonizers	172	153	195	130	113	212			
χ^2	3.62560			0.89995			0.79605		
α	.2 > p > .1			.7 > p > .5			.7 > p > .5		

Descriptions :	L (A)	S (C)	L (B)	S (D)	E (A)	I (B)	E (C)	I (D)	E (A) I (B) L (C) S (D)
Organizers	127	50	62	77	127	62	50	77	50 62 : 127 77
Innovators	95	31	53	83	95	53	31	83	31 53 : 95 83
Harmonizers	127	45	68	85	127	68	45	85	45 68 : 127 85
χ^2	0.52014			1.16845			4.00988		
α	.8 > p > .7			.7 > p > .5			.9 > p > .8		

Size, Efficiency Held :	Efficiency Held :	Efficiency Held :	Efficiency Held :	Size Held :	Efficiency and Size, Constant :	Section of State Held :	Constant :	Constant :	Constant :

E = effective
 I = ineffective
 S = small physical area
 L = large physical area
 α = probability level

and small units, there were larger proportionate differences in votes between the organization and innovating roles in the efficient organizations. Likewise, the effective organizations had a greater proportionate difference in votes between the innovating and harmonizing votes. In both of these sets of differences, the efficient units had a smaller proportion of votes cast for innovating behavior than for either organizing or harmonizing behavior. The difference between the organizing and the harmonizing role was proportionately less in the effective organizations than in the ineffective organizations. Thus, it would appear there was more role clarity regarding organizing and harmonizing behavior in the effective units than in the ineffective units.

Size. As in the case of the combined efficient organizations, no statement can be made regarding the indicated difference of the combined large units because of the significant internal differences. When effectiveness was held constant, then differences by size did appear. Specifically, the large organizations had a proportionately greater vote difference between the organizing and the innovating roles and between the innovating and harmonizing roles, but a proportionately smaller difference between the organizing and harmonizing roles. Because the innovating role received proportionately fewer votes in units A and B, it would appear the harmonizing and organizing behavior had greater role clarity in the large organizations.

Section of state. When the organizations were combined by section of the state, no significant difference was found.

When setting of state was held constant, the patterns described for effectiveness and size above were contradicted in the northern units and reinforced in the southern units. Specifically, in the northern units, organization C was efficient and small, and organization B was inefficient and large. In the southern organizations, A is efficient and large and D is inefficient and small. As expected, the northern units were not significantly different, but the southern units were, with the harmonizing and organizing roles being clearer than the innovating role in unit A.

Role Correlations

Spearman rank order correlations.--The results of the Spearman rank order analysis are shown in Table 12. The significant results, overall, seem to be these: first, the correlations reveal there was considerable role crossover when considering all possible combinations. More seemed to occur between organizing-harmonizing than between innovating-friendship. Second, the four organizations appeared to feature three distinct patterns of leadership: organizations A and D featured the multi-functional pattern with individuals substantially crossing over roles; unit C featured a uni-functional or specialized role pattern; unit B mixed the two types. Third, the southern organizations showed substantial role correlations generally on all combinations of roles; in the northern organizations, the large, inefficient one showed correlated organizing-friendship roles, but no or low correlations otherwise; the northern small, efficient unit showed no or low correlations

for all roles. Fourth, with regard to theoretically congruent roles (innovating-organizing and harmonizing-friendship), the southern organizations featured substantial correlations, the northern organizations little or no correlation. With regard to the mixing of role types, the pattern was generally the same. Fifth and finally, the correlations between the organizing and friendship roles were low in the small units and substantial in the large units. To sum up, the most significant result to this writer was the rather impressive patterning of the correlations within organizations. There appeared to be generally either low correlations throughout or substantial correlations throughout. This would indicate organizations tended toward either the specialized or the multi-functional leadership patterns.

TABLE 12
ROLE CORRELATIONS: SPEARMAN RANK ORDER, BETWEEN ROLES

Role Comparisons	Area			
	C	A	D	B
Innovators-Organizers	.169	.542**	.482**	.376*
Harmonizers-Friends	.333*	.632**	.606**	.355*
Innovators-Harmonizers	.245*	.548**	.749***	.012
Innovators-Friends	.033	.375*	.515**	.146
Organizers-Harmonizers	.258*	.686**	.549**	.440**
Organizers-Friends	.306*	.642**	.289*	.551**

*low correlation (.2 to .4)

**substantial correlation (.4 to .7)

***high correlation (.7 and over)

t-Tests.--The t-tests of the differences in the correlation of Table 12 are summarized in Table 13. The columns will be described from left to right. At the .10 level of confidence,

the correlations of organizing with both harmonizing and friends was significantly higher in A, the larger of the two efficient units. In the two inefficient organizations, there were significantly higher correlations in the smaller unit, D, when innovating was compared with the two socio-emotional roles. Holding size constant, the innovating-harmonizing correlation and the innovating-friends correlation were higher in the inefficient small organization at the .10 level. Also within the small units, the correlation for the organizing with friendship roles was significantly alike at the .90 level. In the large units, the efficient organization, A, had a significantly higher correlation in the innovator-harmonizer comparison.

TABLE 13

ROLE CORRELATIONS: t-TESTS OF THE DIFFERENCES BETWEEN
THE SPEARMAN RANK ORDER CORRELATIONS
IN TABLE 12

Role Comparisons	Area			
	Efficient A-C	Inefficient B-D	Small C-D	Large A-B
Innovators-Organizers	1.33	0.42	0.97	0.81
Harmonizers-Friends	1.44	0.92	0.86	1.61
Innovators-Harmonizers	1.09	2.88**	1.80*	2.40**
Innovators-Friends	1.33	1.83*	1.86*	1.14
Organizers-Harmonizers	1.76*	0.44	0.97	1.28
Organizers-Friends	1.76*	1.28	0.07***	0.61

* $t > 1.64$ ($p < .10, \infty$ df)

** $t > 1.96$ ($p < .05, \infty$ df)

*** $t < 0.13$ ($p > .90, \infty$ df)

Formal and Informal Structures

Effectiveness.--Table 14 reveals significant differences in the proportions of choices to officers and non-officers when the combined efficient units were compared with the combined inefficient units. No statement can be made about these results, which appear in all four roles, because the internal tests of each role revealed at least one significant difference. In Table 15, effectiveness is analyzed, holding size constant. Within the large organizations, the efficient unit, A, had a significantly greater proportion of officers chosen for all four roles. No significant differences were found within the small units.

Size.--When the combined large organizations were compared with the combined small organizations, significant differences appeared in the organizing and harmonizing roles as Table 15 shows. These cannot be interpreted as meaning the large units featured significantly greater confidence in the officers than the small, however, because of significant differences which appeared in the internal tests of each; these have been described under "effectiveness" immediately above. In Table 14, effectiveness was held constant; in this situation the large, efficient unit, A, had significantly greater proportions of votes for officers than the small efficient unit, C, in all four roles. Within the inefficient organizations, the large unit had a significantly greater proportion of votes for officers only in the organizing role at the .10 level.

TABLE 14

FORMAL VERSUS INFORMAL STRUCTURES: OFFICERS VERSUS NON-OFFICERS,
BY EFFECTIVENESS OF ORGANIZATIONS

Role	Effectiveness														
	Innovators			Organizers			Harmonizers			Friends					
Effec- tiveness	E	I	I	E	I	I	E	E	I	I	E	E	I		
Officers	94	88		150	96		150		103		143		124		
Non-officers	32	48		27	43		22		50		49		67		
χ^2	3.02052*			11.10172**			18.57282**			4.14258**					
α	.1 > p > .05			p < .001			p < .001			.05 > p > .02					
Size	L (A)	S (C)	L (B)	S (D)	L (A)	S (C)	L (B)	S (D)	L (A)	S (C)	L (B)	S (D)	L (A)		
Officers	75	19	31	57	114	36	48	48	118	32	45	58	101		
Non-officers	20	12	22	26	13	14	14	29	9	13	23	27	26		
χ^2	3.84604**			8.75715**			3.65643*			14.15905**			0.07278		
α	.05 > p > .02			.3 > p > .2			.01 > p > .001			.1 > p > .05			p < .001		
	.05 > p > .02			.8 > p > .7			.05 > p > .02			.8 > p > .7			.05 > p > .02		
	Size, Efficiency Held Constant														

*p < .10

**p < .05

E = efficient

I = inefficient

L = large physical area

S = small physical area

 α = probability level

TABLE 15

FORMAL VERSUS INFORMAL STRUCTURES: OFFICERS VERSUS NON-OFFICERS,
BY SIZE OF ORGANIZATION

Role	Size							
	Innovators		Organizers		Harmonizers		Friends	
Size	Large	Small	Large	Small	Large	Small	Large	Small
Officers	106	76	162	84	163	90	157	110
Non-officers	42	38	27	43	32	40	58	58
X^2	0.74539		16.87385**		9.32513**		2.54409	
α	.5 > p > .3		p < .001		.01 > p > .001		.2 > p > .1	
Effec- tiveness	E (A)	I (B)	E (A)	I (C)	E (A)	I (C)	E (A)	I (C)
Officers	75	31	19	57	114	48	36	48
Non-officers	20	22	12	26	13	14	14	29
X^2	7.00457**		0.55382		5.18465**		1.26380	
α	.01 > p > .01		.5 > p > .3		.05 > p > .02		.3 > p > .2	
Effectiveness, Size Held Constant	E (A)	I (B)	E (A)	I (C)	E (A)	I (C)	E (A)	I (C)
Officers	75	31	19	57	114	48	36	48
Non-officers	20	22	12	26	13	14	14	29
X^2	7.00457**		0.55382		5.18465**		1.26380	
α	.01 > p > .01		.5 > p > .3		.05 > p > .02		.3 > p > .2	

**p < .05

E = efficiency

I = inefficiency

 α = probability level

Section of state.--These findings are given in Table 16.

When the combined northern units, B and C, were compared with the combined southern units, A and D, the latter have a significantly greater proportion of officers chosen in the innovating role. When this role was internally tested, no significant differences were found. In the organizing role, the comparison of the combined northern and combined southern organizations produced no significant differences. In the internal test of this role, no significant difference was found when the two northern units, B and C, are compared. However, within the southern organizations, the large, efficient unit, A, had a significantly greater proportion of officers chosen than the small, inefficient unit, D. The internal test of the harmonizing role resulted in the same pattern just described for the organizing role. Because one of the internal tests of the harmonizing role was significant, no conclusions may be inferred from the indicated difference in the officers chosen between the combined northern organizations and the combined southern organizations. Likewise, no statement may be made about the significant difference in the same combination in the friendship role due to the significant internal differences. At the .90 level of confidence, the northern organizations, B and C, had similar proportions of officers chosen as friends. However, within the southern units, the large, efficient organization, A, had proportionately more officers chosen for the same role than the small, inefficient organization, D.

TABLE 16

FORMAL AND INFORMAL STRUCTURES: OFFICERS VERSUS NON-OFFICERS,
BY SECTION OF STATE

Role	Section of State							
	Innovators		Organizers		Harmonizers		Friends	
Section of State	North	South	North	South	North	South	North	South
Officers	50	132	84	162	77	176	98	169
Non-officers	34	46	28	42	36	36	55	61
χ^2	5.76149**		0.81606		9.46000**		3.86635**	
α	.02 > p > .01		.5 > p > .3		.01 > p > .001		.05 > p > .02	

Effectiveness and Size	E S (C)	I L (B)	E L (A)	I S (D)	E S (C)	I L (B)	E L (A)	I S (D)
Officers	19	31	75	57	36	48	114	48
Non-officers	12	22	20	26	14	14	13	29
χ^2	0.06363		2.43925		0.43354		22.05408**	
α	.97 > p > .8		.2 > p > .1		.7 > p > .5		p < .001	

Effectiveness and Size, Section of State Held Constant								

**p < .05

***p > .90

E = efficient

I = inefficient

L = large physical area

S = small physical area

α = probability level

Concentration of Votes

Kolmogorov-Smirnov test.--Comparison by role. With one exception, none of these comparisons by role was significantly different, as is shown in Table 17. The exception appears when contrasting the two large organizations, A and B, in the harmonizing role. At the .10 level of confidence, the efficient unit, A, had more concentration of votes than the inefficient unit, B.

Total vote comparison. None of these comparisons was significant as Table 18 shows. Therefore, there does not seem to be more overall concentration of votes in any unit when compared with any other unit using this measure.

t-Tests.--Two sets of analyses were run, one on the mean choices for all people chosen within a role and one to only the directors chosen within a role. The results are summarized in the order named and are presented in Tables 19 and 20, respectively.

Within the votes for all people chosen for the innovating role, the significant results were found in the test of effectiveness. In the two efficient organizations, the means were significantly alike; in the two inefficient organizations, the mean of the small unit, D, was significantly greater than the mean of the large unit, B. This statement about the difference is permissible because the number of voters was not significantly different. Within votes for organizing, no significant differences were found, but the means of the two northern organizations, B and C, were significantly alike at the .90 level

TABLE 17
 CONCENTRATION OF VOTES: KOLMOGOROV-SMIRNOV TEST,
 COMPARISON BY ROLE

		:Maximum: :Differ- :ence :(%)	D max : .05 : .10	Persons Receiving					:Total :Votes
				1	2	3	4	5+	
Innovators									
Efficient	A:			16	5	2	1	2	26
	C:	.059	.526 .472	5	2	1	-	1	9
Inefficient	D:			5	3	1	3	2	14
	B:	.357	.461 .414	16	3	4	-	-	23
Large	A:			16	5	2	1	2	26
	B:	.115	.389 .349	16	3	4	-	-	23
Small	C:			5	2	1	-	1	9
	D:	.246	.582 .522	5	3	1	3	2	14
North	C:			5	2	1	-	1	9
	B:	.140	.536 .481	16	3	4	-	-	23
South	A:			16	5	2	1	2	26
	D:	.258	.452 .405	5	3	1	3	2	14
Organizers									
Efficient	A:			10	6	5	-	3	24
	C:	.121	.469 .421	7	2	3	-	1	13
Inefficient	D:			5	2	1	2	2	12
	B:	.215	.513 .460	9	3	3	2	-	17
Large	A:			10	6	5	-	3	24
	B:	.125	.430 .386	9	3	3	2	-	17
Small	C:			7	2	3	-	1	13
	D:	.256	.544 .488	5	2	1	2	2	12
North	C:			7	2	3	-	1	13
	B:	.077	.502 .450	9	3	3	2	-	17
South	A:			10	6	5	-	3	24
	D:	.208	.481 .432	5	2	1	2	2	12
Harmonizers									
Efficient	A:			9	4	8	1	2	24
	C:	.208	.481 .432	7	2	2	-	1	12
Inefficient	D:			5	3	1	1	3	13
	B:	.302	.469 .421	14	8	-	1	1	24
Large	A:			9	4	8	1	2	24
	B:	.375*	.392 .351	14	8	-	1	1	24
Small	C:			7	2	2	-	1	12
	D:	.225	.544 .488	5	3	1	1	3	13
North	C:			7	2	2	-	1	12
	B:	.167	.481 .432	14	8	-	1	1	24
South	A:			9	4	8	1	2	24
	D:	.183	.469 .421	5	3	1	1	3	13

TABLE 17 (concl.)

		: Maximum:	:	Persons Receiving					:
		: Differ-	:	2- 5- 10-					:
		: ence	: D_{max}	1	4	9	14	15+	: Total
		: (%)	: .05 : .10	Votes					: Votes
Friends									
Efficient	A:			22	6	9	2	-	: 39
	C:	.150	: .367 .329:	15	2	1	3	-	: 21
Inefficient	D:			18	4	6	2	1	: 31
	B:	.133	: .336 .301:	25	2	7	1	-	: 35
Large	A:			22	6	9	2	-	: 39
	B:	.150	: .316 .283:	25	2	7	1	-	: 35
Small	C:			15	2	1	3	-	: 21
	D:	.133	: .385 .345:	18	4	6	2	1	: 31
North	C:			15	2	1	3	-	: 21
	B:	.114	: .375 .337:	25	2	7	1	-	: 35
South	A:			22	6	9	2	-	: 39
	D:	.046	: .328 .294:	18	4	6	2	1	: 31

*p < .10

TABLE 18

CONCENTRATION OF VOTES: KOLMOGOROV-SMIRNOV TEST,
TOTAL VOTE COMPARISON

		: Maximum:	:	Persons Receiving					:
		: Differ-	:	2- 5- 10-					:
		: ence	: D_{max}	1	4	9	14	15+	: Total
		: (%)	: .10	Votes					: Votes
Efficient	C:			34	8	7	3	3	: 55
	A:	.114	: .200	57	21	24	4	7	: 113
Inefficient	D:			33	12	9	8	8	: 70
	B:	.178	: .189	64	16	14	4	1	: 99
Large	A:			57	21	24	4	7	: 113
	B:	.142	: .168	64	16	14	4	1	: 99
Small	C:			34	8	7	3	3	: 55
	D:	.147	: .218	33	12	9	8	8	: 70
North	C:			34	8	7	3	3	: 55
	B:	.058	: .204	64	16	14	4	1	: 99
South	A:			57	21	24	4	7	: 113
	D:	.132	: .181	33	12	9	8	8	: 70

TABLE 19
CONCENTRATION OF VOTES: t-TESTS ON PAIRS OF ORGANIZATIONS, TOTAL VOTES

Main Variable:	Effectiveness				Size				Section of State						
	Efficient	Inefficient	Large	Small	A	B	C	D	A	B	C	D			
Organizations:	C	A	B	D	B	A	B	C	D	C	B	A	D		
Innovators	\bar{x} : 3.44	3.65	5.93	2.30	3.65	2.30	3.44	5.93	3.44	2.30	3.44	2.30	3.65	5.93	
	t: .098***		2.600**		1.031		1.069		0.906		0.906		1.175		
	α : p > .9		.02 > p > .01		.4 > p > .3		.3 > p > .2		.4 > p > .3		.4 > p > .3		.3 > p > .2		
	df: 33		35		47		21		30		30		38		
Organizers	\bar{x} : 3.85	5.29	6.42	3.65	5.29	3.65	3.85	6.42	3.85	3.65	3.85	3.65	5.29	6.42	
	t: 0.616		1.301		.857		.948		0.104***		0.104***		0.446		
	α : .6 > p > .5		.3 > p > .2		.4 > p > .3		.4 > p > .3		p > .9		p > .9		.7 > p > .6		
	df: 35		27		39		23		28		28		34		
Harmonizers	\bar{x} : 3.75	5.29	6.54	2.83	5.29	2.83	3.75	6.54	3.75	2.83	3.75	2.83	5.29	6.54	
	t: 0.694		1.969*		1.608		1.008		0.550		0.550		0.530		
	α : .5 > p > .4		.1 > p > .05		.2 > p > .1		.4 > p > .3		.6 > p > .5		.6 > p > .5		.6 > p > .5		
	df: 34		35		24		23		34		34		35		
Friends	\bar{x} : 3.10	3.26	3.32	2.51	3.26	2.51	3.10	3.32	3.10	2.51	3.10	2.51	3.26	3.32	
	t: 0.168		0.982		1.018		.210		0.623		0.623		0.079***		
	α : .9 > p > .8		.4 > p > .3		.4 > p > .3		.9 > p > .8		.6 > p > .5		.6 > p > .5		p > .9		
	df: 58		64		72		50		54		54		68		
	: Size, Efficiency Held	: Efficiency Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency, Size Held	: Efficiency and Size, Section of State Held	: Efficiency and Size, Section of State Held	: Efficiency and Size, Section of State Held
	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant	: Constant

*p < .10
**p < .05
***p > .90
 α = probability level

TABLE 20

CONCENTRATION OF VOTES: t-TESTS ON PAIRS OF ORGANIZATIONS,
CHOICES TO DIRECTORS ONLY

Main Variable:	Effectiveness				Size				Section of State							
	Efficient	Inefficient	Large	Small	A	B	C	D	A	B	C	D	A	B	C	D
Organizations:	C	A	B	D	B	A	C	D	C	B	A	D	C	B	A	D
Innovators	\bar{x} : 9.50	5.36	5.17	9.50	5.17	5.36	5.17	9.50	9.50	5.15	5.36	9.50	9.50	5.15	5.36	9.50
	t:	0.745	1.777	1.777	0.061***	0.061***	0.061***	0.061***	0.061***	0.061***	0.061***	0.061***	0.061***	0.061***	0.061***	0.061***
	α :	.5	p > .4	.2	p > .1	p > .9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	df:	14	14	10	10	18	18	18	18	6	6	6	6	6	6	18
Organizers	\bar{x} : 9.00	7.60	6.00	9.60	6.00	7.60	6.00	9.60	9.60	6.00	7.60	9.60	9.60	6.00	7.60	9.60
	t:	0.293	1.144	1.144	0.506	0.506	0.506	0.506	0.506	0.506	0.506	0.506	0.506	0.506	0.506	0.506
	α :	.8	p > .7	.3	p > .2	.7	p > .6	.7	p > .9	.5	p > .4	.7	p > .6	.7	p > .4	.7
	df:	17	17	11	11	21	21	7	7	10	10	10	10	10	10	18
Harmonizers	\bar{x} : 8.00	7.87	6.43	8.29	6.43	7.87	6.43	8.29	8.29	6.43	7.87	8.29	8.29	6.43	7.87	8.29
	t:	0.032***	0.490	0.490	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472
	α :	p > .9	p > .6	.7	p > .6	.7	p > .6	p > .9	p > .9	.8	p > .7	.8	p > .7	.8	p > .7	.8
	df:	17	17	12	12	20	20	9	9	9	9	9	9	9	9	20
Friends	\bar{x} : 8.40	6.73	7.00	7.56	7.00	6.73	7.00	7.56	7.56	7.00	6.73	7.56	7.56	7.00	6.73	7.56
	t:	0.963	0.343	0.343	0.205	0.205	0.205	0.387	0.387	0.641	0.641	0.641	0.641	0.641	0.641	0.641
	α :	.4	p > .3	.8	p > .7	.9	p > .8	.8	p > .7	.6	p > .5	.6	p > .5	.6	p > .5	.6
	df:	18	18	15	15	21	21	12	12	11	11	11	11	11	11	22
	Size, Efficiency Held	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant
	Efficiency and Size, Section of State Held	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant	Constant

***p > .90

 α = probability level

of confidence. In the harmonizing role, the mean of the inefficient, small organization, D, was larger than the mean of the large inefficient unit, B, at the .10 level of confidence. Again this difference was meaningful due to the number of voters which was not significantly different. No other significant differences were found in the votes for this role. Likewise, the votes for friendship had only one significant result. Here, the means of the southern organizations, A and D, were alike at the .90 level of confidence.

There were no means significantly different in the choices for directors. Several means, however, were significantly alike at the .90 level of confidence. Specifically, in the size variable, the means of the two small units, C and D, were alike in the innovating, organizing, and harmonizing roles. Also, the two large units, A and B, were alike in the innovating role. In the effectiveness variable, the only significant result was in the internal test of the two efficient organizations, A and C, in the harmonizing role; these were similar. Testing organizations by section of state, only one significant result appeared. Within the southern units, A and D, only the two harmonizing means were alike; in the northern units, B and C, none of the four pairs was significantly alike.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

This chapter contains three main sections: (1) a discussion of results in relation to the hypotheses, (2) a discussion of the theoretical implications of the findings, and (3) specific recommendations for organizations of the types studied. The first section will include not only the support or rejection of the hypotheses by the data; but, in addition, an attempt to explain the results. The second section represents a shift from micro-analysis to macro-analysis; it reviews the original theory in light of the results, and forms an overall view of the explanations. Finally, the third section states some specific guidelines which appear to be associated with task accomplishment in watershed organizations.

The Results in Relation to the Hypotheses

This section has been organized in the same pattern as Chapter III; the general tests and the internal analyses within each test are presented in a similar order. Within each of the analyses, the results are given and discussed in the same sequence as the hypotheses in Chapter I.

Structural Clarity.--Information.--Effectiveness (main tests, Table 7; size held constant, Table 8). It was predicted

that members of more efficient organizations would have more information on the task roles and less on the socio-emotional roles than those of less efficient organizations. When the four organizations were paired by efficiency, no significant differences were found. When size of area was held constant, significant differences in role clarity were obtained. In the innovating role, proportionately more voters were found in the efficient organization A of the large organizations and the inefficient, D, of the small organizations. These seemingly contradictory results may be explained in terms of the population of the organizations. It was hypothesized members of the large organizations would have less information about themselves than members of the small ones due to the lower level of participation by members of the former organizations. Although in terms of size of physical area, organizations C and D were similar, C had by far the largest population and D had by far the smallest population of the four organizations. Thus, in the small organizations, size and impersonality have not been held constant in a crucial respect. The populations were so unequal that this factor seems to have more than negated the expected effect due to efficiency and instead supported the hypothesis relating to size. That is, C apparently was so large and impersonal that its members had less information about the innovating role than members of the smaller but less efficient organization D. The two large organizations, A and B, were of similar size both as respects territory and population. It appears that when organizations are similar with respect to

the crucial size variables, as A and B were by both size measures, the predicted result emerged: members of efficient organization A did seem to have more information about themselves concerning innovating behavior.

In the organizing role, the same results were found although the difference was significant only at the .10 level in the small units C and D. The same reasoning seems applicable to the organizing role as to innovating behavior.

In the harmonizing role, only the small organizations, C and D, had a significant difference in proportion of voters. The efficient organization C had a significantly lower proportion of persons voting than did the less efficient D. This result was predicted by the theory. The efficient unit, it was held, would manifest less socio-emotional behavior and focus more of its attention on task behavior. Comparing the large units, which have similar populations and physical areas, we find that the members of the efficient organization A did not have significantly less information about the harmonizing role than members of B. The following reasoning may be plausible in accounting for this unanticipated result. Innovating and organizing behavior may be more tangible, and easily identified and also more a matter of organizational consensus than socio-emotional behavior. If socio-emotional behavior is indeed, largely a matter of personal preference as some authors have argued, we would not expect significant variations in relation to degree of organizational effectiveness. This reasoning was implied in Chapter II when it was mentioned that Benne and

Sheets had placed harmonizing in the "group maintenance" category but had put innovating and organizing in the "task role" category.

In the friendship role, no significant differences were found in the internal tests of the large or small organizations. Although this result was not specifically predicted by the hypothesis, the findings were not unexpected. The sociometric question asked "who are your best friends in the organization?" This inquiry is not a leadership question because it is not directed at the whole group, but rather at each person's own preferences. Therefore, organizational effectiveness and proportion of people voting for friends should not be related. Perhaps the decisive test would be differences in degrees of consensus on friendship with a diffuse pattern contributing to organizational effectiveness. This reasoning is merely an extension of the ideas relating harmonizing and socio-emotional response which were presented above. Such a test was not made.

To summarize: no differences were found in any of the four roles when the two more effective organizations were compared to the two less effective. However, when size was held constant, several differences were found. In the small organizations, large differences in size of membership were thought to account for the lower proportion of voters in C for the innovating, organizing, and harmonizing roles. In the large organizations, the larger proportion of voters in A in the organizing and innovating roles was related to efficiency. Personal choice was felt to account for the lack of voter

differences in the large organizations in the harmonizing role and in both the large and small units on the friendship role.

Size (main tests, Table 8; effectiveness held constant, Table 7). When the four organizations were combined by the size of their physical area, two significant results appeared relating to the innovating and the friendship roles. The significant difference in voting on the innovating role has no clear meaning due to the lack of internal homogeneity of the large and small classes. However, the difference with regard to the friendship role should be important because, it will be recalled, the internal tests of friendship revealed no significant differences in units within the sub classes. At the .10 level of probability, we may assert that a higher proportion of members perceived friends in the large organizations than in the small. This is contrary to the predicted result. The author has no completely satisfactory explanation for this unexpected finding. But one could reason that members of large and more impersonal organizations make more of an effort to develop friendships in order to satisfy the emotional need for support which would be otherwise lacking in the impersonal setting of the larger group. If, however, we adopt this line of reasoning for the higher level of friendships developed in units A and B, we are at a loss to explain the lower degree of friendship in the small efficient organization C, which was, in terms of numbers, the largest and seemingly most impersonal of all units. In the case of the large organizations, the impersonality was due to distance rather than numbers of people as

such; perhaps the members did not anticipate the impersonal relations they encountered in these organizations and made up the deficit they felt by specifically developing new friendships or continuing the ones they had with their neighbors.

In the internal tests (Table 7), the efficient organizations showed significant differences by size in all four roles. In each case, the larger, A, had significantly higher proportions of voting than the smaller, C. The inadequacy of classification on the basis of size of the physical area alone is again indicated. That is, the decisive variable seems to be numbers of persons and the resulting impersonality of the organization; organization C, due to its large numbers, was more impersonal than A. The more impersonal organization had members with less information about the three leadership roles due to their lower level of participation and personal involvement. In the test of friendship choices, the lower proportion of voters in organization C would again seem related to its size and consequent high degree of impersonality and perhaps to the low socio-emotional expectations of its members. The lower proportion of voters in this role may also indicate their lack of information. All petitioners in the community of over 12,000 were considered members (some 1855 persons); the respondents who did not answer this question in all probability did not sustain close relations with many of these and, having little contact with the organization, did not know who they were.

In the internal tests of the inefficient organizations, results were significant only on the organizing role. That is,

group D, which had both a smaller area and population than group B, also featured a higher proportion of voters. This result was unpredicted. It indicates that size may be a more decisive variable than efficiency of role performance in determining role visibility. The lack of difference in the innovating role may indicate that organizing and not innovating is the main group problem. It may also result simply from the fact that the two areas (D and B) were characterized by a similar degree of impersonality (low) resulting from the basic rurality of both. In the harmonizing and friendship roles, no significant differences were found and this result was unexpected. The more personal aspect of the socio-emotional roles is indicated.

Section of the State (Table 9). Significant differences were found in the innovating, organizing, and harmonizing roles, when the organizations were classified by location as "north" and "south." When, however, internal tests for homogeneity were applied, the only clear difference between the northern and southern units was on harmonizing. In this role, the southern units D and A featured significantly greater role clarity than the northern units C and B. This finding supports the notion that socio-emotional role play is not closely related to efficiency. The results do seem to be partially explicable according to size. Unit D is clearly the smallest and least impersonal of all units. Moreover, A and B did not differ significantly, thus the sectional difference is attributable to D as compared to C. Thus, in the combined units the harmonizing

role seems to be affected most by impersonality as was predicted.

In the internal test for the innovating role, a significantly greater proportion of voters was found in organization B of the northern organizations, but no significant differences appeared in the southern organizations. Apparently the greater impersonality of unit C more than offset the large physical area and lack of efficiency of unit B. In the southern organizations, the larger physical area and greater population of A seems to be at least partially offset by its greater efficiency. This finding would support the idea that there was less difference in impersonality between units A and D than between units B and C. The significant difference pointed out between organizations C and B in the innovating role would support this interpretation. Here again the effect of impersonality appears in the predicted direction; efficiency seems also to work in the predicted direction, but not in the face of great differences in impersonality.

In the internal test of the organizing role, the northern organizations were significantly alike and the southern organizations were significantly different at the .10 level. Specifically, in the southern organizations, A had a higher proportion of voters than D in spite of its larger size. It appears to this author that differences in efficiency of the two organizations explain this predicted result. The importance of the organizing role in relation to efficiency is indicated. We may speculate that organization C was significantly like B because

its greater efficiency (which should have produced a higher degree of role clarity) was offset by its greater impersonality (which lowered role clarity). Organization A, would seem to have more role clarity due to its greater efficiency (which requires a high degree of effective performance of task roles) despite its size and somewhat higher degree of impersonality.

One significant difference is found in the friendship role; a higher proportion of persons cast votes for friendship in organization B of the northern units. No differences were found in the southern units. From the discussion of the personal nature of the friendship role in Chapter I, it may be deduced that efficiency will have little relationship to amount of friendship choice in a unit. Thus, the difference between B and C requires explanation. The differences in impersonality between these units might explain the result: an organization in the depersonalized setting of a relatively large city of over 12,000 (unit C) might not have the same sociability function in the minds of members as in an area of smaller population (unit B). Thus members of B would expect to find and sustain socio-emotional relations at a higher level than would members of organization C.

Role Clarity.--Absolute choices (Table 10). First, an analysis was made of the distribution of role choices to see if there were significant differences in the relative frequency with which choices were made for the organizing, innovating, and harmonizing roles in the more efficient as compared with the less efficient units and in the larger as compared with the

smaller units. No significant differences were found. Instead, the organizations were strikingly similar in the patterns of frequency with which choices were given on the three roles however the units were classified. That is, the effective were similar to the ineffective, the large to the small, and the northern to the southern. The most striking result was the relatively high levels at which persons were named for the organizing and harmonizing roles and the relatively low level of choices for the innovating role. In other words, the innovating role was not as clearly perceived as the other two.

Absolute differences (Table 11). In the second analysis of role clarity, absolute differences were tested between the numbers of choices given to the innovating, harmonizing, and organizing roles. It was predicted that, in the large and in the efficient organizations the differences between the innovating and organizing votes would be small and the differences between the innovating and harmonizing votes would be large. Put another way, the differences between the two task roles would be small, but the differences between a task role and a socio-emotional role would be large.

Though Table 11 indicates significant differences between efficient and inefficient units and between large and small units (main tests), these effects involve significant internal variations, and have been assessed as lacking clear meaning. Thus, significant results, if any, must be sought in the internal comparisons. These will be discussed in the following order: (1) size, holding efficiency constant; (2) efficiency, holding

size constant; and (3) holding section of state constant.

The efficient organizations, both large and small, showed a relatively smaller proportion of choices for innovating than for either organizing or harmonizing behavior. The results were obviously unexpected. The smaller proportion for the innovating role of the two task roles in the effective organizations (as shown by the larger difference in the organizing versus innovating comparison) does not support the role classifications used here or the classification used by Benne and Sheats. However, it does support a direct relation between role clarity and effectiveness. Since the organizing role received more votes, this behavior was apparently more visible in the effective organizations than the innovating role. It is not surprising that organizing and not innovating was viewed as the main problem--especially in the more effective watershed organizations--at the time of the study. This may be very significant. The primary task at the time was, in fact, organizing (the study focuses on that phase of development). That the more effective units discriminated between the two task roles much more than the less effective units with a sharper perception of effective performance of the organizing role than in the less effective units is clearly indicated by these data.

The results may also indicate that innovating and organizing behavior do not belong in the same class. Had the classification of roles into "task" and "socio-emotional" been valid, no significant differences in votes within a

classification should have appeared; rather, the greater role clarity anticipated for effective organizations should have resulted in greater differences in votes between role areas. Here is evidence suggesting that the dichotomous treatment of votes as "task" or "socio-emotional" is not adequate.

The large vote difference in the innovating-harmonizing comparison was expected, but not in the direction encountered. Harmonizing was clearly more visible than the innovating role, whereas greater clarity of task type roles was expected in the more efficient units.

The large organizations, both efficient and inefficient, showed a relatively smaller proportion of choices for innovating than for either organizing or harmonizing behavior. This is the same pattern reported when efficiency was held constant. Therefore the two remarks made with regard to that pattern also are applicable when size is held constant. Specifically, the evidence seems to suggest (1) organizing is to be viewed as the main problem; and (2) the dichotomous treatment of roles as "task" or "socio-emotional" is not adequate.

When the section of the state is held constant, the differences in the southern units reinforce the ones previously discussed. There is a significantly smaller proportion of votes for innovating than for either the organizing or harmonizing role in the efficient unit A. Again this pattern would indicate greater visibility of the latter two roles in efficient organizations. In the northern units, no significant differences were found between B and C in the proportion of choices to the

three roles. Both units have been described as having greater visibility in the harmonizing and organizing roles than in the innovating role. Despite this pattern, it is surprising to this author that unit C which was both more efficient and had a larger population than B did not have more distinctive differences and thus give evidence of more role clarity. The writer has no explanation as to why this should be so.

Role Correlations.--Spearman rank order (Table 12). Spearman rank order correlations were computed for the six possible role pairs as a measure of the degree to which the various roles were related--that is, played to the same degree by the same persons. Generally, the results support the position of Adams. The two moderately effective organizations, A and D, generally had higher correlations on all role pairs than either the extremely efficient organization C or the extremely inefficient organization B. Particularly significant, from Adams' point of view, would be those crossing over between the task and socio-emotional roles. The only substantial correlations in organization B were between organizing and the two "socio-emotional" roles; C featured no substantial correlations of any type.

Several characteristics of these correlations should be noted. In the first place, only one of the 24 correlations was high, which would indicate that a considerable amount of role differentiation takes place in all organizations. In the second place, the correlation of innovating with each of the two "socio-emotional" roles is typically lower than that of

organizing behavior with the same two roles (only in organization D is this pattern not found). In the third place, innovating behavior with friendship featured generally lower correlations than innovating behavior with harmonizing. Some of these findings again lend support to the continuum theory proposed in the information section.

t-Tests on Spearman rank order correlations (Table 13). The theory predicted the correlations across "task" roles and "socio-emotional" roles to be low in large impersonal organizations. The rationale behind this predicted pattern was as follows: Norfleet had contended task roles were a matter of agreement within the organization but that socio-emotional roles were a matter of the personal preference of each respondent. Because the number of people any one individual can know in any organization is limited, the typical member of a unit with a large membership will not have a chance to know the acknowledged "task" leader of the unit well enough to develop a personal liking for him. That is, a person who is regarded as important in task behavior does not have a chance to spend a lot of time with each person belonging to an organization if the unit has a large membership. Therefore, the typical member may know enough about the unit to recognize this individual as important in task behavior within the unit but not know the same individual personally at all. The result is the same persons will not be chosen for "task" roles and "socio-emotional" roles by the vast bulk of the respondents who are members of this particular unit. Obviously, this pattern will

be more pronounced in a unit of even larger membership. Using this reasoning, the following predictions may be made about the units presently being studied: C, with a population of 14,000, will have a lower correlation across "task" and "socio-emotional" roles than A with a population of 4,400. B, with a population of 4,400 will have lower correlations across "task" and "socio-emotional" roles than D with a population of 200. Finally, C should have a much lower correlation across these two role types than D. The results of the t-tests on the Spearman rank orders generally support these predictions. Specifically, in six of the seven significant differences the larger and more impersonal unit had the lower correlations across the two role types. The choices for either organizing or innovating were correlated with the choices for either harmonizing or friendship behavior and found to be lower in the larger units. When innovating was compared with harmonizing and friendship behavior, unit B had lower correlations than unit D, and unit C had lower correlations than unit D. When organizing was compared with both harmonizing and friendship behavior, unit C had lower correlations than unit A. Although these differences support the theory, there was some lack of significant differences relating to size which the author cannot explain. For example, why was not the correlation of unit C lower than that of unit A in the comparison of innovating with harmonizing and friendship behavior?

The t-Tests between units A and B which relate mainly to differences in efficiency have not yet been described. Because

they have about the same acreage and the same population, no prediction may be made in relation to differences due to impersonality variations except on a highly intuitive basis. However, the theory, following Adams, predicted a moderate correlation between the "task" roles and the "socio-emotional" roles in the more effective units. This moderate correlation would indicate that the task leaders of an effective organization got along well with the members and were sensitive enough to the socio-emotional atmosphere to prevent conflict situations from arising. At the same time, these same leaders would not spend so much time in socio-emotional activity that this behavior interfered with task-oriented behavior. This latter situation would be indicated by a high correlation between these two types of roles. A low correlation would seem to indicate not enough socio-emotional behavior was performed by the task leaders to prevent friction from arising in the ineffective units. It is predicted, therefore, that unit A, which is more effective, will have a moderate correlation when compared with unit B.

When A was compared with B these results were obtained: of the four comparisons across task and socio-emotional role areas only one was significant. The correlation of the unit A was significantly greater than the correlation of the B unit in the innovating-harmonizing comparison. However, the correlation of A is not high, but merely substantial. Although this difference is in the predicted direction, that no more differences across roles were encountered was unanticipated by the

theory. Generally then, the correlations relating to efficiency were not supported by this measure.

The theory predicted high correlations when the two task roles were compared and low correlations when the two socio-emotional roles were compared in the large and in the effective units. Because no significant differences appeared in any of the four comparisons between units, these expectations were not confirmed. Therefore, this lack of differences would seem to indicate from another angle that the classification of the four roles into task and socio-emotional behavior and the treatment of these categories as a dichotomy are not warranted.

Formal and informal structures.--The third general test in this thesis analyzed the votes to officers and non-officers. The results will be presented in the categories and order named: effectiveness, size, and section of state.

Effectiveness (main test, Table 14; size held constant, Table 15). The main effects tests of effectiveness have no clear meaning because of the internal differences in all four roles. When size was held constant, several predicted patterns emerged. First, within the large organizations the efficient A had a higher proportion of choices going to officers in all four roles than the inefficient B. These results are as hypothesized for the task roles, but not for the socio-emotional roles. These findings tend to support the position of Martin, Daily, and Gross as well as Moreno who pointed out that large deviations from the formal structure by the informal structure (in task roles) will hurt an organization's effectiveness. In

the friendship role, organization A, when compared with B had proportionately more officers chosen. Therefore, this author concludes the officers of A were better liked than those of B. Apparently, having the officers rate high on socio-emotional roles is not as harmful to organizational effectiveness as had been hypothesized. In general then, it may be said these data on the large organizations support the contention that informal deviation from the formal structure hurts group effectiveness. It is felt the persons who emerge as leaders in the people's minds should be congruent with the official power structure because if those people who hold the informal power should not have it officially, intra-organizational friction will result.

The second main pattern of effectiveness when size is held constant, concerns the small organizations. In the comparisons of C and D, no significant differences are found in any of the four roles. These results were unexpected for it was predicted C would have a higher proportion of choices to officers than D, at least in the task roles. For these two organizations, however, the exclusions of the legal attorneys from the computations of the official leadership proved to be unfortunate. Though not technically "officers," these people actually sat in on the decision-making process of board meetings and acted as counsel. Specifically, a number of votes in C were given to the legal counsel, especially in the three leadership roles. These votes to a person who was actually a part of the formal organization structure are not reflected in the present classification. Organization D also had a person

receiving many votes who was not a member of the board of directors. This individual, however, was not the legal counsel nor did he hold a position in the official leadership structure. He owned no land within the physical boundaries of the organization, a requirement of law for membership. He held an office in the state board of directors for the watershed organizations at the time the interviews were taken. Within the organization, his rank was never lower than fifth in any of the three leadership roles and his total votes exceeded those of any single board member. It would seem to this author that organization D provides an example of one the effectiveness of which was definitely impaired by the lack of congruence between the formal and informal structures.

Size (main effects, Table 15; effectiveness held constant, Table 14). The comparison of the combined large organizations with the combined small organizations has no clear meaning because of the significant internal difference of the two large groups which have been discussed above. When effectiveness is held constant, several patterns relating to size emerge. Comparison of the effective groups, C and A, reveals that in all four roles organization A had a significantly higher proportion of votes going to officers than did C; this pattern was not anticipated when the greater size and efficiency of C was taken into account. It should be recalled, however, that the legal counsel in organization C received a number of leadership votes which were not tabulated as votes going to the officers.

In the ineffective organizations, only one significant result appears and that is in organizing where the large organization B had a significantly larger proportion of choices to officers than the small group D. Within this role, the pattern is in the predicted direction; that is, there seems to be more congruence between the formal and informal structure in the large, more impersonal group. This result was predicted by the theory and by Moreno. Also, this one significant result would seem to support organizing as the unit's main problem. With regard to innovating, the lower efficiency of B apparently cancels out the result due to its larger size. With regard to harmonizing, the two factors apparently produce effects opposite to the above, but again cancel each other out.

Section of the state (Table 16). Only in the case of the innovating role, were the results clear. In this role, the combined northern organizations had a significantly lower proportion of officers chosen than in the combined southern organizations.

When the section of the state is held constant, the patterns described above are merged. In general, the northern organizations were not significantly different because of counteracting influences. Specifically, the small physical size and the exclusion of the legal attorney from officers' votes of C seem to have counteracted the larger proportion of formal leaders expected to be chosen in this unit due to its large population and its greater effectiveness. In organization B, as has been mentioned, the lack of efficiency apparently offsets

the effects of its larger physical size. Of the northern internal tests, only friendship proved significant; on that role, the two units were at the .90 level.

In the southern organizations, A and D, significant differences were found in all but the innovating role. It will be recalled, however, that the combined southern organizations had a higher proportion of officers chosen than the combined northern organizations in the innovating role. The innovating role apparently is one of the least sharply perceived of the four roles, a point which also has been mentioned in the findings regarding information. Because the two southern organizations were most alike as regards effectiveness (of the six possible pairings of the four organizations), it would be anticipated that the innovating role would likely not be significantly different in these two organizations. In the other three roles, significantly higher proportions of votes were given to officers in organization A. This was anticipated as regards organization, but not on harmonizing and friendship. Two conclusions seem reasonable from these results. In the first place, organizing, harmonizing, and friendship choices seem to be more visible (perhaps due to their higher socio-emotional quality) than the innovating role. In the second place, the greater choices for officers as harmonizers and friends in the efficient organization would seem to indicate a more positive socio-emotional feeling toward officers in that organization. That this pattern might not be harmful to organizational effectiveness was mentioned in the comparison of A with B.

Concentration of votes.--The results of the two Kolmogorov-Smirnov tests will be described first and then the results of the two t-tests will be given.

The Kolmogorov-Smirnov test (Table 17).--Comparison of organizations across individual roles. In the Kolmogorov-Smirnov test only one significant result appeared and that was at the .10 level. This result was in the harmonizing role when the large organizations A and B were compared. Organization A, the more efficient of the two large groups, had a greater concentration of votes. The theory predicted less concentration in the efficient organization in this "socio-emotional" role. Once again, the contribution of clear-cut "socio-emotional" role play to organizational effectiveness has been apparently underestimated by the theory. A greater concentration of voting has been taken as evidence of more sharply perceived role play. In the one instance of significant difference, the concentration was associated with greater effectiveness, and this was on a socio-emotional role. In general, the Kolmogorov-Smirnov test, as applied, was apparently not sufficiently sensitive to reveal the differences which were indicated by the other tests. Another possible explanation would be that although the predicted patterns apparently exist, they are not distinctive enough to appear except in aggregate form as in the choice of officers versus non-officers or in a test of rank order. Another method of handling the data which could be more appropriate to this problem will be presented at the end of this section.

The results comparing organizations, role by role, were disappointing. So was the comparison of the four organizations, aggregating all four roles (Table 18). In this Kolmogorov-Smirnov test, no significant results appeared. The author concluded again that the test was apparently not sufficiently sensitive to detect the differences.

t-Test on means of total votes cast (Table 19).--In the first of the two t-tests, that testing the mean member-choices to all persons chosen, there were only two significantly different results. In the first of these, the mean of organization D was significantly greater than the mean of B in the innovating role. The second difference was in the harmonizing role; it was significant at the .10 level and involved the same two organizations with the means in the same direction. In the innovating difference, the result supports the idea of greater concentration in the more efficient organization; D is more efficient than B. Group consensus, this indicates, is associated with group effectiveness.

Again on the harmonizing role, organization D manifests the higher degree of centralization, an unexpected result. However, much of this effect was due, it will be recalled, to an outsider who received many leadership votes. His presence at meetings may, indeed, have brought about much of the need for harmonizing efforts according to some observers.

In addition to the two differences just discussed, three pairs of means were significantly alike. The first pair, the means of C and A in the innovating role, were significantly

alike at the .90 level. The second significant similarity was between groups C and B in the organizing role. This author has no adequate explanation as to why these two pairs of means should be alike.

The third pair of means that were significantly alike were those of friendship in groups A and D. We may account for this similarity as follows: groups A and D are relatively alike in their effectiveness; that is, they are more alike than any other of the six possible pairs; thus, we anticipate that the degree of concentration of likes or dislikes would be similar in the two organizations.

Despite the similarities and differences between organizations which have been described, this t-test does not seem particularly appropriate or sensitive to the patterns which appeared in the other tests. The lack of significant results in many of the pair comparisons leaves many unanswered questions. For instance, why are there no significant differences between organizations B and D in the organizing role when a difference exists in the innovating and harmonizing roles? Particularly is this lack of a significant result puzzling when other results have seemed to indicate that the most important problem of these groups was organizing. Perhaps, as in the case of the Kolgomorov-Smirnov test, the results appear only in aggregate form. Another method of analyzing the data which may be more appropriate for studying concentration of voting will be presented after the discussion of the next t-test.

t-Test of means of choices to directors (Table 20).

The second of the t-tests analyzed the means of the members' choices to only those directors chosen. No significant differences were found, but several pairs were found to be significantly alike at the .90 level. None appear in the friendship role; however, there are one, two, and three similar pairs in the organizing, innovating, and harmonizing roles, respectively. In all three roles the comparison of the means of organizations C and D are similar. These similarities support the contention made here that unit D would have been an effective organization if it were not for the non-member influential, for this group has many of the characteristics of the more effective units.

In the harmonizing role, only the mean of B is not significantly like the others; that is, the means of groups C, A, and D are significantly like each other. The meanings of the similarity of the three groups will now be explored.

The differences in efficiency of the three organizations may be due to the non-officers chosen in C and D, rather than to the vote concentration in the officers chosen for this role. It has been observed that the non-officer chosen in group C was a legal counsel for the group and thus was a part of the decision-making process carried on by the board as well as being influential in the public meetings. By contrast, the influential non-officer in group D was a non-member and thus was not part of the official power structure of that group. This explanation would seem to indicate that differences in the vote

concentration among officers are not totally responsible for the differences in the effectiveness of these groups. Rather, the votes to influential non-officers may be important in the amount of efficiency in the group.

The mean of officers chosen in organization B is not significantly like those in the other three organizations. The author is surprised that the mean of B is not significantly different from the mean of A. In the two Kolmogorov-Smirnov tests, the only significant difference was found between these two groups in this role. The writer cannot explain why a difference in concentration is not found here also.

Like the first set of t -tests on the votes to all persons in the group, this series of analyses does not seem to be sensitive enough to get at the patterns indicated by other tests. The lack of any significant results is very puzzling since a number of these would have been anticipated both from the theory and from the results of the data already presented. Even the likenesses were not as anticipated. For example, why did not groups A and D, which were most alike in effectiveness, have significantly similar results in the innovating role?

An alternative analysis of vote concentration. The small number of significant differences found in any of the foregoing tests of vote concentration has led the writer to suggest another type of analysis which might be more sensitive to the differences revealed in the general tests of role clarity, role correlations, and formal-informal structures. The number of votes per voter is suggested here as a possible

alternative analysis which, although it certainly is not completely adequate, might be more sensitive to the differences in vote concentration which are believed to exist in these data. By votes per voter the writer means the absolute number of votes cast by members for both officers and non-officers for a particular role divided by the number of members of the same organization who voted for that same role. The rationale behind the use of this kind of analysis for vote concentration follows.

Following Norfleet, the theory predicted greater vote concentration in the task roles and choices based on personal preference in the socio-emotional roles in the efficient and large organizations. In a task role, the highest concentration possible would be for all members of an organization to agree one person was responsible for all the behavior in this role area. If this hypothetical case existed, then only one vote would be cast by each person voting for that role and the votes per voter would be one. However, if the prediction is met, there will be more votes than voters in the two socio-emotional roles. In the harmonizing role a single person will not be needed in an organization which gets along well together because there is no friction within the organization. When members of this unit are asked about this role, they will not have any one person in mind and so they will probably name several who seem to fit the role. Furthermore, there probably will not be any agreement on those several persons named. In the friendship role many votes per voter will be found in an effective

organization where each member likes a number of other members and no cliques of friends have developed.

If fewer votes per voter are found in the task roles when compared with the socio-emotional roles, the interpretation of this pattern just' given might be inappropriate. It is possible for members to choose an average of one person each for a task role but not to agree on a single individual as being more important in that role than any other. Likewise, many votes per voter in the friendship role would not necessarily indicate lack of agreement in his role, for cliques of friends involving six, seven, or eight people may still be present. In spite of these limitations, the writer feels that if this pattern is found in either effective or large organizations the original interpretation given is plausible though not conclusive. The use of this analysis will be illustrated in the following section on "additional patterns."

The case for a continuum of roles.--First, the theoretical arguments supporting the use of a continuum instead of the classification of roles as "task" and "socio-emotional" will be given. Then the data from this study supporting this position will be given.

It would seem to this author that if a continuum is adopted the characteristics of any one point on it ought to be found in decreasing intensity at successive points as the distance from the original point increases. Using this reasoning, the roles as placed on the continuum ought to have some traits of the harmonizing and friendship roles but in decreasing

intensity as the two roles involved are felt to be more and more dissimilar. The definitions of the four roles used in this study would seem to infer the appropriateness of a continuum as well as its order. Specifically, the innovator has only to think up appropriate ideas to solve a task; he only has to be aware of the social climate of a group enough to know what is a realistic proposal, but he does not have to be well liked to be useful in achieving the organization's ends. The organizer has to implement the ideas of the innovator. He has to understand the organization's ends and also the idea he is implementing thoroughly. In addition, he has to be quite sensitive to the individual personalities within the organization in order to know who is best suited for a particular task and what members will work well and efficiently together. He also has to be highly regarded enough for the organization's members to carry out his directives without resentment. The harmonizer primarily functions to help people get along and to reduce friction. His only connection with getting things done in the organization is through sensing what issues need to be resolved in order for the organization to progress toward its goals. Obviously, he must be even more socially adept than the organizer for the response by members to the person playing the former role is much more emotional than to the latter role. Finally, the person chosen as friend must be most sensitive of all to socio-emotional overtones; but, he is in no way necessarily connected with progress toward the organization's goals. Rather, by definition, the choice of a person by a member for

this role is based on strictly personal preference. Thus, the definitions of these roles would imply increasing socio-emotional content and increasing personal preference when ordered in this way: innovating, organizing, harmonizing, and friendship behavior.

An example of the way this revision of the theory, if it is true, may clarify the findings is the high number of choices for organizing and harmonizing and the low number of choices for innovating which seems more reasonable in the light of the proposed continuum.

One way to see if the theoretical argument just given has any validity is by analyzing the data in terms of votes per voter. As was stated above, the greater the distance between two points on a continuum the less similarity should be found in the characteristics of these points. Following this line of reasoning and assuming the explanation of the votes per voter is plausible despite its qualifications, the following pattern ought to emerge to coincide with the theoretical discussion of the continuum: in an effective or a large organization the number of votes per voter ought to be least in the innovating role, greater in the organizing role, still greater in the harmonizing role, and finally, the friendship role ought to have the greatest number of voters of all four roles.

This pattern was found to exist in organization A which was both impersonal and efficient. Specifically, the organizing role had 32 more votes than the innovating role with an increase of only six voters in the organizing role. In the

comparison of the organizing and harmonizing roles, this unit had the same number of votes as for organizing with eight fewer voters in the harmonizing role. Finally, in the comparison of the harmonizing and friendship roles this unit had the same number of votes but three fewer voters in the friendship role. Another way of stating the same pattern is to say that the number of votes per voter increased from 1.86 on the innovating role to 2.76 on the friendship role in organization A. Although this pattern is admittedly not very pronounced, it is generally the same in all four organizations. The greater the socio-emotional content, the more this is a matter of personal preferences; the less the socio-emotional content, the more this is a matter of objective group consensus.

As was noted in the predictions for votes per voter, the large and effective organizations were anticipated to have more evidence for the continuum than the small or ineffective organization. This pattern had been anticipated because of the hypothesized greater role clarity of these organizations. The writer had no explanation for why the effective or large organizations did not have the clearer patterns--i.e., a greater difference in votes per voter between roles. However, the author interprets the consistent direction of the results as support for the proposed continuum.

A second set of data also seems to support the proposed continuum. This evidence is found in role correlations and their tests. The predictions in relation to the continuum are as follows: if two points on a continuum are relatively far apart

they will be quite dissimilar; if they are relatively close together they will have characteristics that are quite similar. Therefore, if respondents are asked to name persons for two roles contiguous to each other on the continuum it is more likely the same person will be chosen than if the respondents are asked about non-contiguous roles. For these reasons the contiguous roles are expected to have higher correlations than non-contiguous roles. These patterns are anticipated to be more evident in the large and effective organizations because of the predicted greater role clarity of these units.

The data on role correlations offer some support for the proposed continuum. It was mentioned above that the correlation of innovating with each of the "socio-emotional" roles is typically lower than the correlation of the organizing role with the same two roles in all organizations but D. Also, innovating, when correlated with friendship, generally featured a lower correlation than innovating when correlated with harmonizing.

The t-tests of the correlations generally support the idea that roles exist along a continuum. In all the instances of significant differences comparing A with D, D with B, and C with D, the larger unit had lower role correlations. Like the role correlations just discussed, the results would indicate the innovating role is less similar to the "socio-emotional" roles than the organizing role. Of the six differences relating to size, four were in the comparison of the innovating role with the "socio-emotional" roles and only two of them were in

the comparison of the organizing role with the same two roles. In the effectiveness comparison, organizations A and B which were of similar acreage and population were significantly different in correlations on only one of the six possible role combinations--that of innovating-harmonizing. Here, organization A had a higher correlation than organization B, a result not anticipated in terms of role clarity, but in line with Adams, for A had a substantial but not a high correlation.

Thus, the pattern of role correlations and the t-tests between generally support the proposed continuum. The correlations between the innovating and friendship were lowest, the correlations between innovating and harmonizing somewhat higher, and the correlations between the organizing and the "socio-emotional" roles were least different.

Theoretical Implications of the Findings

The purpose of this section is to review the original theory being tested in the light of the results and the discussion. In the first part of this section, the model will be re-evaluated; in the second part, qualifications will be given.

Implications of the results presented for the theory proposed.--The summary of the model will be set in a context which overrides all the results relating to the difference between organizations. This context is as follows: the four organizations were selected as polar types and were not intended to be representative of all watershed organizations. The polar types chosen were intended to make possible the study

of organizational size as well as the study of effectiveness. Specifically, within the efficient type organization, one large and one small area were selected; for the inefficient type of organization, one of each size was also chosen.

It will be recalled that an organization was defined as large or small in terms of the number of acres within its boundaries. As the results above have shown, this definition of size is apparently inadequate. Although a greater number of acres in an organization may make it more impersonal, the number of members in a group seems to have even greater effects on the behavior patterns and organizational atmosphere than does physical area. Specifically, organization C, which was classified as a small organization because of its area, actually had the characteristics of a large organization due to its large number of members; thus it would seem more realistic to classify it with the large organizations. The population of area C was about three times as large as that of any of the other areas; it was apparently more impersonal because of this fact. Therefore, the two organizations which were small in physical area (C and D), were very dissimilar; C was quite impersonal. C seemed even more impersonal than the two large organizations, A and B, which were very similar in both area and population. In general it was observed that the predictions regarding efficiency were supported when A and B were compared; but when C and D were compared, the difference in efficiency was generally more than that canceled out by the difference in impersonality, with C acting as a large organization. The

reclassification of C as a large organization will be the perspective from which the re-evaluation of the model in terms of the results will be viewed. The summary of the theory also will specify the effect of efficiency in the comparison of A and B and the effect of impersonality in the comparison of C and D.

Several general propositions were made about the characteristics of an effective organization in Chapter I. These statements were integrated into a model or theory at that time. Specifically, this theory hypothesized these patterns: (1) increasing size in terms of number of members or physical area results in greater impersonality in an organization; both are presumed to have the same structural effect on its actions; (2) as an organization becomes more effective, it is characterized by moderate correlations between task and socio-emotional roles, higher proportions of officers chosen on leadership roles, greater task-oriented behavior, and proportionately less socio-emotional behavior in terms of the total amount of activity; (3) within the task roles, innovating and organizing have the same structural effects and within socio-emotional behavior, the harmonizing and friendship choices have the same structural effects; and, (4) large organizations are more effective. These four predictions will be discussed in the order named; after they are summarized, additional patterns which seem to have appeared and are not related to the four just named but are related to the model will be discussed.

Size. Generally, the data support the idea that size in numbers and size in physical area have the same structural effects; that is, where impersonality of a group was anticipated to affect organizational structure, it did and in the predicted direction. There were some negative results and a number of instances where no significant differences were found when some would have been expected. In general, the larger and more impersonal groups (including C when compared with D) had lower degrees of role clarity, lower role correlations, and greater congruence of formal and informal structures. These patterns appeared in all four roles. Also, in general, the socio-emotional roles seem less affected by size than the task roles. The organizations have been presumed to be ordered as follows on a continuum, starting with the largest and most impersonal: C, A, B, D. The distances between C and A, A and B, and B and D are not presumed to be equal. As a matter of fact, objective measures show that the difference between A and B is small. Although these results contradict the predictions regarding the socio-emotional roles, these patterns can be accounted for in terms of the theory and will be discussed below.

Effectiveness. In general, organizations A and B whose acreage and populations were similar produced results that supported the hypotheses in relation to organizational effectiveness. It was predicted that more effective organizations would have moderate correlations between the task and socio-emotional roles. The rationale for this prediction was provided by Adams. He felt socio-emotional behavior helped group

effectiveness by smoothing over rough spots in interpersonal relations and increasing communication. But these two factors helped effectiveness only to a certain point. Beyond this point, the increasing socio-emotional behavior which caused the greater rank agreement inhibited task behavior more and more which, in turn, adversely affected group effectiveness. Put another way, each group has a maximum level of socio-emotional behavior which can exist without harm to the group's task; if the amount of behavior is below this level the group has internal friction to that degree and needs more socio-emotional behavior to reduce it; and, if the amount of socio-emotional behavior is above this maximum, then it is unnecessary and harmful because it prevents members from engaging in productive task behavior. As anticipated, A generally had more moderate (intermediate) level rank order correlations than B even though a pairing of roles on the t-test produced only one significant difference in pair correlations between the two organizations. The support of the effectiveness pattern is, obviously, quite weak.

It was predicted the effective organizations would have more officers chosen in the task roles because this pattern would indicate the lack of a conflicting informal structure and greater legitimacy of the official leaders. When A and B were compared, A was found to have proportionately more officers chosen in all four roles and not just in the task roles. Therefore, it was concluded that choices for officers in the socio-emotional roles were not as harmful to organizational

effectiveness as had been anticipated.

It was predicted the effective organizations would be more task oriented, and that less attention would be paid to socio-emotional activity. When compared with B, organization A had proportionately more persons voting for the task roles but not for the socio-emotional roles. The position was taken by the author that these results supported the prediction. It was felt that if an organization was more task-oriented proportionately more persons in such a unit would be able to name the others who performed task functions than would be the case in an organization not so oriented.

It was predicted that effective organizations would have greater task role concentration but less socio-emotional concentration. Because only one significant difference between A and B was found out of four sets of tests for vote concentration, this prediction was neither supported nor contradicted.

The "task" and "socio-emotional" role classification. During the discussion of the other three questions, the division of the four roles into "task" and "socio-emotional" categories has been implicitly assumed. Also it was assumed within each category the two roles were significantly alike and that they had similar effects on group structure. These were the assumptions and predictions of the proposed theory. The author questions these assumptions because of the results on role clarity, role correlations, and by the votes per voter in the formal and informal structures. Specifically, in the test of absolute differences there were consistently significant

differences between the organizing and innovating roles. In the Spearman rank order test, the roles in the most effective organization, C, were all either uncorrelated or correlated at a low level. Furthermore, the correlations between the innovating and "socio-emotional" roles were typically lower than the correlations between the organizing and "socio-emotional" roles. Also, the innovating-friendship correlation was typically lower than the innovating-harmonizing correlation. Finally, the votes per voter were computed and inspected. It was found that there was a decreasing concentration of votes in this order: innovating, organizing, harmonizing, and friendship. These data suggested a continuum in the order named with task-oriented behavior at one end and friendship choices at the other end of the continuum. This order also may be thought of as two overlapping continuums: (1) starting with innovating, there is a decreasing amount of task-oriented behavior in each of the three succeeding roles, and (2) starting with innovating behavior, there is an increasing amount of socio-emotional behavior in the other three roles. According to this line of thinking, one prediction should not be made for "task" roles in efficient organizations and a diametrically opposed prediction for inefficient organizations, followed by a second set of opposite predictions for "socio-emotional" roles. Instead, we anticipate gradually shifting behavior on each particular role as we move from efficient to inefficient organizations.

The relation of size to efficiency. The theory predicted that large organizations would be more effective. This pattern

generally was found to be true. Specifically, the two effective organizations A and C were also large. Within these two units the most effective unit, C, had about three times the population of unit A. Organization B of the ineffective units was less effective than the other ineffective unit, D. Since the former unit had a larger acreage and population than the latter unit, this pattern would seem to contradict the prediction. However, unit B is regarded an exception to the overall pattern described by Dakin. B is exceptional because of the unusual conditions surrounding its organization which have been described above.

Summary. Because it is generally felt large organizations are also more effective, the characteristics of each will now be combined in a description of a small organization and a large one when both are voluntary units trying to accomplish objective rather than socio-emotional goals.

In the small organization, the typical action is informal and personal. Everybody's needs must be met and all the differing viewpoints must be received before any task activity can be performed. Therefore, even though the small organization was formed to perform a certain set of tasks, it must devote a considerable part of its activity to solving socio-emotional problems; this detracts from the time that may be spent on task-oriented activity.

In the large organizations, the typical action is more impersonal and formal. It would be time consuming to a prohibitive degree for all members of a large organization to have

their say on each decision the organization faces; thus, much of this power is delegated to elected officers. Those persons thus chosen for formal leadership positions are assumed to embody the common values various members of the organization hold. These common values would naturally be more likely to be task-oriented because socio-emotional values are highly personalized. Because he has delegated much of the decision-making process to elected officers on the basis of task-oriented values, the typical member of the large unit has a higher level of task-orientation in relation to unit activities, but knows less about the decision-making process than does the typical member of the small organization. This combination of characteristics is such that when the large organization is compared with the small, the former unit has less role clarity, a higher proportion of role choices to officers, lower correlations across task and socio-emotional roles, and greater task orientation.

Other patterns. Three sets of relationships unanticipated by the theory appeared: (1) organizing as the main problem, (2) the visibility of the four roles, and (3) the application of the Gemeinschaft-Gesellschaft characteristics to the theory. They will be discussed in the order named.

Three times the organizing votes proved significantly different while the other roles analyzed produced no pattern. Specifically, this pattern was encountered twice in the test of respondents and non-respondents and once in the votes cast for officers. The legal steps of organizing were fairly specific. Thus, new ideas weren't so much called for as coordination to

get them carried out. These points indicate that organizing and not innovating was the main problem of these organizations. In addition, the innovating role did not appear to this author to be distinctively outstanding in the way just mentioned in regard to organizing. This position with regard to organizing seems reasonable although the evidence for it in this study seems very scattered.

Another reason organizing might be mentioned more often is it seems to fit into a general pattern of visibility. Visibility seems to be directly related to the amount of socio-emotional response to a role; that is, the more personal the criteria of a role, the more members will know a person who fits it. This change of position as regards role visibility seems called for by the results. Therefore, more votes should be cast as the socio-emotional end of the role continuum is approached; this has been found true in the test of absolute differences and the pattern of votes per voter. In the former analysis, innovating behavior was given fewer choices than either organizing or harmonizing behavior in the effective and large organizations; friendship behavior was not included in this test. In the latter analysis, there were more votes per voter in the socio-emotionally oriented roles in all four organizations when the proposed continuum was used. Here again this conclusion is somewhat conjectural because the supporting data are scanty.

The results are also suggestive of Tönnies' Gemeinschaft-Gesellschaft typology with the small ineffective organizations

having Gemeinschaft characteristics and the large effective units possessing Gesellschaft attributes. The small unit, D, in this study, like the Gemeinschaft community, was small in numbers and in physical area; areas A and C were of significantly larger area and numbers respectively, like Gesellschaft communities. Tönnies stressed the loss of a primary relationship with all members of the group in the latter type situation with increased impersonality as the result. This characteristic has been repeatedly emphasized in this study for the large physical territories and also area C. Also stressed was the fact that behavior in the large effective organizations was more task-oriented than in the small ineffective organization. Tönnies stressed the greater concern in the Gesellschaft community with objective accomplishment and lesser concern with socio-emotional response than in the Gemeinschaft community. Also, in the large effective organization this study found more officers chosen. In the Gesellschaft community, proportionately more leadership behavior is attributed to persons in formal offices. Finally, the large organizations were predicted to be more effective, a prediction generally supported by the results. In terms of objective rather than socio-emotional measures, the Gesellschaft community is more effective than the Gemeinschaft community. Although not perfectly contiguous on some points, the overall comparison of these two models seems to help clarify the nature of the model proposed here.

To summarize the results including the unanticipated patterns: when area C is thought of as a large organization

instead of a small one due to its large population, and when this area is compared with area D, the predictions regarding impersonality are supported. Specifically, area C, when compared with unit D, had fewer votes cast for all roles but friendship, lower average role correlations indicating more separation of the task and socio-emotional orientations, and greater role clarity as evidenced by the larger absolute differences. Further support for the anticipated effect of impersonality is evidenced in the comparison of the impersonal organization A with the personal organization D. Here, with the proportions of voters not being significantly different, the former area had more absolute differences which would indicate greater ability to discriminate between role functions and more officers chosen, indicating greater legitimacy of leadership. Likewise, when the impersonal unit B is compared with the personal area D, the former organization, with no significant difference in proportions of voters and non-voters, has greater absolute differences between the proportion of votes for different roles and lower correlations than unit D, the former analysis indicating greater ability to discriminate between role functions in the impersonal group and the latter analysis indicating greater separation of task and socio-emotional behavior in the impersonal group. Thus, impersonal organizations, when compared with personal organizations, seem to have lower proportions of voters on all roles and less socio-emotional involvement in role play, but greater ability to discriminate between role functions, greater legitimacy of leadership, and

Gesellschaft characteristics.

When impersonality was held relatively constant, as was done in the comparison of areas A and B, the predictions regarding efficiency were supported. Specifically, area A was more task-oriented, had higher correlations indicating the lack of friction (following Adams), and had greater Gesellschaft characteristics in general.

Three other patterns not anticipated by the theory seemed to appear. First, a continuum of roles seems more appropriate than the categories chosen; specifically, they seem to be ordered as follows starting with the most task-oriented: innovating, organizing, harmonizing, and friendship behavior. Second, roles with a socio-emotional component seemed more visible than task-oriented roles. Thus, innovating behavior was least visible. Finally, organizing seems to be the main problem of these organizations.

The revised theory may now be stated. An effective organization, trying to accomplish by voluntary means an objective task, may be either personal or impersonal. The effective impersonal organization, when compared with an ineffective organization of the same size, has less overall information, indicating delegated authority in decision making is held by the officers. In the effective impersonal organization, there is also greater functional role discrimination, greater task-orientation, greater legitimacy of leadership, lack of friction, and higher role correlations than in the ineffective, impersonal organizations. In the personal effective organization, the

same characteristics hold when compared with the personal ineffective organization. However, when the personal effective organization is compared with the impersonal effective organization, the former will have greater information on the part of its typical member, indicating a greater proportion of the members participate in group activity, more socio-emotional activity, higher role correlations, and somewhat less role discrimination. The role behavior may be placed on a continuum as follows starting with the most task-oriented and progressing to the most socio-emotional role: innovating, organizing, harmonizing, and friendship behavior. Of these four roles, the innovating role seems least visible; the greater the socio-emotional component of a role the more it is visible. Whether this last pattern holds for any organization or just for large and effective ones could not be determined from the results of this study. There is no particular evidence from this study for greater concentration of voting in task-oriented roles in either large or effective organizations. Similarly, there is no particular evidence for greater vote concentration of socio-emotionally oriented roles in the small or less effective organizations. Therefore, no predictions of role concentrations will be made.

Some qualifications of the conclusions.--Although the conclusions and revised theory seem reasonable to the author, several qualifications must be stated in order to put them in proper perspective.

The first limitation of these conclusions is the lack of distinction between active members who attended at least some of the meetings and those members who only signed the petition. Had the votes of the actives only been analyzed, different patterns might have emerged, or some of the patterns which have been described tentatively might have been clearer. However the findings might have been altered with this change, more confidence in their accuracy would result. That is, a person who goes to the organization's meetings will likely have a better idea of the organization's structure than a person who does not. In further research of this kind, probably only active members' responses should be used. That way, more confidence may be placed in the results.

The second limitation concerns the measure of effectiveness chosen. Although certainly adequate in terms of the three criteria of Georgopoulos and Tannenbaum and in terms of the stated purposes of the organizations, it may not be an accurate measure of how the members of some of the organizations felt. Specifically, the two inefficient units were rural and the two efficient units were urban. It seems reasonable to suppose that those with such a strongly task-oriented design are inappropriate in the rural situation because people in these areas judge an organization in terms of its emotional impact upon the total rural community. That is, any new organization would be judged not only in terms of its stated task, but also in terms of how well it meets the emotional needs of its members and how well it fits into the existing set of interpersonal relations

in the total community. This emotional factor would seem important to rural people because they have to deal with the same people outside the organization in other facets of their lives, a situation which is not forced upon the members of an urban organization. Therefore, events which disturb the emotional status quo outside the organization in the rural community will have repercussions for the organization and vice versa. Apparently, this set of conditions is what helped contribute to the relative inefficiency of D. In his inspection of the interviews, the author noticed several comments of resentment toward the importance of the influential non-officer in relation to that person's relatively tenuous position in the rest of the community. The remarks which have been made would seem to indicate that both the inefficient organizations include people used to a personal, Gemeinschaft set of interpersonal relations. The measure of effectiveness chosen does not tap the need these rural areas apparently feel for making any organizational meeting a social occasion as well as a place to get things done.

For lack of evidence to the contrary, apparently unit D includes only one set of community loyalties. However, in unit B there are probably several sets of community loyalties due to the two natural watersheds and the four non-urban communities which were included in its boundaries. Thus, getting the different factions of this watershed to work together would be difficult.

All these points would seem to argue for the inclusion of some variable relating to the socio-emotional interaction as part of the measure of effectiveness. In practice, however, this author would contend that the socio-emotional factor only helps to explain the lack of effectiveness of an organization in reaching its goals, but that the researcher, in setting up an effectiveness measure, should not impute to the organization goals other than those they state for themselves. The measure used in this study held very well to the unit's immediate goals and, in fact, accurately predicted each unit's success in achieving its long-range goal.

The third limitation to the conclusions is the assumptions made about the lack of findings in some of the tests. It was assumed several times that the lack of significantly different findings was the result of two conflicting trends. Particularly was this true in the case of the comparison of organizations C and D. For example, in the test of the choices to officers, the lack of significant differences between these two units was explained in the following way: In C, had the choices for the legal counsel been included as part of the formal leadership votes, there would have been more leadership choices in this organization than in D. In the latter unit, the influential non-officer was not the legal counsel and was in no way connected with the formal leadership of that unit. Although such an explanation does not contradict the data, there may be some question as to whether this kind of explanation is the most logical one to be inferred from a similarity. The relationships

proposed by this author may be only his efforts at finding an explanation that does not contradict the data and at the same time does not destroy the theory he proposes. Perhaps it would be just as logical to assume that, since these two organizations are physically the same size, they are influenced by certain patterns which may be traced to the number of acres included in the unit's boundaries. This is only one example. Other cases of no differences which have been explained as the result of conflicting trends may be due to yet some other factor other than a similar acreage or it may be that differences do not exist in this measure.

This last possibility introduces those lack of expected differences which were not explained as the result of conflicting trends. Sometimes it was admitted that these deviations from expectation could not be accounted for, but often it was concluded that the test was inappropriate to measure the variable under study. However, all the statistical tests used were approved by Dr. Stanley Wearden of the statistics department. Therefore, with the statistical methods available, for all practical considerations there may be no differences in the predicted direction and so another theory other than the one proposed, either in its revised or original form, may be more appropriate.

This possible inaccurate interpretation of the data also forms the fourth limitation which is in relation to the conclusions about the significant results. Here again the question may be raised concerning the twisting of data to fit a

preconceived theory. In this case, do the significant results really support the proposed theory or could they equally as well support some other set of ideas? For example, does a greater number of choices for officers in the organizing and innovating roles in group A really mean that there is more task-oriented behavior in that group than in group D? Also, does fewer votes per voter indicate greater concentration of votes and thinking or just lack of knowledge? If this pattern does mean greater concentration, are the repeated patterns described by the author more meaningful because they keep re-appearing even though any individual one would certainly not prove statistically significant? In short, do the patterns really exist; that is, are they reliable, and if they do exist, are the interpretations put on them valid?

This question of the reliability of the data can be approached from yet another angle, making the fifth and last limitation on the conclusions to be mentioned here. All the different analyses and the four general tests were based on the responses to only four questions. It is possible that the seeming consistency of the positive results which support the theory is due to the use of the same data in all the different analyses. The author may be like the person who, taking four pieces of coal, breaks each of them up into increasingly finer pieces evermore convinced that all coal is black. That is, the consistency which seems to exist in this study may be due not to the patterns of the proposed theory, but to the fact that only four questions were asked.

Specific Recommendations

First, when organizing for water conservation and control, the population inhabiting the territory and its distribution should be considered in establishing the boundaries for watershed districts. Specifically, where possible it would seem desirable to have the bulk of the organization's population live in a centralized urban center. Second, it would seem desirable to draw the boundaries to include as much territory and as many people as possible. Large groups may be expected to be relatively more effective in accomplishing objectives or measurable goals. However, the people included should be integrated with and have loyalties to a single community center. That is, such boundaries should be as large as possible within the limits of established social networks of communication and interaction. It would seem more desirable to meet these criteria than for the organization simply to be large without regard to local, social ties (as the case of group B illustrates). If organization of larger territories including more than one major center is contemplated, a special coordinating agency should be formally established. Third, all persons perceived by members as leaders on task roles (e.g., innovation and organization) should somehow be included in the official leadership structure. If they are not, the informal power structure of the group will not be legitimized and may operate in competition with the legitimate leadership. Fourth, progress toward group goals should be expected to be slower in the instance of small organizations (that is, of small numbers of

people residing in close proximity). Such groups tend to devote more attention to socio-emotional matters. In planning for the small group, more attention should be given to personal factors; the group should be structured so that emphasis is deliberately given to socio-emotional roles (e.g., harmonizing). As predicted by the theory, large effective groups can expect to spend most of their time in task activity, and the members will expect to find satisfaction of their socio-emotional needs elsewhere. In the small group, the members will expect to have some of their socio-emotional needs met by the organization and therefore, to be effective in keeping up good will and to compromise dissonant points of view, more emphasis needs to be given to socio-emotional behavior in small than in large groups.

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SOCIOMETRIC STRUCTURING OF FOUR ORGANIZATIONAL UNITS
IN RELATION TO SIZE AND EFFICIENCY

by

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The purpose of this study was to investigate the structural correlates of organizational effectiveness in four watershed organizations. The main variables were size and setting. Sociometric data regarding task and emotional leadership were analyzed for (1) structural clarity; (2) role correlations; (3) the relationship of the formal and informal leadership; and (4) vote concentration. These data were the sociometric choices of probability samples of members of the four organizations in response to questions concerned with innovating, organizing, harmonizing, and friendship behavior.

An eclectic theory of organizational efficiency combining the ideas of several writers was presented. In this model, effectiveness was measured as progress toward a specified goal: achieving formal incorporation. Increases in either physical area or number of members were assumed to have the same structural effects, increased depersonalization. This theory made the following predictions: (1) In an effective group, growth in size increases the proportion of task-oriented behavior when compared with socio-emotional behavior. (2) Task behavior is a matter of group agreement and socio-emotional behavior a matter of individual choice. Therefore, the sociodynamic law holds for task-oriented behavior, chance distributes socio-emotional votes. Ineffective groups have the opposite patterns.

To study role clarity, chi-square values were computed on the varying properties of respondents to non-respondents for each role, the varying properties of votes cast for each of three roles, and the absolute differences in the same three

roles which excluded friendship choices. Spearman rank order values were computed to test role correlations and then significant organizational differences were detected by the t -test. To test the varying levels of confidence in the formal leadership structures, chi-square values were computed on the choices for officers and non-officers. Finally, vote concentration was tested by the Kolmogorov-Smirnov test and by t -tests of the means of all votes cast and the means of the votes received only by directors.

In general, the original theory with which we started was supported by the data. The effective organizations were larger and thus more impersonal, they seemed to have greater role differentiation and clearer perception of role play, greater task-orientation, greater legitimacy of the formal structure, and be characterized by lack of internal friction. Changes in the theory were these: In some instances, impersonality offset the expected patterns due to efficiency. One important example was that fewer voters were found in the effective small organization due to its large size and impersonality. A second change concerned the roles: a continuum from task to socio-emotional behavior seemed more appropriate than categories of the two role types. Starting with the most task oriented, the roles seemed to have the following sequence: innovating, organizing, harmonizing, and friendship behavior. The conclusions of the study must be tenuously held because data were available on only four organizations.