

THESIS




This is to certify that the
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RELATIONSHIPS BETWEEN THE INFORMAL
ORGANIZATION AND THE EFFECTIVENESS
OF FORMAL LEADERS

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ABSTRACT

RELATIONSHIPS BETWEEN THE INFORMAL ORGANIZATION AND THE EFFECTIVENESS OF FORMAL LEADERS

By

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This study was designed to examine the relationships between a formal leader's perceptions of the informal organization within his work group and his effectiveness as a formal leader. The study was primarily concerned with the leader's perceptions of the existence and the cohesiveness of the informal organization, his perceived degree of control over the informal organization and whether he perceived himself as a member of the informal organization within his work group.

The major hypothesis of this study was that the most effective leaders have an accurate perception of the "actual" informal organization, and the least effective leaders have an inaccurate perception of the "actual" informal organization within their work groups. It was also hypothesized that the most effective leaders perceive themselves as maintaining a high degree of control over the informal organization and that they do not

perceive themselves as members of the informal organization within their work group.

The field work was conducted in two divisions of a public utility company. The sample consisted of thirty-six foremen and the work groups that they supervised. Each of the foremen in this sample was under the authority of a distribution superintendent. The foremen were ordinarily ranked by their distribution superintendents as: excellent, satisfactory or unsatisfactory.

The study initially attempted to determine the structure and cohesiveness of the informal organization within each work group through questionnaires distributed to all of the work group members. These questionnaires would have yielded a composite index of group cohesiveness for each group. However, only twelve of the groups had a majority of their members responding to the questionnaire. Since at least a fifty percent response from each group was believed to be necessary to determine a valid composite index of group cohesiveness, the study was modified. Each distribution superintendent was asked to rank the cohesiveness of each of his foremen's work groups on a scale comparable to the groups' composite indexes. The rankings of the distribution superintendents showed a high correlation with the composite indexes of the twelve groups with a majority of their members responding. Thus, the distribution superintendents' perceptions were utilized to identify the actual informal organization.

Questionnaires were distributed to the foremen to elicit their perceptions concerning the cohesiveness of the informal organization, their control over it and whether or not they perceived themselves as members.

The study did demonstrate an association between an accurate perception of the informal organization and a high level of formal effectiveness. Thus, an awareness of the informal organization was associated with a highly effective leader.

There was no significant association between a perception of a high degree of control over the informal organization and a highly effective leader. It was noted that the majority of "excellent" leaders did perceive themselves as having some control over the informal organization but not necessarily a high degree of control. This was not the case for less effective leaders, the majority of whom perceived themselves as having no control over the informal organization. The excellent leader apparently does not perceive himself as relinquishing all control over this sector of the group, whereas the less effective leader may.

There was no significant association between membership in the informal organization and a highly effective leader. The relationship that did exist demonstrated that the more effective leaders were likely to be members of the informal organization. Again, the majority of the

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"excellent" leaders perceived themselves as members of the informal organization. This was not the case with the less effective leaders.

RELATIONSHIPS BETWEEN THE INFORMAL
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OF FORMAL LEADERS

By

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INTRODUCTION

"If men define situations as real,
they are real in their consequences"¹

The Object of the Study

Organization theory is concerned with explaining and predicting the behavior of organization members and thus, of organizations themselves. But at the present time, many of the theoretical concepts are too subjective to be utilized by either practitioners or researchers. Behavioral models have been constructed to explain and predict behavior within organizations, but these models have lacked pragmatic significance due to their lack of quantification. This lack of quantification has made the empirical testing of these models impossible.

Organization theory must now move in the direction of both isolating strategic variables and quantifying these variables so that causal relationships can be identified. A

¹W. I. Thomas and Dorothy S. Thomas, The Child In America: Behavior Problems and Programs (New York, Alfred A. Knopf, 1928), p. 572.

combination of both a general and a specific approach to multivalent models is required. A general approach is needed to define all the variables within the system, and a specific approach is needed so that the variables can be quantified and their relationships in the total system can be positively determined. Future behavioral models will prove more useful when they can be quantified, tested for validity and the tests reproduced by other theoreticians.

There are many research projects reported in the literature in both the area of leadership effectiveness and in the area of informal organizations, but there have been very few attempts to combine these concepts. The object of this study is to "operationalize" these concepts and to determine what relationships, if any, exist between leadership effectiveness and informal organizations.

The Basic Study

This study was designed to investigate the associations between a leader's perception of the informal organization and a leader's effectiveness in the formal organization. This was accomplished in two stages.

First, the interrelationships which existed within the constraints of formal organizations and which have been referred to as informal or social organizations were identified and quantified.

Second, the study ascertained the degree to which there existed an association between a leader's accuracy of

perception of the informal organization and his effectiveness in his formal role. An association between two variables does not signify a causal relationship. A strong causal relationship may or may not exist when variables are associated. An association refers to the fact that both variables exist in the sample population simultaneously.

The Concept of the Informal Organization

The concept of the informal organization has been the subject of criticism in recent literature. This study intends to rectify some of the causes of these criticisms and to develop a methodology by which this concept can be applied to the explanation of organizational behavior.

One of the main reasons for criticism of the informal organization concept is that it is thought to be too nebulous to be of any pragmatic or theoretical use. Statements such as, "every organization creates an informal structure"² and "informal organization is indefinite and rather structureless, and has no definite subdivisions"³ suffer from a lack of precision. Statements such as, "a more positive function of the informal, in relation to the informal structure is to encourage the development of the latter along constructive

²Phillip Selznick, "The Informal Organization," Organizations: Structure and Behavior, Joseph A. Litterer, editor (New York: John Wiley & Sons, Inc., 1963), p. 146.

³Chester I. Barnard, The Functions of the Executive (Cambridge, Massachusetts: Harvard University Press, 1938), p. 115.

lines,"⁴ give little direction to either the practitioner or the researcher. It is evident that such statements must be quantified and thus made operative if they are to have any validity in future theories.

In order to avoid the criticism that the concept of the informal organization is too nebulous, a precise definition is utilized in this study. The working definition of the informal organization is that it is the set of interpersonal relations that are present in the formal organization but are either omitted from or are not consistent with the formal organization.⁵ The informal organization specifies norms of behavior, leader-follower relations, communication channels, shared values, and status ranking of members⁶ and non-members. This working definition allows the informal organization to be studied as a segment of the total organization. It allows the quantification of the interpersonal relationships which are not precisely specified by the formal structure.

The second major criticism of the concept of the informal organization is that it simply does not exist. Some writers feel that the average worker's need for affiliation is satisfied outside the job situation, and therefore, the

⁴Herbert A. Simon, Administrative Behavior, 2nd Edition (New York: The Free Press, 1957), p. 149.

⁵Ibid., p. 148.

⁶Joseph A. Litterer, editor, Organizations: Structure and Behavior (New York: John Wiley & Sons, Inc., 1963), pp. 140-142.

Job is not the central life interest for the average worker.⁷ When work is not a central life interest for the worker, his participation in his work organization is limited to a superficial arrangement in which the worker's only interest in the organization is the monetary compensation that he derives from it.

This criticism, that the informal organization does not exist in many organizations, is based on the assumption that informal organization evolves only to satisfy the worker's need for affiliation. However, the working definition in this study views the informal organization in a broader context. The formal organization specifies the interdependency of work roles, the social distance between jobs, the work flow, the initiation of work processes, and some of the interactions required to fulfill the formal work role. The formal organization, in the latter case, specifies certain interactions that must occur as the formal work role is performed. It is very probable that these specific interactions are not all the interactions needed to perform the formal role successfully. When this is the case, more interactions are needed than are specified by the formal organization; and the informal organization emerges to correct this deficiency in the formal structure. It is unlikely that the formal organization could specify all interactions needed to fulfill organizational goals, and the

⁷Robert Dubin, "Industrial Workers' Worlds: A Study of the Central Life Interest of Industrial Workers," Social Problems, III (1956), pp. 131-142.

informal organization is, therefore, not only a means through which workers may fulfill affiliation needs, but it is also a means of enhancing the performance of the formal work role.

The informal organization may also exist to provide security for the workers. By doing so, it may severely hamper the formal organization's attempts to initiate changes in the work situation.⁸ The informal organization exists in such instances to protect the livelihood of the workers and not to fulfill their affiliation needs.

The informal organization may be defined away, as some writers have done, by stating that it is solely an outlet for the social needs of workers and by then stating that the workers no longer satisfy these needs at their place of work. However, this definition is too limited. Defining the informal organization as strictly a social or affiliation need satisfier does not yield a complete definition of the interactions that occur within the job situation but that are not specified by the formal structure. It is more realistic to define all the interactions that occur "on the job" and are not specified by the formal organization as constituting the informal organization.

The informal organization in this study was limited to the interactions which occurred within the work group as

⁸ Donald Roy, "Selections From Quota Restriction and Goldbricking in a Machine Shop," Organizations: Structure and Behavior (New York: John Wiley & Sons, Inc., 1963), pp. 148-151.

defined by the formal organization. This is essentially the same approach which was utilized in the Bank Wiring Room of the Hawthorne Studies.⁹ The main difference is that in this study the specific norms of the group, that is, whether they aided or detracted from formal goals, were not as important as the strength of the normative structure of the group. The normative structure refers to the set of values and beliefs that a particular group feels are important.

It is evident that if the "total" organization is to be understood, the informal organization as defined in this study must be understood. As previously stated, this study looked at only one effect of the informal organization: how a formal leader's perception of the informal organization affects his formal role performance.

The Leadership Concept

This study is concerned with the association between a leader's accuracy of perception of the informal organization and his effectiveness as a formal leader. The style of leadership, that is, autocratic, democratic, or laissez-faire, is not a determinant factor in this study. It is assumed that the most effective leader is one who utilizes that style of leadership which enhances his effectiveness. The less effective leader is either inflexible in his leadership style

⁹Fritz A. Roethlisberger and William J. Dickson, Management and the Worker (Cambridge, Massachusetts: Harvard University Press, 1939), pp. 508-10.

or is unable to make the correct adaptation of style due to an incorrect perception of the situation.

The leader of any group must conform to some minimum level of group norms if he is to be an effective leader. This level will be determined situationally, and it will vary with the strength of the group's normative structure. If the leader does not conform to this minimum set of group norms, friction will increase between the leader and the group, and the effectiveness of both will diminish. Caudill¹⁰ found that the failure of a mental institution to recognize the informal organization operative within it created friction between the formal and informal organizations, emphasizing that a formal leader's failure to recognize the informal organization will tend to hamper his formal role performance.

The Locus of the Study

The study was concerned with the ~~foremen in~~ two divisions (A and B) of a large, decentralized public utility company in Michigan. The company is divided into fifteen separate divisions. The division structure is represented by the partial organization chart in Figure 1. The Division Manager is responsible for carrying out company policies within his division.

¹⁰William A. Caudill, The Psychiatric Hospital as a Small Society (Cambridge, Massachusetts: Harvard University Press, 1958), pp. 231-265.

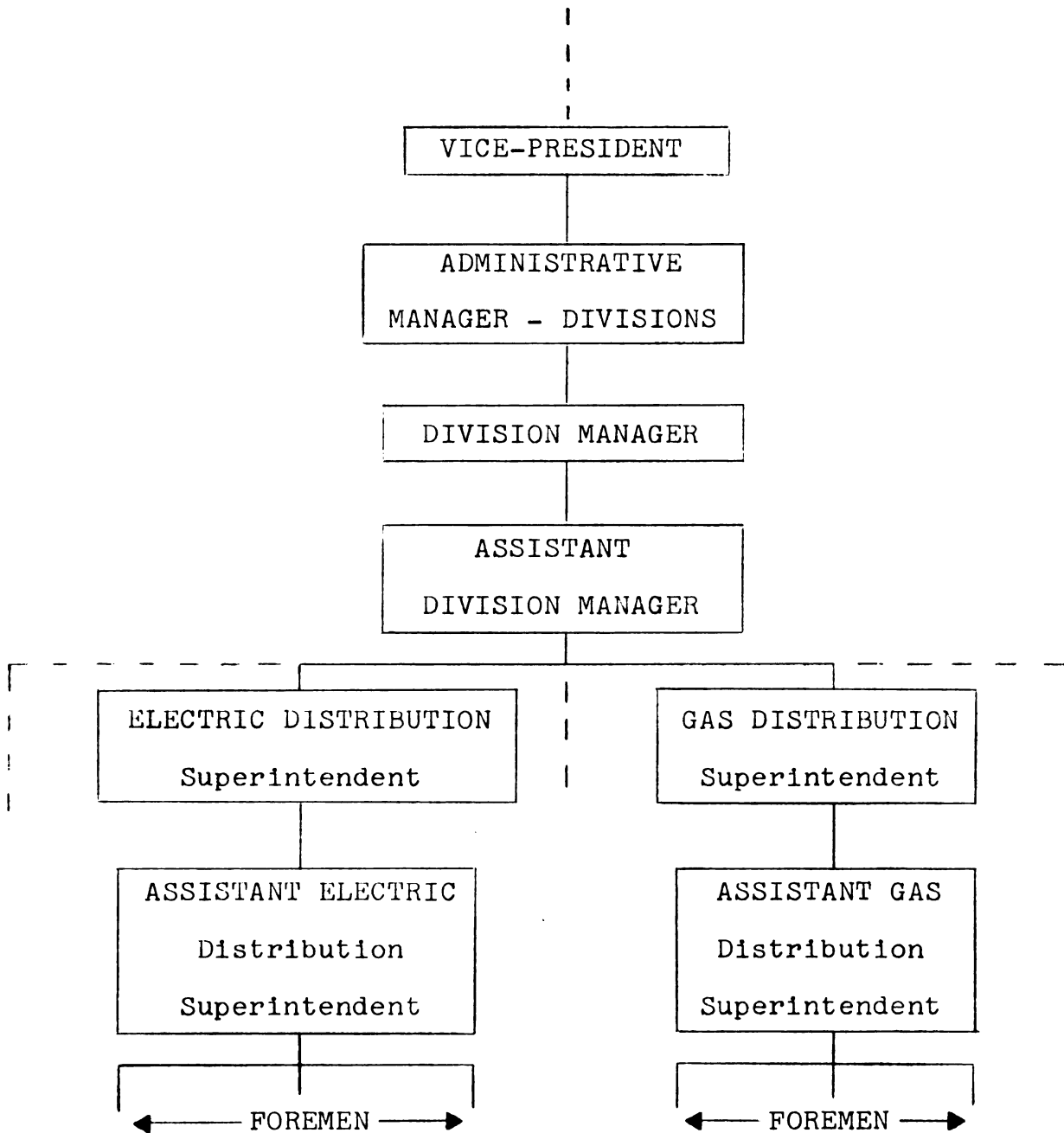


Figure 1.--Partial Organization Chart of the Company Studied.

The study was conducted in a single company since this allowed the formal work situation to be held constant throughout the study. This would not be possible if different companies supplying different products or services were used.

The work groups in this study performed the majority of their formal tasks outside the physical boundaries of the company. Thus, the primary effect that the formal organization had on the informal organization was initial assignment of workers to specific work groups. It was virtually impossible for the formal organization to control the physical work environment. A utility company is unique in the sense that its workers are rarely controlled by a factory or assembly-line situation. This study attempts to isolate each informal organization and to determine the strength of these informal organizations within each work group.

The Structure of the Research

This study is divided into five chapters. Chapter I presents a review of the literature relevant to the concepts of group cohesiveness and leadership effectiveness. This chapter also explains the general model of this study and the major hypotheses utilized to test the model.

The second chapter is concerned with defining the concepts used in the research. These include informal organization, group cohesiveness, leadership effectiveness and leaders' perceptions regarding the informal organization.

Chapter III explains the methodology that was utilized to test the hypotheses of the study. It also discusses the pilot study that was conducted prior to the major research. Both the manner in which the pilot study was conducted and the results of the pilot study are shown.

Chapter IV presents the major findings of this research. The empirical data and the statistical analysis of the data are presented. Conclusions regarding the hypotheses are then drawn based on the statistical analysis.

The final chapter presents findings that were not directly applicable to the major hypotheses. It also points out problems that were encountered during the research. The implications for future research are also explained.

CHAPTER I

GROUP COHESIVENESS, LEADERSHIP EFFECTIVENESS AND THE GENERAL MODEL OF THE STUDY

"The small group is a convenient locus wherein to assay one of man's more baffling qualities--his ability to get along with his fellow creatures."¹

Introduction

The purpose of this chapter is to acquaint the reader with the literature relevant to the study of small groups and leadership. The concept of the "total group environment" is explained, and how a leader's perception of it can affect his performance is demonstrated. The chapter is divided into three sections.

The first section introduces the variables present in a group map. This section examines these variables with a particular emphasis on how they can affect the group's cohesiveness.

The second section presents the rationale for this study, that is, the reasons that effective leaders were

¹Michael S. Olmstead, The Small Group (New York: Random House, 1959), p. 145.

thought to have an accurate perception of the informal organization. It also presents the assumption made concerning leadership "style."

The last section introduces the general model underlying this study and the hypotheses that were designed to test the model.

The Group Map

Figure 2 presents the variables that exist in an organizational group map. The variables affect the group and, in turn, affect the resultant group actions and/or attitudes. The interrelationships between the resultant group actions and attitudes are explained in the following text.

The total group environment is shown in the center as consisting of two separate but interrelated segments. The formal segment is the formal organization structure which exists to fulfill the objectives of the formal organization. The informal segment is a result of the interactions of the formal group members and may exist for many purposes as shown in the Introduction. The variables which are shown as acting on the total group environment may, in reality, affect one segment more than the other. However, the major concern of this model is the effect on the total group environment.

*→ 2 advisors & specialists in specific fields
such as the one below*

The informal leader is shown as part of the informal segment of the total group environment. The informal leader was found by Zalesnik to be strictly a "social" phenomenon

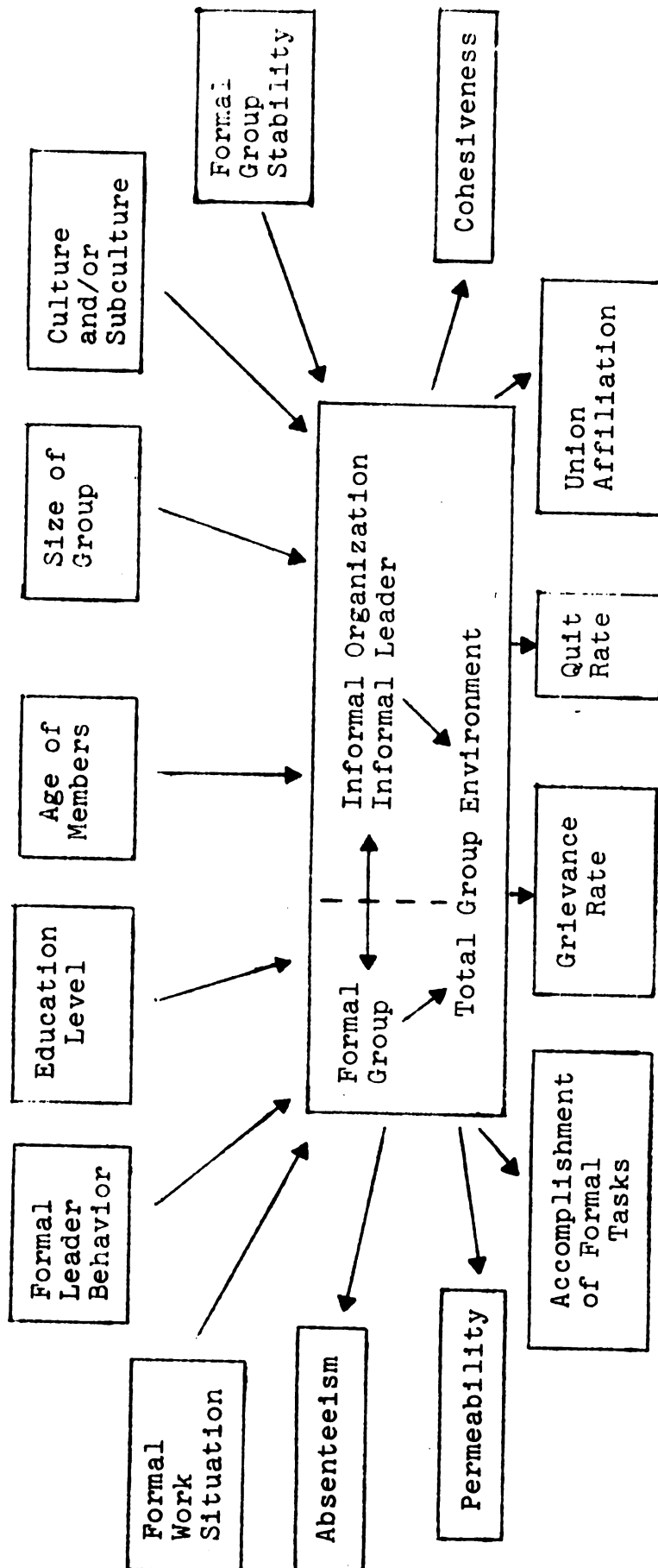


Figure 2.---A Paradigm of the Variables in a Group Map and Resultant Group Actions and/or Attitudes.

and, as such, was not officially recognized by the formal organization. The informal leader fulfilled a "big brother" role within the informal organization; that is, the group members gravitated to the informal leader when they felt that their problems, if presented to the formal leader, would cause them to lose prestige in terms of the formal organization. Thus, the informal leader kept group members from committing errors that would have damaged their relationship to the formal organization. His leadership role was more a helping role than a directing role. This led to a feeling of insecurity on the part of the informal leader since it made his position dependent on the group's perceptions of his actions.² The informal leader is important in some actions of the group, but he is a result rather than a cause of a cohesive informal organization.

The basic concern of this study was how the variables operative in Figure 2 did or did not affect group cohesiveness and group effectiveness (since this affects leader's effectiveness). Other group resultant behavior is shown in Figure 2, but since it was beyond the scope of this study, it was included only for completeness.

²A. Zalesnik, Worker Satisfaction and Development (Norwood, Massachusetts: The Plimpton Press, 1956), pp. 65, 99-101.

Variables in the Group Map

The variables in the group map shown in Figure 2 are explained in the following section. The explanation of the variables is particularly concerned with their effect on the group's cohesiveness.

Culture.--The most basic variable affecting the cohesiveness of any group is the culture and/or sub-culture from which group members are drawn. Crozier found that French cultural patterns emphasized isolation of the individual. These led to few societal groups being formed other than the family and the church. The French found face-to-face contact difficult and uncomfortable. They attempted to maintain their independence (defined as non-dependence on others) in the work situation by a strict adherence to the written rules. This kept them free from the whims of supervisors. As would be predicted, Crozier found little evidence of informal organizations within French bureaucracies.³

The American cultural setting has a more gregarious nature than the French, and informal organizations are more likely to appear in our society. It should be noted that due to informal relationships, the American institution is more flexible than the French.⁴

³Michel Crozier, The Bureaucratic Phenomenon (Chicago: The University of Chicago Press, 1963), pp. 216-233.

⁴Ibid.

The sub-cultural setting from which workers are drawn also affects the informal organizations to which they belong or do not belong. Blauner found that Southern textile workers had informal ties, whereas in relatively similar circumstances, Northern automobile workers had few informal ties. One reason for this being that the Southern textile mill was simply an extension of the community. The automobile plant drew its workers from a diversified community rather than a one-plant town.⁵ There were other factors present in the automobile plant disruptive to the emergence of informal organizations, and these will be explained later in this chapter.

Whyte has pointed out that "rate-busters" have different backgrounds than group members. They are either from rural or middle class backgrounds, whereas group members are drawn from mainly lower class, urban areas.⁶

Ethnic relationships may also influence the informal organization. This was the case with many Negro cliques in the Marine Corps stationed at Da Nang, Viet Nam. They had formed a separatist-type clique, and in this case, ethnic

⁵Robert Blauner, Alienation and Freedom (Chicago: University of Chicago Press, 1964), pp. 74, 75, 109, 110.

⁶William F. Whyte, Men at Work (Homewood, Illinois: Richard D. Irwin, Inc. and the Dorsey Press, Inc., 1961), p. 100.

group membership was a prerequisite for informal organization membership.⁷

The above cases demonstrate the importance of understanding the cultural environment from which workers are drawn. Without such an understanding, the total group environment cannot be fully comprehended.

Stability of the Formal Work Group.--The stability of the formal work group affects the formation of interpersonal ties within the group. A constant shifting of personnel would not be conducive to the formation of a highly cohesive informal organization within a work group, since it would not allow a set of interactions to be built up and would constantly disrupt social ties.

Size of the Formal Work Group.--The size of the formal work group was found by Seashore to be inversely related to the group's cohesiveness.⁸ As size increased, the possible face-to-face interaction between members decreased and therefore the cohesion of the group decreased. However, he did not investigate the possible formation of cliques with increases in size. Stogdill found that members of small

⁷Interview with Lance Corporal Andrew Manning, U.S. Marine Corp., just returned from twelve months duty at Da Nang, Viet Nam, Lansing, Michigan, June 25, 1969.

⁸Stanley E. Seashore, Group Cohesiveness in the Industrial Work Group (Ann Arbor: Institute for Social Research, University of Michigan, 1954), p. 99.

departments had a tendency to interact outside their formal group.⁹

Thus, size of the work group may be a determinant of the cohesiveness of the informal organization within that work group, but it is not a simple one to one variable, and the proximity of other work groups and the formation of cliques may affect cohesiveness regardless of the size of the work group.

Age and Educational Level.--Seashore also found that the ages and the educational levels of work group members were not determinant factors in the group's cohesiveness.¹⁰

Formal Work Situation.--The formal work situation is controlled by the formal organization. It encompasses division of labor, plant layout, formal job status, and the pace of work. Walker and Guest found that in a large, automobile manufacturing plant, the formal organization had established a work situation which exemplified the following characteristics: mechanical pacing of work, repetitiveness of jobs, minimum skill requirements, predetermined use of tools, minute subdivision of the product being handled by each worker, and the jobs requiring only surface mental

⁹Ralph M. Stogdill, Leadership and Structures of Personal Interaction, Research Monograph Number 84 (Columbus, Ohio: Bureau of Business Research, Ohio State University, 1957), p. 26.

¹⁰Seashore, loc. cit.

attention.¹¹ There was also a high noise level in the plant.¹² The above conditions resulted in less than one half of the workers having frequent social contact with those persons working near them, and few workers felt that they belonged to an identifiable social group on the job. Another determinant factor in this lack of informal organization was the fact that workers were related by proximity, not by interdependent action.¹³ This is an example of a formal work situation that is so structured as to preclude the emergence of a cohesive informal organization. The above case is not typical of the majority of work situations. It is an example of the assembly-line type industry.

Zaleznik found definite social cliques operative within a machine shop work situation. The workers in the machine shop had a high degree of freedom of movement which enabled them to interact both on the job and during breaks. Although the formal organization specified formal job interactions, tools were not predetermined by the formal organization, and this led to borrowing of tools and hence, more interaction patterns.¹⁴

¹¹Charles R. Walker and Robert H. Guest, The Man on the Assembly Line (Cambridge, Massachusetts: Harvard University Press, 1952), p. 12.

¹²Ibid., p. 68.

¹³Ibid., p. 79.

¹⁴Zaleznik, op. cit., pp. 30-62.

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These two examples of formal work situations are used to demonstrate that the formal work situation has a definite influence on determining the total group environment and must be considered in gaining an understanding of the group.

Formal Leader Behavior.--Leadership behavior is another variable that can influence the total group environment. This study was concerned primarily with whether a foreman's perception of the total group environment as it existed was accurate or inaccurate and how this perception related to his effectiveness in his formal role. The study was not concerned with the emergence of a particular situation. However, the formal leader's behavior does affect the total group environment, and this study would have been remiss if this variable were not explained.

Lippitt and White found in a study of boys clubs that there were fewer sub-groups (informal organizations) formed under authoritarian leaders than there were under democratically led groups. The democratically controlled groups were also able to work more productively in the absence of the leader than were the authoritatively controlled groups. The reason for this was the fact that the democratically controlled groups were able to develop more interpersonal relations in their groups than were the authoritarian groups.¹⁵

¹⁵Ronald Lippitt and Ralph K. White, "An Experimental Study of Leadership and Group Life," Readings in Social Psychology, Eleanor E. Maccoby, Theodore M. Newcomb, and Eugene L. Hartley, editors (New York: Holt, Rinehart and Winston, 1958), pp. 503-504.

Stogdill, in a study of naval officers and their crews, found less active leaders' crews interacting outside their department to a greater extent than crews whose leaders were more active. Active leaders were those who interacted frequently outside their own department. The failure of the leader to interact outside his department caused his crew to compensate by broadening their patterns of interacting¹⁶ and thus, fulfilling formal requirements. This is an example of the informal organization compensating for a deficiency in the formal organization.

The above are illustrations of the fact that leaders do affect the emergence of the total group environment. It is also logical to assume that the formal leader affects the emerging role of the informal leader. Being in a position of formal authority the formal leader may remove or leave open options to the informal leader and thus affect his role by constraining his actions.

The main contention is that the leader and his group are in constant interaction and, as such, neither can be fully examined apart from the other.

The preceding section demonstrates that many variables determine the cohesiveness of the group and/or segments within the work group. The list of variables is not complete, but it is sufficient to demonstrate that one or two

¹⁶Stogdill, op. cit., p. 29.

variables are not responsible for the resultant total group environment in an industrial work group.

This study was concerned with the cohesiveness of the informal organization at the time of the study, and the leader's perception of it. Groups were selected or rejected based on how the above variables were thought to influence them. If it were felt that due to the presence of certain variables, an informal organization could not emerge, the group was not utilized in this study. Only groups that were felt to exist in an environment conducive to the formation of an informal organization were used in this study.

Cohesiveness: Good or Bad?

Blau (1955) found that a comparison between two departments in a State Employment Agency revealed that the most cohesive department was the most efficient.¹⁷

Whyte found that quits and absenteeism increase as internal friction in an organization increases.¹⁸ Blauner has shown quit rates in the automobile industry, which has been shown to have no cohesive informal organization, to be higher than in any other manual industry.¹⁹ Research has

¹⁷Peter M. Blau, The Dynamics of Bureaucracy (Chicago: The University of Chicago Press, 1955), p. 62.

¹⁸Whyte, op. cit., pp. 125-135.

¹⁹Blauner, op. cit., p. 120.

has also demonstrated that highly cohesive groups are more uniform in productivity than less cohesive groups.^{20,21}

Thus far the answer begs the question. Cohesion may be good or bad for management depending on the groups' identifications with organizational objectives.^{22,23} A cohesive group that produces at consistently low levels may decrease turnover, but it may not enhance formal objectives when viewed in total. Seashore pointed out that management should develop cohesive teams that have confidence in the organization.²⁴ It was the incompleteness of these types of ideas that prompted this study. A foreman must be aware of the total group environment before he can elicit the support of the group in the attainment of organization objectives. Understanding must precede action. This study moves in the direction of operationalizing the idea of understanding total group environments so as to enhance the attainment of formal organization objectives.

²⁰Seashore, op. cit., p. 98.

²¹Abraham Zalesnik and David Moment, The Dynamics of Interpersonal Behavior (New York: John Wiley & Sons, Inc., 1964), p. 109.

²²Seashore, op. cit., p. 99.

²³Whyte, op. cit., p. 547.

²⁴Seashore, op. cit., p. 102.

The Importance of the Leaders' Perceptions
of the Informal Organizations

This section presents research findings that demonstrated the importance of a formal leader's awareness of the total group environment. These findings demonstrated that such an awareness enhanced a leader's formal role performance.

A Dynamic Versus a Static Approach

Carter, using a sample of NROTC teams at the University of Rochester, found that due to differing personality characteristics, a person could be an effective leader with one group and quite ineffective if placed in charge of a different group.²⁵ Hence, the leader's effectiveness becomes a function of his "fit" with a particular group. *

This trait approach to leadership would require a matching of leaders to groups until the two meshed and formed an effective team. The assumption underlying this approach is that leaders and groups are static rather than dynamic entities. A more realistic approach would be to sensitize a leader to diagnose a total group environment and modify his behavior in terms of his diagnosis. This does not imply that the total group environment cannot be altered. The previous paradigm of group variables demonstrates that it can, but change should only occur when coupled with understanding.

²⁵Launor Carter, "Some Research on Leadership in Small Groups," Groups, Leadership and Men, Harold Guetzkow, editor (New York: Russell & Russell, Inc., 1963), p. 153.

Altering leader behavior and/or the total group environment seems a better way of gaining leadership effectiveness than by looking for a "lucky fit" between leader and group.

The Importance of Awareness

Hawron and McGrath found that in small military units (squads) the leader's job knowledge and his intelligence were the variables that most highly correlated with his unit's effectiveness. They found that the next most important leader variable related to unit effectiveness was the leader's knowledge concerning his men and their interrelationships.²⁶

Roff found, in a study of Air Force combat officers, that the most effective officers were perceived by their men as sincere, impartial and lacking concern for personal advantage. The latter point was interpreted as showing that these leaders were concerned more with group welfare than with personal glory. The less effective leaders did not exhibit this quality.²⁷

²⁶Dean M. Hawron and Joseph E. McGrath, "The Contribution of the Leader to the Effectiveness of Small Military Groups," Leadership and Interpersonal Behavior, Luigi Petrullo and Bernard M. Bass, editors (New York: Holt, Rinehart and Winston, Inc., 1961), pp. 168-169.

²⁷Merrill Roff, "A Study of Combat Leadership in the Air Force by Means of a Rating Scale: Group Differences," The Study of Leadership, C. G. Browne and Thomas S. Cohn, editors (Danville, Illinois: The Interstate Printers and Publishers, Inc., 1958), pp. 165-168.

Fiedler, in developing his "contingency model", found that leadership effectiveness was contingent on the leader's style of interacting with his group (defined by Fiedler as the leader being highly acceptable, moderately acceptable or unacceptable to his group) and the favorableness of the group's task situation. An example would be a situation in which a group was faced with an unstructured task and the leader was not accepted by the group. Fiedler found that this situation was best handled by a "task-oriented" leader, whereas in different situations a more group-oriented style may be required. The "contingency model" points out that leadership style may need to be altered as the situation changes.²⁹ It was the contention of this study that the "contingency model" was correct but that leaders must have a correct perception of the total group environment before they can modify their behavior to meet the situation.

Likert, in a study of thirty-one managers of a national company, found that the more effective managers had a supportive attitude toward their workers and endeavored to

²⁸Kamla Chowdhry and Theodore M. Newcomb, "The Relative Abilities of Leaders and Non-Leaders to Estimate Opinions of their Groups," Small Groups, A. Paul Hare, Edgar F. Borgatta and Robert F. Bales, editors (New York: Harper & Row, Publishers, 1968), pp. 367, 373, 378.

²⁹Fred E. Fiedler, "Personality and Situational Determinants of Leadership Effectiveness," Group Dynamics, 3rd Edition, Dorwin Cartwright and Alvin Zander, editors (New York: Harper & Row, Publishers, 1968), pp. 362-380.

establish closely-knit groups. The less effective managers displayed a threatening attitude toward workers and depended on man-to-man relationships in their supervisory activities.³⁰

Problems Due to a Lack of Awareness

Gouldner has demonstrated the problems encountered when a new leader does not recognize the historical background of a group. His study concerned the replacement of a "personal" type leader with a "bureaucratic" type leader. A great deal of resistance to the new leader's programs were generated within the group. The new leader did not recognize "informal" status nor did he recognize the past leader's "informal" obligations.³¹ The new leader was not cognizant of the total group environment.

Whyte found that when formal pressure caused a foreman to increase his initiation of work for his work group and caused him to decrease the time spent in responding to the group's problems that the result was a covert pact in the work group, and they no longer "saved" the foreman from

³⁰Rensis Likert, "An Emerging Theory of Organization, Leadership and Management," Leadership and Interpersonal Behavior, Luigi Petrullo and Bernard M. Bass, editors (New York: Holt, Rinehart and Winston, Inc., 1961), p. 300.

³¹Alvin W. Gouldner, "The Problem of Succession and Bureaucracy," Studies in Leadership, Alvin W. Gouldner, editor (New York: Harper & Brothers, Publishers, 1950), p. 651.

mistakes as they had done in the past.³² This is an example of how a lack of awareness on the foreman's part caused him to lose effectiveness.

Homans pointed out that the interviews with the girls in the Relay Assembly test room at Hawthorne Electric showed that management knew little concerning worker attitudes. This was not extremely detrimental since the girls were company-oriented. However, this lack of knowledge was detrimental in the Bank Wiring Room where workers were not so company-oriented and tended to restrict output.³³

Trist and Bamforth also found that management's lack of knowledge concerning worker attitudes proved disastrous when the informal organization thwarted management's attempts to introduce technological change. The change was resisted by the workers because it disrupted their social interrelationships.³⁴ Walker and Marriott also found that workers resisted change that disrupted their social interrelationships even when the change was in their best interests.³⁵

³²Whyte, op. cit., p. 147.

³³George C. Homans, "Group Factors in Worker Productivity," Readings in Social Psychology, Eleanor E. Maccoby, Theodore M. Newcomb and Eugene L. Hartley, editors (New York: Holt, Rinehart and Winston, 1958), pp. 587, 595.

³⁴E. L. Trist and R. W. Bamforth, "Some Psychological Consequences of the Long-Wall Method of Coal-Getting," Human Relations, 1951, 4, pp. 3-38.

³⁵J. Walker and R. A. Marriott, "A Study of Some Attitudes to Factory Work," Occupational Psychology, 1951, 25, pp. 181-191.

The above studies have been cited to demonstrate that the behavior of organization members can only be understood in the context of the total group environment. In order for a leader to be effective, he should understand the total group environment in which he operates. It was assumed for the purpose of this study that the foremen understood the formal aspects of their work groups. Therefore, to judge the accuracy of their assessment of the total group environment, the study was concerned with their perception of the informal segment of the total group environment.

Types of Leadership

Basic to this study was the assumption that the most effective foremen operate on a dual continuum. (Refer to Figure 3.)

The first continuum in Figure 3 was devised by Tannenbaum and Schmidt, and it demonstrates that a leader may operate with either an autocratic style, a democratic style or some combination of the two as represented on the continuum.³⁶ The second continuum represents a leader's awareness of the total group environment in which he operates.

It was assumed in this study that an effective leader who was aware of the total group environment would utilize that style of leadership that best fitted the situation.

³⁶Robert Tannenbaum and Warren H. Schmidt, "How to Choose a Leadership Pattern," Organizations: Structure and Behavior, Joseph A. Litterer, editor (New York: John Wiley & Sons, Inc., 1963), p. 124.

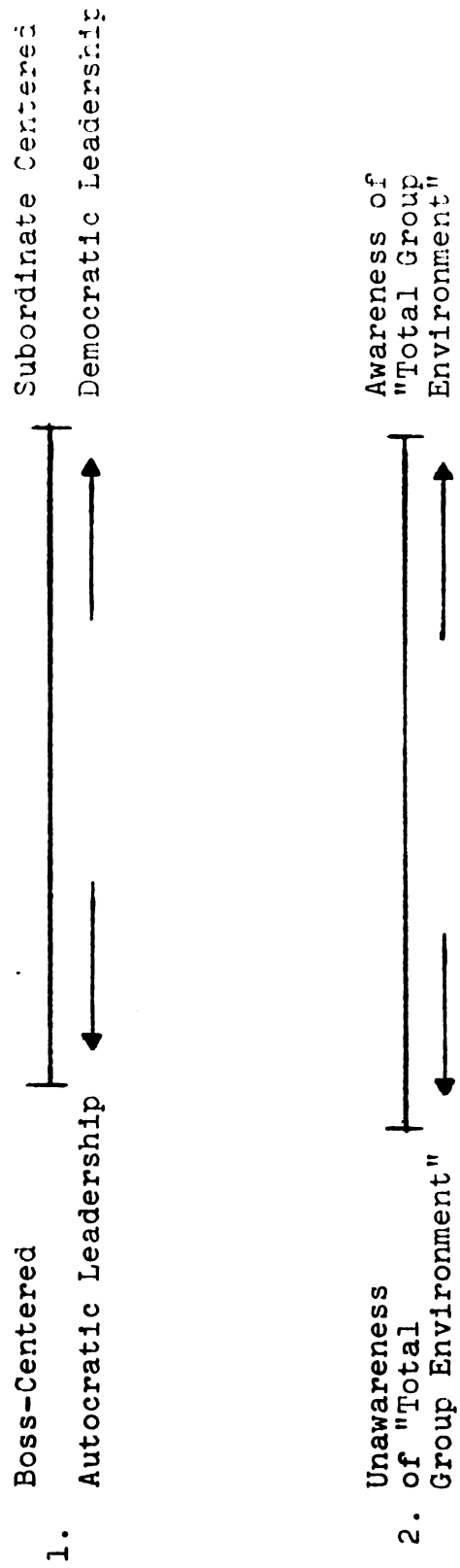


Figure 3.--Leadership Continuums.

An example would be a fully aware leader adopting an autocratic leadership style when the group began to splinter because of friction between members. Granted this is a temporary solution, but without autocratic behavior by the leader, the group could disintegrate into chaos. This goes beyond the concept that democratic leadership is superior to autocratic leadership or vice versa. The assumption made in this study is that the "best" style of leadership is that which fulfills formal objectives most effectively.

The General Model and the Hypotheses of this Study

The general model represents the variables that were examined in this study (Refer to Figure 4). This section presents each variable and its hypothesized relationship to leadership effectiveness.

Perceptions of the Informal Organization

The main purpose of this study was to determine whether a relationship existed between the accuracy of a leader's perceptions regarding the informal organization and his effectiveness as a formal leader. The importance of a leader's awareness of the total group environment as related to his effectiveness was explained earlier in this chapter. It was felt that as a foreman's perceptions of the informal organization became more accurate, he would be more aware of the total group environment. Therefore, accuracy of

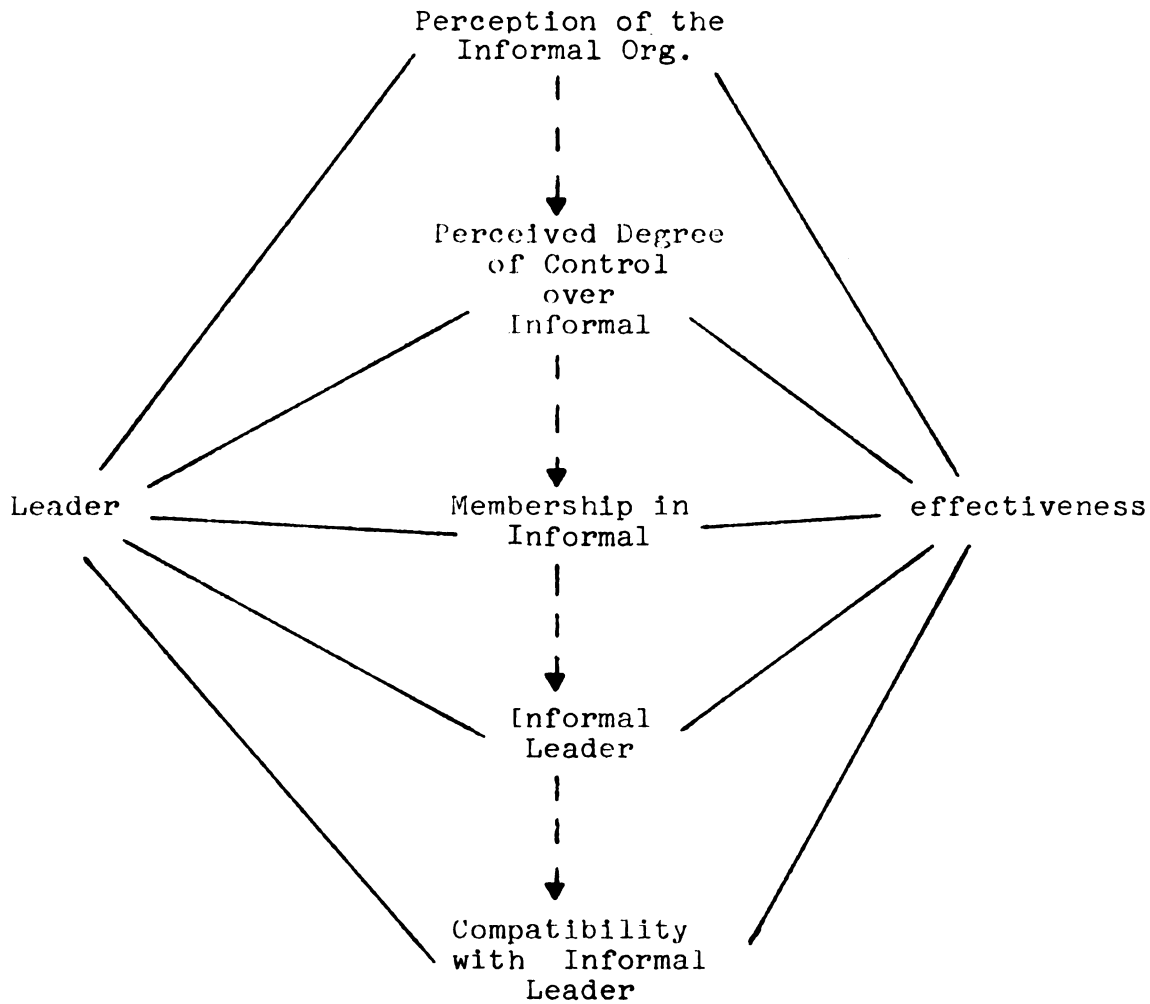


Figure 4.--The General Model of This Study.

perceptions and high leadership effectiveness were felt to be associated, and this led to the following hypotheses:

- Hypothesis I: The most effective leaders are those who accurately perceive the "actual" informal organization operative within their work group.
- Hypothesis II: The least effective leaders are those who have an inaccurate perception of the informal organization operative within their work group.
- Hypothesis III: A decrease in the difference between a leader's perception of the informal organization and the "actual" informal organization is associated with an increase in effectiveness of role performance.

Perceived Degree of Control

The most effective leaders were felt to be those who exercised a high degree of control over all areas of the total group environment, that is, both the formal and informal segments. For this reason, it was felt that a direct association existed between perceived degree of control and a leader's effectiveness. This led to the following hypotheses:

- Hypothesis IV: The most effective leaders are those who perceive themselves as being capable of exerting a high degree of control over the informal organization.
- Hypothesis V: A decrease in a leader's perceived degree of control over the informal organization is associated with a decrease in his effectiveness.

Membership in the Informal Organization

It was felt that if a formal leader were a member of the informal organization, he could be faced with a conflicting

set of role expectations. The formal organization could demand certain behavior contrary to the informal organization's norms. When the formal leader settled the conflict in favor of either, he would satisfy one but alienate the other. The leader who was not an informal member would not be faced with such a strong conflict in expectations, and he could settle the conflict in terms of the formal organization. It was felt that this settlement would be easier for the non-member since he would not be concerned about being ostracized from the informal organization. The non-member, formal leader was felt to be more likely to behave in terms of formal expectations and therefore be a more effective formal leader. This led to the following hypothesis:

Hypothesis VI: The leader who perceives himself as a member of the informal organization is less effective than the leader who does not perceive himself as a member of the informal organization.

Informal Leader

It was felt that the most effective leaders, who were also members of the informal organization, would be those who were informal leaders. Thus, in this case, the leader assumes a dual role of formal and informal leadership, and he has a high degree of control over both segments of total group environment. This led to the following hypothesis:

Hypothesis VII: The leader who is also the informal leader is more effective than the leader who is merely a member of the informal organization.

Compatibility with the Informal Leader

It was felt that the formal leader could perform his role more effectively if he had the support of the informal leader. This would decrease the probability of both men attempting to lead the group in different directions. There would also be fewer "personality clashes" when both leaders were compatible. These assumptions led to the following hypothesis:

Hypothesis VIII: The leader who is not a member of the informal organization and who has a high degree of compatibility with the informal leader(s) is more effective than the leader who is not a member of the informal organization and who has a low degree of compatibility with the informal leader (s).

Summary

This chapter has presented the variables which affect the total group environment. The importance of a leader's awareness of this total group environment was demonstrated. The general model of this study was presented as were the hypotheses that were designed to test the variables in the model.

The next chapter demonstrates how the variables in the general model were operationalized for use in the field study.

CHAPTER II

OPERATIONALIZING THE VARIABLES IN
THE GENERAL MODEL

Introduction

This chapter presents the working definitions of the variables that were introduced in the general model of this study. The chapter is divided into three sections: group variables, leaders' effectiveness and leaders' perceptions.

The group variables section discusses the operational definitions and the measurement of the variables associated with the informal organization, particularly those associated with the cohesiveness of the informal organization.

The leaders' effectiveness section is concerned with the manner in which the formal leaders in this study were ranked in terms of formal effectiveness.

The third section, leaders' perceptions, explains how the leaders' perceptions regarding the informal organization were defined and measured.

The questionnaire items in this chapter are introduced solely to demonstrate why the items were utilized in the study. These items were all on the original questionnaire. However,

a pilot study conducted to validate the questionnaires demonstrated the need for some minor modifications in the questionnaire items. Both the pilot study and the modifications of the questionnaires are presented in Chapter III.

Group Variables

This section presents the working definitions of this study related to the work groups. The informal organization and its cohesiveness are defined, and sociometric choice items related to determining cliques and informal leaders are presented. The measurement of the leader's relationships to the informal organization and to the informal leader, as perceived by the group and the informal leader, are also shown.

The Informal Organization

The informal organization was defined for this study as a group or a clique containing at least three members of a particular work group. The strength of the informal organization was measured by the cohesiveness of the work group or the clique(s) within the work group. Such a definition lacks validity in a large work group where many cliques of varying cohesiveness are found. This problem was not felt to be relevant to the groups in this study since they were relatively small.

The work groups in this study were ranked as being highly cohesive, moderately cohesive or showing little or no

cohesiveness. The ranking was dependent on either the entire work group cohesiveness or the cohesiveness of a clique within the work group.

Cohesiveness of the Informal Organization

Cohesiveness of the informal organization was defined for this study as the average resultant forces acting on group members causing them to retain their membership in the group.

Cartwright has shown five approaches to the measurement of the concept of cohesiveness. The first was "interpersonal attraction among members." This required the use of sociometric choice questions, such as, in-group friendship items on a questionnaire. The second method, "evaluation of the group as a whole," required gaining information concerning each group member's perception of the entire group. The third method was "closeness of identification with a group." Group members were asked questions concerning how strongly they felt that they were personally involved with a group. A fourth method was "an expressed desire to remain in the group." This method required information concerning how strongly each group member desired to remain in the group. The final approach is the utilization of a "composite index" of cohesiveness.¹ This was the approach that was utilized in

¹Dorwin Cartwright, "The Nature of Group Cohesiveness," Group Dynamics, 3rd Edition, Dorwin Cartwright and Alvin Zander, editors (New York: Harper & Row, Publishers, 1968), pp. 92-95.

this study coupled with some sociometric choice items. The composite index consists of combining a number of items which are felt to be indicators of a group's cohesiveness to yield a single measure of cohesiveness. Thus, the group's cohesiveness was defined by its composite index of cohesiveness. The next section presents the questionnaire items that were utilized to measure each group's cohesiveness.

Measurement of Cohesiveness

The questionnaire items in Table 1 were used in the initial questionnaire of this study to measure group cohesiveness. These items were found by Seashore to be indicators of phenomena which were the result of group cohesiveness.² The average responses to these items were utilized to obtain an average composite index of cohesiveness for the work groups in this study. The numerical indexes are presented in Chapter IV. The strength of the group's cohesiveness was represented by its composite index or the composite index of a clique within the group.

Determining Cliques and Informal Leaders

The initial questionnaire utilized sociometric choice items to elicit the clique(s) within a work group. These items are presented in Table 2. The items were intended to form a matrix of social choice among group members and thus identify the group's patterns of interaction.

²Seashore, op. cit., pp. 36-38.

TABLE 1.--Questionnaire Items Measuring Work Group Cohesiveness.

4. Do you feel that you are really a part of your work group? (Check one)

☐ Really a part of the work group
☐ Included in most ways
☐ Included in some but not in all ways
☐ Don't feel that I really belong

5. If you had a chance to do the same type of work for the same pay in another work group, how would you feel about moving? (Check one)

☐ Would want very much to move
☐ Would rather move than stay where I am
☐ Would not make any difference
☐ Would rather stay where I am than move
☐ Would want very much to stay where I am

6. How does your work group compare with other work groups in each of the following areas? (Check one for each area)

	Better than most	About the same as most	Not as good as most
The way the men get along together			
The way the men stick together			
The way the men help each other on the job			

TABLE 2.--Sociometric Choice Items.

9. Which members of your work group do you associate with most often on the job? (List in order of frequent contact, that is, the person that you associate with most often first, etc.)

(If you require more space, please use the back of this page)

Which members of your work group do you associate with most often off the job? (List in order of frequent contact)

(If you require more space, please use the back of this page)

10. List the member(s) of your work group that you would most like to work with and the member(s) that you would least like to work with. This list need not include all members of your work group since you may not care one way or the other about certain members.

Most like to work with (List in order of preference)

(If you require more space, please use the back of this page)

Least like to work with (List in order of dislike, that is, list the person that you would least like to work with first, etc.)

(If you require more space, please use the back of this page)

11. If you had a choice, which member of your work group would you least like to see as its leader?

The items in Table 3 were designed to identify informal leaders as perceived by the work groups and to ascertain whether an individual perceived himself as an informal leader. If a person were mentioned in items 7 and 12 by two or more members of the work group, he was identified as an informal leader.

TABLE 3.--Questionnaire Items Measuring Informal Leadership.

-
7. Are there one or two members of your work group that exert more influence on the group than other members? (Include yourself in answering) _____ Yes _____ No.
If yes, what are their names?

8. What influence do you have in your work group? (Check one)

_____ Members always follow my example
 _____ Members frequently ask me for advice
 _____ Sometimes I set the example and sometimes I don't
 _____ I frequently follow others in the group
 _____ I always wait for someone else to make the first move

12. If you had a choice, which member of your work group would you most like to see as its leader?

Relationship of the Leader
to the Group

The items in Table 4 were designed to determine the foreman's relationship to the informal organization and whether

he was a member of the informal organization as perceived by the group. These items could also be used to determine the relationship between the informal leader and the foreman.

The results of the pilot study showed a need to modify some of the above items. These modifications are explained in Chapter III.

TABLE 4.--Questionnaire Items Measuring Foremen's Relationships to the Informal Organization.

-
1. What is your relationship to your supervisor? (Check one)
 - ☐ Highly personal and very friendly
 - ☐ Friendly
 - ☐ We get along all right
 - ☐ Unfriendly
 - ☐ Hostile

 2. Do you consider your supervisor part of your group, that is, does he go to coffee with members of the group, does he have lunch with them, does he associate with them off the job, etc.? (Check one)
 - ☐ Very often he is part of the group
 - ☐ Frequently he is part of the group
 - ☐ Once in a while he is part of the group
 - ☐ Rarely is he part of the group
 - ☐ Never is part of the group

 3. How close is your supervisor to the men in the work group? (Check one)
 - ☐ Much closer to the men than to management
 - ☐ Somewhat closer to the men than to management
 - ☐ About in the middle between the men and management
 - ☐ Somewhat closer to management than to the men
 - ☐ Much closer to management than to the men
-

Leader's Effectiveness

The method used to judge the effectiveness of the leader's in this study was a ranking of foremen by their distribution superintendents. This method was implemented through structured interviews. The distribution superintendents were asked to rank the foremen in their departments in terms of potential for promotion and general over-all performance. The latter was a difficult term to define precisely, and since this was a personal evaluation, over-all performance would be defined by each distribution superintendent--relative to his personal value system. This made comparisons between foreman effectiveness in different departments impossible.

During the interviews the distribution superintendents were asked to place their foremen into one of three ordinal categories, and this led to the following ordinal ranking scale:

- | | |
|-------------------|--|
| 1 = excellent | promotable over anyone else in his
area of specialization |
| 2 = average | this individual had the potential
to be promoted with improvement. |
| 3 = below average | this individual had attained the
highest point in his career--he
would not be promoted under any
circumstances. It was noted that
some individuals could fall into |

this number three category because of their age. In order to overcome this problem, the superintendents were asked to hold age constant in their rankings (this was only significant in one case).

This ranking scale was used to segment all the foremen in this study into one of the three effectiveness categories.

As stated previously, these rankings may not hold under different circumstances; that is, a highly ranked foreman under one distribution superintendent may not be as highly ranked if placed under another distribution superintendent due to differing value systems of the evaluators. These value systems may cause different distribution superintendents to judge over-all performance differently and hence, to rank their foremen differently. However, this study was concerned with the effectiveness of foremen, at the time of the study, as measured by the formal organization. The distribution superintendents' rankings represented the effectiveness of the foremen as measured by the formal organization.

It was noted that the final, ordinal ranking of the foremen in this study is only transitive within the group of foremen under a particular distribution superintendent; that is, a first level foreman is more effective than a second level foreman in his department. The final measure is not transitive on an individual basis; that is, a foreman that is ranked at the first level in a gas department may

or may not be as effective as a foreman ranked at the first level in an electric department. The foreman cannot be cross compared. Highly effective may or may not have carried the same meaning to all distribution superintendents. Again, this study was concerned with a foreman's effectiveness at the time of the study and not with judging effectiveness ratings, and it is felt that the above ordinal scale measures effectiveness in terms of the formal organization.

Leaders' Perceptions

This section represents the questionnaire items that were used to measure each leader's perceptions concerning the informal organization operative within his work group.

Leaders' Perceptions of the Existence of the Informal Organization

The questionnaire items in Table 5 were used to elicit each leader's perceptions of informal organizations within his work group. The items were preceded by the statement in Table 5 explaining the term social group.

These and other items on the foremen's questionnaire were validated through interviews with the foremen during the pilot study, and this is explained in Chapter III.

The items in Table 5 were used to form a composite index of the foreman's perception of the cohesiveness of the informal organization. This index represented the foremen's

TABLE 5.--Questionnaire Items Measuring Foremen's Perceptions of Informal Organizations.

In the following questions, the term "social group" refers to the informal groups that people sometimes form, such as, people who usually have coffee together, etc. The term work group refers to the group of workers that you personally supervise. A single work group may contain no "social groups" or it may contain many "social groups."

7. I find that "social group(s)" in my work group are: (Check one)

- ☐ Rare
- ☐ Not very long-lived
- ☐ Are not unusual, but change often
- ☐ Not unusual and are part of the group
- ☐ Strong determinants of the group's actions

8. My work group is best described as consisting of: (Check one)

- ☐ No stable "social groups"
- ☐ A single all encompassing "social group"
- ☐ A large number of "social groups"
- ☐ A few "social groups"
- ☐ Members that stick to themselves

9. My work group is best controlled through the use of: (Check one)

- ☐ "Social groups" and their leaders
- ☐ "Social groups" and the formal rules
- ☐ Formal rules remembering the "social groups"
- ☐ Formal rules since there are no "social groups"
- ☐ Formal rules since the "social groups" are hard to control

15. The "social group(s)" in my work group: (Check one)

- ☐ Can always be made to help group performance
- ☐ Can usually be made to help group performance
- ☐ Can frequently be made to help group performance
- ☐ Can rarely be made to help group performance
- ☐ Can never be made to help group performance
- ☐ Cannot help group performance since they do not exist

18. "Social groups:" (Check one)

- ☐ Are important to the work of my group
- ☐ Affect the work of my group
- ☐ Rarely have an effect on the work of my group
- ☐ Are not important to the work of my group
- ☐ Do not exist within my group

12. List the people that you feel are the leaders of the various "social group(s)" that exist within your work group (include yourself as a possible leader of a "social group"). If no "social groups" exist within your work group, please answer none.

Leader Group A _____

Leader Group B _____

Leader Group C _____

Leader Group D _____

Leader Group E _____

perceptions of the informal organizations that existed (or did not exist) within their work groups.

Leaders' Degree of Control Over the Informal Organization

Control, in this study, was defined as the degree of influence a foreman felt that he had over the informal organization within his work group. Degree of influence was defined as how well the foreman felt that he could guide or utilize the informal organization in the achievement of formal objectives. The items in Table 6 were used to form a composite index of the perceived degree of control that a foreman perceived having over the informal organization within his work group. This index therefore defines degree of control. It was noted that these items only were applicable to the foremen who perceived an informal organization within their work group. A lack of perception of the informal organization was assumed to establish a lack of perceived control.

Leaders' Relationships to the Informal Organization

Items 11 and 13 in Table 7 defined whether a foreman perceived himself as a member of an informal organization within his work group. Items 12 and 14 were designed to determine whether the foreman perceived himself as an informal leader and his perceived relationship(s) with other informal leader(s). It was again noted that these items were

TABLE 6.--Items Measuring Perceived Degree of Control.

-
9. My work group is best controlled through the use of:
(Check one)
- _____ "Social groups" and their leaders
 _____ "Social groups" and the formal rules
 _____ Formal rules remembering the "social groups"
 _____ Formal rules since there are no "social groups"
 _____ Formal rules since the "social groups" are hard
 _____ to control
10. In decisions concerning the assignment of work in my
work group: (Check one)
- _____ I always consider the "social groups"
 _____ I frequently consider the "social groups"
 _____ I rarely consider the "social groups"
 _____ I never consider the "social groups"
15. The "social group(s)" in my work group: (Check one)
- _____ Can always be made to help group performance
 _____ Can usually be made to help group performance
 _____ Can frequently be made to help group performance
 _____ Can rarely be made to help group performance
 _____ Can never be made to help group performance
 _____ Cannot help group performance since they do not
 _____ exist
17. I consider myself to be influential in: (Check one)
- _____ All actions of the "social groups" in my work
 _____ group
 _____ Most actions of the "social groups" in my work
 _____ group
 _____ Some actions of the "social groups" in my work
 _____ group
 _____ Few actions of the "social groups" in my work
 _____ group
 _____ None of the actions of the "social groups" in
 _____ my work group
-

TABLE 7.--Items Measuring Informal Membership and Leadership.

-
11. Are you a member of a "social group" that consists of members of your work group? (Check one)

☐ Yes, a strong member
☐ Usually I am a member
☐ Most times I am not a member
☐ No, never a member

12. List the people that you feel are the leaders of the various "social group(s)" that exist within your work group (include yourself as a possible leader of a "social group"). If no "social groups" exist within your work group, please answer none.

 Leader Group A _____

Leader Group B _____

Leader Group C _____

Leader Group D _____

Leader Group E _____

13. If you are a member of a "social group," to which of the above groups do you belong, that is, Group A, Group B, etc.?

- _____
 14. How would you classify your relationship with the leaders of the above groups? (Check one for each group)

Group A

☐ Warm and friendly
☐ Pleasant
☐ Limited strictly to the job
☐ Unpleasant
☐ Antagonistic

Group B

☐ Warm and friendly
☐ Pleasant
☐ Limited strictly to the job
☐ Unpleasant
☐ Antagonistic

Group C

☐ Warm and friendly
☐ Pleasant
☐ Limited strictly to the job
☐ Unpleasant
☐ Antagonistic

Group D

☐ Warm and friendly
☐ Pleasant
☐ Limited strictly to the job
☐ Unpleasant
☐ Antagonistic

Group E

☐ Warm and friendly
☐ Pleasant
☐ Limited strictly to the job
☐ Unpleasant
☐ Antagonistic

only applicable to those foremen who did in fact perceive an informal organization within their work group.

Again, a lack of perception of the informal organization was assumed to signify a lack of perceived relationships with the informal organization.

Summary

This chapter has presented the working definitions of this study and the questionnaire items and interviews that were used to measure the concepts.

The following chapter presents the general methodology of the study and a discussion of the pilot study.

CHAPTER III

GENERAL METHODOLOGY

Introduction

This chapter has a threefold purpose. First, it presents the general methodology that was proposed for the field study of the previously stated hypotheses. This section also presents the statistical tools that were used to analyze the empirical data.

The second purpose of the chapter is to discuss the pilot study. This section explains how the pilot study was conducted and the results of it.

The last purpose of the chapter is to present the minor changes made in the questionnaire items based on the results of the pilot study.

General Methodology

Three main sources of data were used in this study. Questionnaires were distributed to foremen, to members of their work groups, and structured interviews were conducted with distribution superintendents and their assistants. Prior to the distribution of the questionnaires, a pilot study was conducted, and it is explained later in this chapter.

The questionnaires distributed to the foremen were designed to determine whether they perceived an informal organization operative within their work group. If they did, the questionnaire elicited their perception of the strength of the normative structure of the informal organization and the degree of control which the foremen felt they had over the informal organization. It was also ascertained whether the foremen were members of the informal organization within their work groups and whether they perceived themselves as being both the formal and the informal leader. If they did not perceive themselves as the informal leader, the questionnaire determined their relationship to the person or persons that they did perceive as the informal leader(s). The questionnaire also provided information on the background of the foremen, such as age, education level, length of time as a foreman, and so forth, as well as information on the aspiration level of the foremen. (Refer to Appendix B, Table B-2).

The questionnaires that were distributed to the workers under each foreman were designed to discover whether an informal organization existed in a particular work group, and if it did, the questionnaire elicited work group members' perceptions as to the strength of the informal organization's normative structure. These questionnaires were designed to provide a measure of the "actual" total group environment that existed in each work group. The questionnaires also provided background information on the workers of the same

type as the foremen's questionnaires. The workers were asked to identify their work group by specifying their foremen and to state how long they had been a member of that particular work group. The workers were to identify themselves by name, and each questionnaire was also number coded so that although unnamed questionnaires could not be identified individually, they could be identified by work group.

The foremen's questionnaires and the workers' questionnaires were given out through the distribution superintendents' offices. The distribution superintendents distributed the questionnaires to their foremen who in turn gave the worker questionnaires to the members of their work groups. It was stressed to the distribution superintendents that there could be no formal pressure on the work groups to complete the questionnaires. They reported that, during distribution, they had stressed this to their foremen and instructed the foremen to advise their work groups of this when they distributed the questionnaires.

The distribution superintendents all expressed a willingness to have the questionnaires collected by the foremen and thus, assure a 100% response. However, it was felt that this would bias the study and would produce distorted responses that would not be representative of the "actual" situation. The respondents, both foremen and workers, were supplied with stamped envelopes addressed to this researcher (at Michigan State University) in which they were to return

the completed questionnaires. There was a cover letter also distributed with each questionnaire which specified that the questionnaire was part of a study at Michigan State University and that responses were to be returned to this researcher directly and such responses would be considered confidential. (Refer to Appendix A.) Prior to the study, the company's management had been told and agreed to the fact that the company would receive only general results from the study and that they would not be allowed to check the response of any particular individual. This was done before the study to maintain the integrity of the research and to avoid future problems concerning confidential data.

The initial response to the workers questionnaire was deemed inadequate, and two weeks after the initial distribution of the questionnaires a follow-up letter was distributed through the same channels to workers and foremen. (Refer to Appendix A.) The distribution superintendents agreed to ask their foremen to remind their workers to return the questionnaires now if they were going to return them at all. The distribution superintendents also reminded their foremen to return their questionnaires. The responses are discussed in Chapter IV.

The interviews with the distribution superintendents were conducted to gain insight into the general management-worker relationships within each division and to obtain a rating of effectiveness for the foremen in this study. The

interviews were structured and very helpful in providing information for this study. They were conducted in an open and cordial atmosphere. The distribution superintendents were always willing to supply any information or help that was at their disposal.

After utilizing the above instruments to gather the data for this study, the informal organizations, as perceived by the work group, were ranked from weak to strong; and this ranking was compared with the foremen's perceptions of the informal organization within their work groups. The agreement or disagreement between these perceptions was then compared to the foreman's effectiveness. This was done to determine whether the foreman's accuracy of perception of the informal organization was related to his effectiveness as a formal leader. However, due to lack of response, certain modifications were made in the study, and these are explained fully in the following chapter.

The following section explains the statistical analyses that were applied to the above data.

Choice of Statistical Tests

Only nonparametric tests were used to analyze the data in this study. Too often in the behavioral sciences there is an attempt to apply parametric statistical tools to data that are not suited to these tests. For parametric tests to be validly applied, the data must be normally distributed and must be measured on at least an interval scale. An interval

scale is a scale that is "unique up to a linear transformation"; that is, the scale is not affected when its values are multiplied by a positive constant and a constant added to the product. Each item on the scale has a unique value, and the exact difference between items can be calculated. Thus, the scale may be subjected to arithmetic operations such as addition or subtraction without affecting the validity of its measurements. When the above qualifications are met by empirical data, parametric statistics can and should be applied since nonparametric tools would not fully utilize all information. However, the researcher feels that in behavioral research these qualifications are rarely met by the empirical data, and therefore the majority of behavioral research requires the use of nonparametric tools.

The data in this study, as in most behavioral studies, consisted of ordinally ranked measures. These measures were of effectiveness and perceptions. The characteristic of an ordinal scale is that it classified items on a greater than or less than basis, but it does not show by how much the items differ. An ordinal scale is transitive, irreflexive and asymmetrical.¹ Both the effectiveness scale and the perceptual scales in this study exhibited these characteristics, and therefore, arithmetic operations could not be

¹Transitive - if $x > y$ and $y > z$, then $x > z$
 Irreflexive - it is not true for any x that $x > x$
 Asymmetrical - if $x > y$ then $y \nmid x$

performed on this data.² Hence, parametric statistics were not applied in this study.

A further word on the transitivity of the scales used in this study is needed. The final measure of the foremen's effectiveness was an ordinal ranking of all foremen under all of the distribution superintendents, and the main classes of effectiveness: high, moderate and low fulfill the properties of transitivity. However, individual foremen cannot be cross compared; that is, a foreman under one distribution superintendent may not be ranked the same if he were placed under another distribution superintendent as was explained earlier in the study. The main point is that the foremen in three categories of foremen effectiveness were all considered of equal effectiveness; all foremen in the number one category are considered equal, and so forth. The final measure of effectiveness was therefore an ordinal ranking representing the formal organization's measure of foremen's effectiveness.

This study utilized nonparametric statistical tests to analyze relationships between ordinally ranked variables. It would have been preferable to have had an interval scaling of the variables in this study; however, the behavioral tools available were not felt to be precise enough to yield such a scale. Therefore any attempt at establishing such a scale

²Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill Book Company, 1956), pp. 24-25.

could not have been validly defended. The ordinal scales in this study were felt to measure, as specifically as possible, the variables that they purported to measure.

The Specific Statistical Tests

The Spearman Rank Correlation Coefficient.--The Spearman Rank Correlation Coefficient: r_s was used to measure the association between the ordinally ranked variables in this study. This test measures association, not cause and effect relationships. A highly significant r_s shows a high association between the variables being correlated; that is, the variables occur in the sample simultaneously with a high degree of frequency. This does not imply a causal relationship between variables. A causal relationship could only be determined in a more controlled environment, that is, an environment in which the researcher could control the variables. In the type of field study that was performed in this study only observation of the variables took place. There was no attempt to control the variables in this study. A high association between variables would justify further research into cause and effect relationships. This would entail control of the variables in this study so that experimental and control groups of foremen could be established. Further discussion of this is reserved for Chapter V.

Goodman and Kruskal's Tau.--Another measure of association that was applied to the data was the Goodman and Kruskal's

Tau. The test concerns the effect of knowledge of the independent variable on the predictions of the dependent variables. This test was utilized to calculate the percentage reduction in errors when assigning individuals to B categories when A was not known and then when A was known. (Refer to Table 8). The test first requires computation of the probable errors in randomly assigning individuals to B categories, such as, randomly assigning foremen to effectiveness categories. The test then requires the computation of the probable errors of assigning individuals to B categories when the A variable is known, such as, assigning foremen to effectiveness categories when their disparity indexes are known. Tau is computed as follows:

$$\tau_b = \frac{\left[\begin{array}{c} \text{Number of errors} \\ \text{A unknown} \end{array} \right] - \left[\begin{array}{c} \text{Number of errors} \\ \text{A known} \end{array} \right]}{\left[\begin{array}{c} \text{Number of errors} \\ \text{A unknown} \end{array} \right]}$$

τ_b is a measure of the percentage reduction in errors in assigning individuals to various B categories when A is known. Therefore a τ_b of 0.5 indicates that the knowledge of A has decreased our assignment errors by one half.³

³Hubert M. Blalock, Social Statistics (New York: Mc Graw-Hill Book Company, 1960), pp. 233-235.

TABLE 8.--Goodman and Kruskal's Tau.

		Independent Variable		
		A ₁	A ₂	A ₃
Dependent Variable	B ₁	A ₁ B ₁	A ₂ B ₁	A ₃ B ₁
	B ₂	A ₁ B ₂	A ₂ B ₂	A ₃ B ₂
	B ₃	A ₁ B ₃	A ₂ B ₃	A ₃ B ₃

This again does not denote cause and effect relationships, but only an association between two variables the population. The test is of interest because it demonstrates to some degree the pragmatic usefulness or lack of usefulness of increased knowledge of the variables under study.

These two tests were applied to the data collected in this study, and these tests were the bases for the statistical acceptance or rejection of the hypotheses in this study.

The Pilot Study

Before the questionnaires were distributed to workers and foremen, a pilot study was conducted. The purpose of the pilot study was to validate the questionnaires, that is, to determine whether they measured what they purported to measure and to insure that respondents understood the phrasing of the items.

The pilot study utilized three foremen and their work groups. The general atmosphere during the pilot study was cordial with a few wisecracks. The three groups were all within Division A. Two groups were composed of members of the electric distribution department and one group was from the gas distribution department. These groups and their foremen were administered questionnaires in the divisional conference room prior to their going out on the job in the morning. The gas department group consisted of eleven members and a foreman, and the electric groups consisted of one of seven members and one of six members and two foremen.

The researcher was introduced to the groups and their foremen by their distribution superintendents, who also gave a brief explanation of the fact that the study was being conducted at Michigan State University and that the specific response of any one individual was not to be released to the company. After these introductory comments, the distribution superintendents left the room. The researcher then explained to the groups that this study was intended to aid in improving foreman-worker relationships, and their help would hopefully lead to a more pleasant working atmosphere within the company. It was reiterated that the results were confidential and that individual results would not be revealed to anyone. However, it was pointed out that the general results of the study would be made available to both the union and the company.

The groups were instructed that any comments or suggestions that they had regarding the questionnaires would be welcomed. These comments were invited during the time that they filled out the questionnaire and/or when they returned it. It was pointed out that the study would be greatly improved if the workers would point out items that they either did not understand or that they were reluctant to complete. The groups all expressed concern, during the time they were completing the questionnaires, about the confidential nature of the results. It was reiterated that individual results would not be revealed, and this seemed acceptable to the groups. Many workers made significant comments as they returned the questionnaire, and these are discussed later since they led to the modification of some questionnaire items.

The foremen were all asked to remain for personal interviews after they had completed their questionnaires.

Changes After the Pilot Study

The Worker's Questionnaire

During the interviews which followed their completion of the questionnaires, the workers were very disturbed with the sociometric choice items as shown in Table 2, Chapter II. They seemed to feel it was an attempt to find "poor" workers. As one person said, "I won't write anybody's name." They were particularly hesitant about answering items 10 and 11 concerning least-like choices. Although it was pointed out that this

information was used only to determine cliques and not efficient or inefficient workers, the researcher felt that the workers were not completely convinced. Few of the questions regarding sociometric choices were answered on the questionnaires, and none of the least-like items were answered.

Items 10 and 11 were therefore dropped and replaced by items 9 and 10 in Table 9 in the final questionnaire. The reason for the utilization of these items was that if both "off the job" associations and "on the job" associations could be obtained, some insight into the cliques in a work group could be gained. If an individual reported working most often with two individuals, but associating most often off the job with two other individuals, he would not be classified as belonging to an identifiable clique within his work group. An on the job and off the job set of associations would be interpreted as constituting a clique or an informal organization within a particular work group. It was hoped that items 9 and 10 would not be perceived with apprehension by the workers and would be completed since the least-like items had been dropped.

Comments concerning the first alternative in item 7 generally represented the feeling that a person was "queer" if he selected it, and it was felt to be impossible for things to be bad as the last alternative in item 1. The alternatives were modified as shown in Table 10.

TABLE 9.--Sociometric Choice Items: Final Questionnaire.

9. Which members of your work group do you work with most often? (List in order of frequent contact, that is, the person that you work with most often first, etc.)

(If you require more space, please use the back of this page)

10. Which members of your work group do you associate with most often off the job? (List in order of frequent contact)

TABLE 10.--Item 1.--Modifications of Alternatives.

1. What is your relationship to your supervisor? (Check one)

☐ Warm and friendly
☐ Pleasant
☐ Limited strictly to the job
☐ Unpleasant
☐ Antagonistic

Item 7 caused difficulty; some group members interpreted this item as asking for the formal leader. Since the item was directed at revealing the informal leader, it was reworded as shown in Table 11. The new phrasing was felt to apply to all group members rather than just to the foreman.

TABLE 11.--Modification of Item 7.

-
7. Are there one or two members of your work group that tend to set the example for the others? (Include yourself in answering) _____ Yes _____ No. If yes, what are their names? _____
-
-
-
-

Item 11, shown in Table 12, was added to the group questionnaire to gain an understanding of the group's formal structure and formal tasks, that is, did group member work mostly alone or mostly as a group. This information was not actually needed in the final analysis since it was supplied by the distribution superintendents prior to administering the questionnaires. As previously noted, those groups whose members worked alone were not utilized in this study. However, item 11 was used as a check, and the average response to item 11 by all work group with a majority of their members responding was within the range of the first two

alternatives. Thus, all the groups with a majority of members responding perceived themselves as working mostly as a team. Almost one half of these groups perceived themselves as having little or no cohesion, and, as stated above, all these groups perceived themselves as working as a team. Item 11 was therefore a measure of formal structure and task as it was intended to be and not a measure of group cohesiveness.

TABLE 12.--Additional Items in the Final Questionnaire.

-
11. My work group is best described as consisting of:
- ☐ Members that work as a team
 - ☐ Members that mostly work as a team but sometimes work alone
 - ☐ Members that sometimes work as a team but mostly work alone
 - ☐ Members that mostly work alone
12. The thing that I like best about my work group is:
- ☐ The feeling of a team spirit
 - ☐ That the group works well together except for a few members
 - ☐ That I don't have to depend on the others to do my job
 - ☐ That I am able to work alone
-

Item 12 in Table 12 was added to the final questionnaire as a supplement to the other items concerning cohesiveness. It was added with the other items regarding cohesiveness to form the group's composite index of cohesiveness. This item was intended to be a measure of an indicator of cohesiveness.

The average result on item 12 of all work groups with a majority of their members responding to the questionnaire had a +0.667 (r_s) correlation with each group's composite index of cohesiveness. A correlation of +0.667 is significant at the 0.05 level. This item was then validated as a measure of cohesiveness. The computations are shown in Appendix B, TABLE B-13.

The cover letter, final group questionnaire, and the follow-up letter which were distributed to the work group members are shown in Appendix A.

The Foreman's Questionnaire

Questionnaires were administered to the three groups' foremen involved in the pilot study at the same time as they were administered to the groups. Each foreman was interviewed in private at the conclusion of each group study. The foremen were asked about the following items:

1.) Generally, did you understand both the questions and the instructions on the questionnaire? All stated that they understood them.

2.) Did you understand the term "social group"? If the foremen answered yes, but did not offer his explanation of the term, he was asked to define the term. In all three cases the foremen stated that they understood the term social group, and their definitions coincided with the informal organization as operationally defined in this study.

3.) The foremen were asked to describe the cohesiveness of their work groups. In all the cases the foremen's verbal descriptions corresponded with their composite indexes of perceived cohesiveness as represented by the items in Table 5, Chapter II. Two foremen stated that their work groups were highly cohesive, and one stated that his work group had little or no cohesion. These verbal descriptions corresponded with each foreman's composite index of perceived cohesiveness.

4.) The foremen were asked to define control of the social group, and they all defined it as being able to influence the social groups toward desired ends. This was very similar to the operational definition in this study. Their verbal description of the degree of control which they felt they had over social groups in their work group corresponded to the composite index of perceived degree of control. Refer to Table 6, Chapter II, for items composing this index. The one foreman who did not perceive any cohesion within his work group understood the term control, but described himself both verbally and in his composite index as not exercising any control over the social group since it did not exist. Of the other two foremen, one perceived that he had moderate control and the other no control over the social groups. Again, their composite indexes represented identical perceptions.

5.) The foremen were asked if they understood items 11, 12 and 13 (refer to Table 7, Chapter II) concerning membership in the social groups and social group leadership. They all felt that they did and they all volunteered information as to whether or not they perceived themselves as being accepted by the group. Two of the foremen did not perceive themselves as being part of the group. The other foreman stated that he was part of the group, and he felt that this was important to his being a "good" foreman.

All three understood item 12 which required identifying the informal leader, but they had difficulty identifying the informal leaders. As one stated the problem was one of differentiating between "leaders" and "loud-mouths." In many cases, they felt as though the informal leadership role was performed by different group members in different circumstances which made informal leaders difficult to identify. The items were used on the final questionnaire to check the correspondence between foremen perceptions of informal leaders and the work group perceptions of the informal leaders. The results are discussed in the following chapters.

The above interviews with the foremen demonstrated a close correspondence between their verbal interpretations of the work situation and their composite indexes resulting from their questionnaires. The foremen's composite indexes did represent their perceptions of the concepts as they were operationally defined for this study, and the questionnaires

are therefore felt to measure correctly the concepts described in this study.

The final questionnaire that was administered to the foremen is shown in Appendix A.

Other Results of the Pilot Study

The pilot study allowed the researcher to gain a more complete understanding of the physical work situation. This understanding was invaluable in later interviews with the distribution superintendents since we both understood at least the physical aspect of the work situation. It also helped to know what questions to ask during the interviews, such as why certain individuals reacted to the questionnaire in the way they did and what was their formal status in the group?

Since the researcher had been separated from an industrial setting for almost four years, a communication gap had developed. The pilot study helped to bridge the gap. The researcher found that he did not speak the language of the industrial work group. Relearning this language aided in redesigning the questionnaires. The items were redesigned to correspond to the workers' perceptions of the items rather than to management's or to a student's perception of the items.

The pilot study also allowed insight into worker-management relationships. The opportunity was opened to observe the relationships between distribution superintendents, foremen and workers. The relationship between

distribution superintendents and the workers was reserved. The relationship between the work group and the foremen was personal and not always pleasant. The gas foreman perceived himself as a member of the informal organization, and during the pilot study, his work group directed few comments to him, and these were information seeking comments. With the electric foremen who did not perceive themselves as members of the informal organization, the comments were more sarcastic, such as "who is the leader of the group?"

A study's usefulness is dependent on the fact that it measures what it purports to measure. The pilot study offered a unique opportunity to validate the indexes used in the research. From the pilot study and from personal interviews, it was strongly felt that the concepts in this study were measured as they were operationally defined.

Summary

This chapter has presented the general methodological approach used in this research, and it has discussed the statistical analysis of the data. This chapter has shown the manner in which the pilot study was conducted and how the results of the pilot study validated and/or modified the questionnaires.

The next chapter presents the quantification of questionnaire items, the analysis of the data collected in this research and the conclusions of the study.

CHAPTER IV

DATA ANALYSIS AND CONCLUSIONS

Introduction

This chapter presents the majority of the empirical data that were collected to test the major hypotheses of this study. The data, as previously described, were gathered through the use of interviews and questionnaires. The administration of these instruments was explained in Chapter III. Since the lack of response to the workers' questionnaires was a problem, the study was modified to allow the distribution superintendents to describe work group cohesiveness. This modification is explained in this chapter.

This chapter is divided into three sections. First, the general sample that was utilized in the study is described. The second section contains the statistical tests of each set of hypotheses and the conclusions drawn as a result of these tests. The third section describes the hypotheses that were not testable due to type of empirical evidence that was collected.

The General Sample

This section discusses the foremen, their work groups and the modification in measuring the "actual" informal organization that was necessary due to a lack of worker response.

Foremen

The sample in this study consisted of thirty-six foremen and the work groups that they supervised. The foremen were drawn from the two divisions of the public utility company which was described in the Introduction. The backgrounds of the foremen are shown in Appendix B, Table B-2. These thirty-six foremen constituted all operating foremen under each distribution superintendent with the exception of tree trimming foremen and meter reading foremen. The exclusion of these foremen was caused by the formal tasks of their groups and by their groups' instability. The tree-trimming groups were composed of young men who were interested in moving to better positions. This tended to mark the groups as unstable with a high rate of turnover. The meter-reading group, in almost all instances, performed their formal task alone with no group interaction required. Because of these factors and the descriptions in Chapter I of how these variables affect the formation of informal organizations within work groups, the foremen of these groups were not utilized in the study since the groups did not operate in an atmosphere conducive to the formation of an informal organization.

The Groups

The thirty-six groups studied were responsible for all divisional work outside the division headquarters. Their duties included installations of new facilities, repair of facilities and customer service. Large installations were usually subcontracted so that the divisional work groups were responsible for work, such as laying cable, but not for building a new warehouse. For some larger jobs, two divisional work groups could be assigned to work together; however, this was an infrequent occurrence and the two groups were again separated after the specific job was completed. The membership of the work groups studied was controlled by the distribution superintendents. They were responsible for assigning men and foremen to work groups. Thus, foremen had little control over the membership of their work groups. The distribution superintendents also controlled promotions from the worker to the foreman level. The membership of all groups utilized in this study had remained relatively constant for at least six months. The average work group ranged in size between eight and twelve workers.

Twenty-one foremen and their work groups were drawn from Division A, and fifteen foremen and their work groups were drawn from Division B. Division A had a recent history of good union-management relations and was considered one of the company's best divisions in this respect. Division B had a recent history of hostility between union and management and

was considered one of the worst divisions in the company in this respect.

During the period of this study, contract negotiations between the union and management were in progress. The negotiations ended in a stalemate about six weeks after the completion of this study, and an eighty-three day strike ensued. This strike was long and, in some areas, bitter as represented by some destruction of company property. The implications of the negotiations that were being conducted at the time of this study are covered in Chapter V.

Group Response

A total of three hundred and eleven questionnaires were distributed to the workers in this study. Only eighty questionnaires were returned. The absolute number is not as important as was obtaining responses from a majority of members within each work group. It was felt that at least a fifty percent response by group members was necessary to complete a valid composite index of cohesiveness for the group. This requirement was met by only twelve groups. This lack of response led to a modification in the measurement of the cohesiveness of the informal organization.

The Modification

The distribution superintendents were interviewed and asked to indicate their perceptions of the informal organization or lack of informal organization operative within each

work group in their department. They were asked the following questions: How cohesive is each work group? Is there a segment within the work group composed of at least three workers? How cohesive is this segment? Cohesiveness was defined for the distribution superintendents as the actions or interactions that take place within the work situation, but that are not specified by the formal organization, such as men helping each other, generally sticking together in their actions, working with a team spirit, going to coffee breaks together and/or socially interacting off the job, such as on bowling teams and at picnics.

The distribution superintendents were cautioned to judge the group's cohesiveness and not whether they perceived cohesiveness as helping or hindering formal objectives. The reason for this was to try to keep the distribution superintendents' answers to the above questions as objective as possible. The judgments required were not of a subjective, good or bad nature but rather of a more factual nature regarding cohesiveness. During the interviews, this approach seemed to keep personal bias at a minimum and therefore, it was felt, yielded a more objective appraisal of each group's cohesiveness. The distribution superintendents were asked to rank the cohesiveness of the groups or segments within the groups by utilizing the following ranking scale:

- 1 = a highly cohesive group or segment
- 2 = a moderately cohesive group or segment
- 3 = little or no cohesion within the group

The perceptions of the distribution superintendents as ranked above were felt to represent the informal organization as operationally defined in this study, and the cohesiveness rankings of the distribution superintendents were felt to be very similar to the composite index of cohesiveness as perceived by the work group.

The validation of the distribution superintendents' perceptions concerning the informal organization is presented in Chapter IV.

The next section presents the analysis of the empirical data relevant to each set of hypotheses of this study and the conclusions of the research based on this analysis.

Hypotheses I, II, III: Perceptions and Effectiveness

The first hypotheses were the major hypotheses of this study. They were concerned with the association between the accuracy of the leaders' perceptions and their effectiveness.

The Hypotheses to be Tested

H₁: There is a high degree of association between a foreman's ability to accurately perceive the informal organization within his work group and his effectiveness as a supervisor.

Operationally stated:

H₁: A decrease in a foreman's disparity index is associated with an increase in his effectiveness as a supervisor.

The Null Hypothesis:

H_0 : There is no association between a foreman's disparity index and his effectiveness as a supervisor.

Measurements of Cohesiveness

The measurement of the cohesiveness of the informal organization as perceived by the division superintendents has already been stated, that is, they were asked to rank group cohesiveness (or segment cohesiveness) on the basis of a three-point scale:

1 = highly cohesive group or segment

2 = moderately cohesive group or segment

3 = little or no cohesion and no cohesive segments

The perceptions of the foremen concerning the informal organization within their work groups were measured by the questionnaire items in Table 13.

The analysis of these questions consists of adding the answers (values are shown next to each alternative) and dividing by $N = 5$. Thus:

$$C = \frac{\Sigma \text{Items } 7, 8, 9, 15, 18}{N = 5}$$

where C is equal to the foreman's composite index of perceived work group cohesiveness.

If the respondent answered none to item 12, he did not perceive an informal organization operative within his work group, and C was given a value of 3 on the following scale.

TABLE 13.--Quantification of the Questionnaire Items Composing the Foremen's Composite Indexes of Cohesiveness.

-
7. I find that "social group(s)" in my work group are: (Check one)
- 5 Rare
 - 4 Not very long-lived
 - 3 Are not unusual, but change often
 - 2 Not unusual and are part of the group
 - 1 Strong determinants of the group's actions
8. My work group is best described as consisting of: (Check one)
- 4 No stable "social groups"
 - 3 A single all encompassing "social group"
 - 1 A large number of "social groups"
 - 2 A few "social groups"
 - 5 Members that stick to themselves
9. My work group is best controlled through the use of: (Check one)
- 1 "Social groups" and their leaders
 - 2 "Social groups" and the formal rules
 - 3 Formal rules remembering the "social groups"
 - 5 Formal rules since there are no "social groups"
 - 4 Formal rules since the "social groups" are hard to control
15. The "social group(s)" in my work group: (Check one)
- 1 Can always be made to help group performance
 - 2 Can usually be made to help group performance
 - 3 Can frequently be made to help group performance
 - 4 Can rarely be made to help group performance
 - 5 Can never be made to help group performance
 - 6 Cannot help group performance since they do not exist
18. "Social groups": (Check one)
- 1 Are important to the work of my group
 - 2 Affect the work of my group
 - 3 Rarely have an effect on the work of my group
 - 4 Are not important to the work of my group
 - 5 Do not exist within my group
12. List the people that you feel are the leaders of the various "social group(s)" that exist within your work group (include yourself as a possible leader of a "social group"). If no "social groups" exist within your work group, please answer none.
-

The following scale was used to analyze the items in Table 13:

C	Interpretation	Scaled for Comparison With Distribution Super- intendent Responses
1.0-2.0	Highly cohesive	1
2.1-3.4	Moderately cohesive	2
3.5 --	Little or no cohesion	3

The Disparity Index

The foremen's composite indexes of perceived group cohesiveness (C) were calculated using the preceding formula. These indexes (C) were then compared with the distribution superintendents' rankings of the cohesiveness of the work groups. The difference between these sets of rankings was defined, for this study, as the disparity index and was calculated for each foreman.

Since both the foremen's rankings of cohesiveness and the distribution superintendents' rankings may take on values from +1 to +3, the disparity index may take on values from +2 to -2. However, in this study, only absolute values of the disparity index were used; that is, the indexes had values of either 0, 1 or 2. The reason for utilizing only absolute values was that the direction of the perceptual difference was not felt to be the determinant factor but rather the perceptual difference itself. Therefore, when the foreman perceived the informal organization as the

"actual" informal organization, now defined as the distribution superintendent's perception, the disparity index was zero. Values of the disparity index other than zero denoted a difference between the actual informal organization and the foreman's perception of it.

The disparity index is an ordinal ranking. The difference between an index of zero and an index of one may or may not be the same as the difference between an index of one and an index of two. The only statement that could be made regarding a large index relative to a smaller index is that the former represents a greater difference between perceptions of the informal organization than does the latter. How much greater cannot be said.

The Sample Used to Test The Hypotheses

The data collected for this segment of the study is shown in Table 14. The 3 x 3 contingency table represents foremen's effectiveness relative to their disparity indexes.

The sample used to test statistically this hypothesis consisted of twenty-seven of the thirty-six foremen to whom questionnaires were originally distributed. Seven of the thirty-six did not return the questionnaire. They were given another questionnaire during the distribution of the follow-up letter. This succeeded in gaining one more response. The distribution superintendents applied some pressure on the foremen, and two more questionnaires were

returned blank. One foreman had a broken leg, and another was described by his distribution superintendent as being apprehensive concerning anything written since he had little formal education. Neither of these foremen returned their questionnaires. The reasons for the other four not returning the completed questionnaires could not be ascertained. Two other foremen of the thirty-six were in a company training program and were only temporarily in the position of foremen. They were not included in this study. Finally, one foreman had just been promoted to foreman, and his distribution superintendent could not rank him in terms of effectiveness. He was not included in the final sample for this reason. Thus, the twenty-seven foremen used to test statistically this hypothesis all returned their questionnaires and were all ranked in effectiveness by their distribution superintendents. This data are shown in Appendix B, Table B-1.

Table 14 shows the number of foremen in each category and the percentage of foremen in each effectiveness category according to their disparity index.

Statistical Analysis

$$r_s = 0.302$$

$$t = 1.576$$

$$df = 25$$

The Spearman Rank Correlation Coefficient: r_s was used to analyze the data presented in Table 4. The results of this analysis are shown above.

TABLE 14.--Foremen Effectiveness as Related to their Disparity Indexes.

Foremen Effectiveness		Disparity Index		
		0	1	2
1	1	5 (62.5%)	2 (25%)	1 (12.5%)
	2	2 (16.7%)	10 (83.3%)	0 (0%)
	3	2 (28.6%)	3 (42.8%)	2 (28.6%)

This result $r_s = 0.302$ is significant at the 0.1 level for a one-tailed test. This test is one-tailed since the hypothesis states that a decrease in the disparity index is associated with an increase in effectiveness. Thus, the hypothesis predicts the direction of the difference and allows a one-tailed test.

This result allows the rejection of the null hypothesis at the 0.1 level. This means that $r_s \geq 0.302$ has a probability of occurrence under H_0 of 0.1 to 0.05, that is, when the null hypothesis is true. The conclusion is that at the 0.1 level, the effectiveness of foremen and their perceptions of the informal organization are associated in this sample.

Goodman and Kruskal's 'Tau is another measure of association between two variables as explained in Chapter III. This measure can be used to show the association between a leader's effectiveness and a leader's disparity index.

To illustrate, we are given a sample of twenty-seven foremen and told to arrange them in the same order as shown in Table 14, that is, in such a way as to allocate eight foremen to Number 1 effectiveness, twelve to Number 2 effectiveness and seven to Number 3 effectiveness. Suppose that the foremen are given to us at random and we have no other information regarding them. We would expect to make 17.5 errors in ranking these foremen according to effectiveness. However, if we had known the disparity index of each foreman before placing him in an effectiveness category, we would expect to make 14.15 errors. We would thus reduce our errors by 20%.

Thus, knowledge of a foreman's disparity index allows us to judge his level of effectiveness with 20% more accuracy than if we were not aware of his disparity index, and this test shows an association between the variables.

These computations are presented in Appendix B, Table B-8.

Conclusions Based on Hypothesis I, II, III

The findings in the above sample supported the contention that leadership effectiveness and the leader's accuracy

of perception of the informal organization were associated. Thus a leader's awareness of the interrelations occurring within his group was related to his effectiveness as a formal leader.

This finding supported Hawron and McGrath's conclusion that a leader's cognizance of his group's interrelationships was related to his effectiveness.¹ Chowdhry and Newcomb also concluded that leaders were more highly aware of the groups' attitudes than were non-leaders.² Likert has also shown the importance of utilizing a knowledge of the group to become a more effective leader.³ Thus, the above research findings and the findings in the present study demonstrated how important a leader's accuracy of perception concerning the total group environment is to his formal effectiveness.

Utilization of the Findings.--This study offers management a set of instruments that can be used to measure a group's interactions and the strength of these interactions. The leader's accuracy of perception regarding these interactions can also be measured.

This allows an organization to determine the "type" of informal organizations present in its work groups. This

¹Hawron and McGrath, op. cit., pp. 168-169.

²Chowdhry and Newcomb, op. cit., pp. 367, 373, 378.

³Likert, op. cit., p. 300.

applies not only to the type of formal work groups in this study but also to any organization that sets definite formal parameters on its work groups. This would not, for example, be applicable in the case of an assembly-line type of operation since there are no definite formal work groups. The group leader's perceptions could be ascertained to measure his perceptual accuracy concerning the group's interactions.

The above findings would aid a company in the determination of training objectives. Since low disparity indexes have already been shown to be associated with highly effective leaders, the training programs could be designed to improve a leader's perceptual accuracy of the total group environment and thereby decrease his disparity index.

If the results of questionnaires demonstrated that in a particular organization highly cohesive work groups were more effective than weakly cohesive work groups, individual foremen could be instructed to build more cohesive work groups. The direction of this instruction would be given by the group's questionnaires which would yield a fuller understanding of the total group environment.

The results of the present research will aid in setting training objectives as shown above, and the instruments shown can also be used to check on the effectiveness of such

training. Thus, if disparity indexes were shown as unaltered following training, a change in training methods would certainly be needed.

The disparity indexes could also be used as one factor to determine whether a foreman should be promoted to a higher position. A low disparity index would be a plus factor for promotion, whereas a high disparity index would require a careful screening of all factors and would make immediate promotion questionable.

Hypotheses IV, V: Degree of Control

These hypotheses were concerned with the association between a leader's perceived degree of control over the informal organization and his effectiveness.

The Hypotheses to be Tested

H₁: The foremen who perceive themselves as being able to control the informal organization within their work groups are more effective than the foremen who perceive themselves as having little or no control over the informal organization in their work group.

Operationally stated:

H₁: The most effective foremen perceive themselves as having a high degree of control over the informal organization.

The Null Hypothesis:

H_0 : There is no relationship between the degree of perceived control over the informal organization and a foreman's effectiveness.

Measurement of the Control Variable

The perceptions of the foremen regarding their control over the informal organization were measured by questionnaire items in Table 15.

The analysis of these items consisted of adding the answers (values are shown next to each alternative) and dividing by $N = 4$. Thus:

$$Z = \frac{\Sigma \text{Items } 9, 10, 15, 17}{N = 4},$$

where Z is equal to the foreman's composite index of perceived degree of control. The following scale is used to interpret Z :

Z	Interpretation	Scale
1.0-2.0	Strong control	1
2.1-2.5	Moderate control	2
2.6 --	No control	3

The results of this segment of the study are represented by Table 16.

TABLE 15.--Quantification of the Questionnaire Items
Composing the Foreman's Composite Indexes of
Perceived Degree of Control.

-
9. My work group is best controlled through the use of:
(Check one)
- 1 "Social groups" and their leaders
 - 2 "Social groups" and the formal rules
 - 3 Formal rules remembering the "social groups"
 - 5 Formal rules since there are no "social groups"
 - 4 Formal rules since the "social groups" are hard
to control
10. In decisions concerning the assignment of work in my
work group: (Check one)
- 1 I always consider the "social groups"
 - 2 I frequently consider the "social groups"
 - 3 I rarely consider the "social groups"
 - 4 I never consider the "social groups"
15. The "social group(s)" in my work group: (Check one)
- 1 Can always be made to help group performance
 - 2 Can usually be made to help group performance
 - 3 Can frequently be made to help group performance
 - 4 Can rarely be made to help group performance
 - 5 Can never be made to help group performance
 - 6 Cannot help group performance since they do not
exist
17. I consider myself to be influential in: (Check one)
- 1 All actions of the "social groups" in my work
group
 - 2 Most actions of the "social groups" in my work
group
 - 3 Some actions of the "social groups" in my work
group
 - 4 Few actions of the "social groups" in my work
group
 - 5 None of the actions of the "social groups" in
my work group
-

The following table shows the number of foremen in each category.

TABLE 16.--Foremen's Effectiveness as Related to Their Perceived Degree of Control.

		Degree of Control		
		1	2	3
Foremen Effectiveness	1	1 (20%)	3 (60%)	1 (20%)
	2	2 (22.2%)	2 (22.2%)	5 (55.6%)
	3	1 (50%)	0 (0%)	1 (50%)

The Sample Used to Test the Hypotheses

The sample used to test statistically these hypotheses consisted of sixteen foremen. Eight of the twenty-seven foremen in the previous sample had no perception of an informal organization within their work group, and therefore did not perceive themselves as exerting any informal control. Three of these foremen did complete at least one of the control items in the questionnaire as if they perceived an informal organization. However, their composite indexes of perceived degree of control still indicated a lack of perceived control, that is, $Z = 3$ over the informal organization.

The incorrect completions of these items were assumed to be the result of either not reading the entire list of alternatives or lapses of attention at that point of completing the questionnaire. Three foremen who did perceive an informal organization did not complete the items concerning perceived degree of control and could not be utilized in testing these hypotheses. The results were consistent. If a foreman did not perceive an informal organization, his responses to the control items, in all cases, showed a composite index of perceived control in the three category, that is, little or no perceived control. This was felt to be a positive check on the composite indexes.

Statistical Analysis

$$r_s = 0.119$$

$$t = 0.452$$

$$df = 14$$

The Spearman Rank Correlation Coefficient: r_s was used to determine whether there was a significant association between a foreman's perceived degree of control over the informal organization in his work group and his effectiveness as a formal leader. The results are represented above.

An r_s of 0.119 yields a t of 0.452. This value of t is not shown in the standard t tables which only show t values significant for one-tailed tests at the 0.1 level. Therefore, a z value was computed relative to $r_s = 0.119$,

where $z = \frac{r_s - 0}{1/\sqrt{N-1}}$. For $r_s = 0.119$, $z = 0.460$. Therefore

using a normal table, $r_s = 0.119$ has a 32% probability of occurrence when the null hypothesis is true, that is, when there is no association between the variables. This did not show a strong relationship between perceived degree of control and foreman effectiveness.

The Goodman and Kruskal's Tau was applied to this data, and it indicated that knowledge of a foreman's composite index of perceived degree of control over the informal organization within his work group would decrease errors in placing foremen in effectiveness categories by 11% over randomly placing them in effectiveness categories. This would not be a strong indication of association between perceived degree of control and effectiveness as a formal leader.

Neither of these tests demonstrated results that were at a level of significance at which the null hypothesis could be rejected and the proposition that there is an association between these two variables accepted.

Conclusions Based on Hypotheses IV, V

This hypothesis was based on the assumption that in order for a formal leader to be highly effective, he must exercise a high degree of control over both the formal and the informal actions of his work group. The empirical evidence did not support this assumption.

However, the sample for this test was small: $N = 16$, and there were only two foremen in the number three effectiveness category included in the sample. This was due to the fact that 4 of the 7 foremen in the number three effectiveness category in the previous sample of twenty-seven had no perception of an informal organization operative within their work groups, and one failed to complete the control items. No perception of an informal organization does not necessitate a disparity index of zero. The disparity index describes similarity between perceptions, not the perceptions themselves. With such a small number of foremen in the number three effectiveness category included in this sample, the results were obviously affected. This contingency was unavoidable since the composite index of control depended on perceptions that were simply not evidenced by this group.

The results of this test did show that 80% of the foremen in the number one effectiveness category did perceive themselves as having some control over the informal organization, while only 44% of the number two ranked foremen perceived themselves as having some control. The majority of the number three ranked foremen simply did not perceive an informal organization. Thus, while the highly effective leader may not have felt a need to exercise a high degree of control over the informal segment of his work

group, he was not willing to relinquish all control over this part of the group.

It was felt that in this study the formal leader's control role may be constrained by the informal organization but not defined by it. This simply means that while he must be aware of the total group environment, his effectiveness was not dependent on total control over this environment. The formal variables that the foreman does control, such as work assignments, performance ratings, and overtime assignments, should be utilized with cognizance of the total group environment to keep relationships as harmonious as possible. Before a leader can operate effectively, it was contended and supported by the data in this study that he must be aware of the total group environment. His behavior, without this awareness, is on a hit or miss basis and cannot be as effective as that behavior coupled with awareness.

The high percentage of excellent leaders who perceived themselves as having some control over this area supports the contention that future research is warranted on the concept of informal control. More precise measures of perceived control are needed. The future research aspect is discussed fully in Chapter V.

Hypothesis VI: Membership in the Informal

This hypothesis was concerned with determining the association or lack of association between a leader's effectiveness and his membership in the informal organization.

The Hypothesis to be Tested

H_1 : The foreman who perceives himself as a member of the informal organization is less effective than the foreman who does not perceive himself a member of the informal organization.

Operationally stated:

H_1 : The most effective foremen will not be members of the informal organization.

The Null Hypothesis:

H_0 : There is no relationship between a foreman's effectiveness and his perceived membership in the informal organization.

Measurement of the Informal Organization Membership Variable

The perceptions of the foremen regarding their membership in the informal organization were measured by the questionnaire items in Table 17.

The analysis of these items consisted of regarding an answer (values are shown next to each alternative) of either one or two as signifying membership in the informal organization. A three or four answer signified that the foreman was not a member of the informal organization.

Item 12 allowed the foreman to signify himself as an informal leader and thus a member of the informal organization. Item 13 allowed the foreman to specify the segment(s) of the informal organization to which he belonged.

TABLE 17.--Items Measuring Foremen's Perceived Membership
in the Informal Organization.

-
11. Are you a member of a "social group" that consists of members of your work group? (Check one)

1 Yes, a strong member
2 Usually I am a member
3 Most times I am not a member
4 No, never a member

12. List the people that you feel are the leaders of the various "social group(s)" that exist within your work group (include yourself as a possible leader of a "social group"). If no "social groups" exist within your work group, please answer none.

 Leader Group A _____
 Leader Group B _____
 Leader Group C _____
 Leader Group D _____
 Leader Group E _____

13. If you are a member of a "social group," to which of the above groups do you belong, that is, Group A, Group B, etc.?
- _____
-

The Sample Used to Test the Hypothesis

The sample used to test statistically this hypothesis consisted of nineteen foremen. Eight of the sample of twenty-seven did not perceive an informal organization and therefore did not perceive themselves as members.

Thus, the results were consistent; that is, all foremen who did not perceive an informal organization did not complete the membership items as if they were informal

members. This was felt to be a positive check on the composite indexes.

The results of this segment of the study are shown in Table 18.

TABLE 18.--Foremen's Effectiveness as Related to Their Perceived Membership in the Informal Organization.

Foremen Effectiveness		Membership in the Informal Organization	
		Yes	No
	1	4 (80%)	1 (20%)
	2	5 (45.5%)	6 (54.5%)
	3	2 (67%)	1 (33%)

This table shows the number of foremen in each category and the percentage of foremen in each effectiveness category according to their membership in the informal organization.

Statistical Analysis

$$r_s = -0.149$$

$$t = 0.621$$

$$df = 17$$

The Spearman Rank Correlation Coefficient: r_s was used to determine whether there was a significant relationship between a foreman's membership or non-membership in the informal organization and his effectiveness as a formal leader. The results are represented above.

An r_s of -0.149 yields a t of 0.621 . This value of t is not significant at the 0.1 level. A z value of 0.632 was calculated and found to be significant at the 0.26 level. Thus in 26% of all cases an $r_s = -0.149$ may occur when the null hypothesis is in fact true, that is, when there is no association between a foreman's effectiveness and his perceived membership in the informal organization.

The Goodman and Kruskal's Tau was calculated and indicated that knowledge of a foreman's perceived membership in the informal organization improved predicting his effectiveness by 6% over a random prediction.

Neither of these tests demonstrated results that were at a level of significance at which the null hypothesis could be rejected and the proposition that there is an association between the variables accepted.

Conclusions Based on Hypothesis VI

The above results indicated a weak association between leadership effectiveness and membership in the informal organization. The negative value of the correlation coefficient (r_s) did indicate an inverse relationship. Contrary

to the original hypothesis, the more effective leaders were members of the informal organization.

Referring to Table 18, it is obvious that there is little differentiation between the two and three levels of effectiveness based on membership in the informal organization. However, 80% of the number one ranked foremen perceived themselves as members of the informal organization. It is apparent that the most effective leaders are members of the informal organization, but this phenomenon is not shown at the two and three effectiveness levels. Thus, perceived informal membership, as some perceived control, may be a necessary but not a sufficient cause to be a highly effective leader. An individual may perceive himself as a member of the informal organization and be ranked at the two or three level of effectiveness, but, in this sample, it was unlikely that any leader would be ranked in the number one effectiveness category if he did not perceive himself as a member of the informal organization.

The original hypothesis was based on the supposition that there was only one type of group membership. This type of membership would have required an individual to abide by group norms in all cases. When these norms were at cross-purposes with the formal organization's objectives, the leader would follow informal norms and be considered ineffective in his formal role. However, there are many ways of being a group member. A leader may perceive himself as a

member of the group but not as being totally controlled by the informal organization. This was not considered in this research, and therefore degree of membership was not measured.

The formal leader who is a group member but not controlled by the group may be highly effective since he may have access to "in-group" information and his directives are more readily acceptable to the group than a non-member leader's directives. The ability to gain membership in the group may also denote an ability to gain acceptance for one's ideas. These conclusions are tentative and must be tested through future research. The type of future research needed is discussed in the following chapter.

Hypotheses VII and VIII: Informal Leaders

The hypothesis that the formal leader who is also the informal leader is more effective than the formal leader who is merely a member of the informal organization could not be tested due to a lack of empirical evidence. There was only one case where the formal leader perceived himself as the informal leader, and this perception was not supported by his distribution superintendent or by his work group, which had a majority of its members responding.

The hypothesis that the formal leader who has a high degree of compatibility with the informal leader is more effective than the formal leader who has a low degree of

compatibility with the informal leader was not testable since the compatibility factor was high in all but one case. There was also a significant amount of disagreement as to the identity of the informal leader by the work group, the distribution superintendents and the foremen.

The data that were collected for this phase of the study demonstrated that the informal leader's role was not as clearly defined as the hypotheses assumed. The work group members, distribution superintendents and the foremen all had different opinions as to the identity of the informal leader(s) in the work groups. There was only one case where each of these sources identified the same individual as the informal leader. This individual was a task specialist and as such, was in a leadership position. However, his position was more formally or task defined than socially defined. Interviews with the distribution superintendents revealed that the group's members neither liked nor respected this individual, but they did regard him as an informal leader.

The above example points out that the questionnaire items regarding the identity of the informal leader were perceived by individuals in the context of their definition of the informal leader's role. In future research a more precise definition of the informal leader is needed. This will be discussed in the following chapter.

Summary

This chapter has presented the majority of the empirical data that were collected to test the general model of the study.

The lack of group responses were noted, and the modification caused by this lack of response was shown.

The hypotheses were statistically analyzed. The results showed an association between leadership effectiveness and a leader's accuracy of perception regarding the informal organization. Although no associations were found between leadership effectiveness and either membership in the informal organization or a high degree of perceived control over the informal organization, the majority of highly effective leaders did perceive themselves as members and as having some control over the informal organization. Thus, some perceived control over the informal organization and membership in the informal organization were necessary but not sufficient causes to insure a leader as being highly effective.

The hypotheses concerning the informal leaders were not testable due to the type of data that were collected. A more specific definition of the informal leader's role is needed.

The conclusions of this study are tentative and must be regarded as such until further research is conducted in

this area. The types of future research studies that are needed are presented in the following chapter.

CHAPTER V

IMPLICATIONS FOR FUTURE RESEARCH

Introduction

This chapter has a threefold purpose. First, it presents the validation of the distribution superintendents' perceptions as representing the "actual" informal organizations. The validation is supported by a similar research study by Browne and Shore.

Second, some of the problems that were encountered while collecting the data for this study are discussed. The discussion of these problems is primarily concerned with the manner in which they may have affected the results of this research.

The third part of the chapter discusses the implications for future research that were shown by this study, and the general direction that such research should take.

Validation of the Distribution Superintendents' Rankings of Cohesiveness

The use of the distribution superintendents' rankings of cohesiveness as representing the "actual" or the groups' perceptions of the informal organizations was validated by

determining the correlations between groups' perceptions and distribution superintendents' perceptions, and through the utilization of a similar study by Browne and Shore.

Correlations Between Groups' and
Distribution Superintendents'
Perceptions

The first comparison between perceptions involved the distribution superintendents' rankings of cohesiveness and the work groups' composite indexes of cohesiveness. The work groups used in these comparisons were those twelve with 50% or more of their members responding to the questionnaire.

The group's composite index of cohesiveness, designated U, was measured by the questionnaire items in Table 19. The index is obtained by adding the average value of the alternatives chosen for each question (the values are shown next to each alternative) and dividing by N = 6. Thus:

$$U = \frac{\Sigma \text{Items } 4, 5, 6I, 6II, 6III, 12}{N = 6}$$

The results of this process were scaled as follows:

<u>U</u>	Interpretation	Scaled for Comparison With Distribution Superintendents' Responses
1.00-1.75	highly cohesive	1
1.76-2.00	moderately cohesive	2
2.01 --	little to no cohesion	3

TABLE 19.--Quantification of the Questionnaire Items Composing the Groups' Composite Indexes of Cohesiveness.

4. Do you feel that you are really a part of your work group? (Check one)

- 1 Really a part of the work group
2 Included in most ways
3 Included in some but not in all ways
4 Don't feel that I really belong

5. If you had a chance to do the same type of work for the same pay in another work group, how would you feel about moving? (Check one)

- 5 Would want very much to move
4 Would rather move than stay where I am
3 Would not make any difference
2 Would rather stay where I am than move
1 Would want very much to stay where I am

6. How does your work group compare with other work groups in each of the following areas? (Check one for each area)

	better than most	About the same as most	Not as good as most
I. The way the men get along together	1	2	3
II. The way the men stick together	1	2	3
III. The way the men help each other on the job	1	2	3

12. The thing that I like best about my work group is:

- 1 The feeling of a team spirit
2 That the group works well together except for a few members
3 That I don't have to depend on the others to do my job
4 That I am able to work alone

The above scaling process resulted in a composite index of cohesiveness for each of the twelve work groups. These indexes were compared to the distribution superintendents' rankings of the groups' cohesiveness. The results indicated that there was a +0.94 (r_s) correlation between the distribution superintendents' rankings of cohesiveness and the groups' composite indexes of cohesiveness. This correlation coefficient is significant at the 0.01 level. Thus, the two measures of cohesiveness were closely associated in this sample. Computations are shown in Appendix B TABLE B-4.

The distribution superintendents were also asked whether they felt that their foremen were members of the informal organizations within the work groups that they supervised. The work group members were asked to complete items 2 and 3 as shown in Table 20 concerning their perceptions of the foremen's memberships in the informal organizations. These items were quantified by adding the average value of the alternatives chosen for each question (the values are shown next to each alternative) and dividing by $N = 2$. Thus:

$$X = \frac{\sum \text{Items 2 and 3}}{N = 2},$$

where X is equal to the group's perception of whether or not the foreman is a member of the informal organization. The results of this process were scaled as follows:

<u>X</u>	Interpretation	Scaled for Comparison With Distribution Superintendents' Responses
1 -3.0	Foreman is perceived as a member of the informal organization.	1.0 - Yes
3.1-5.0	Foremen is not perceived as a member of the informal organization.	2.0 - No

TABLE 20.--Quantification of the Questionnaire Items Measuring the Groups' Perceptions of Their Foreman's Membership in the Informal Organization.

-
2. Do you consider your supervisor part of your group, that is, does he go to coffee with members of the group, does he have lunch with them, does he associate with them off the job, etc.? (Check one)
- 1 Very often he is part of the group
2 Frequently he is part of the group
3 Once in a while he is part of the group
4 Rarely is he part of the group
5 Never is he part of the group
3. How close is your supervisor to the men in the work group? (Check one)
- 1 Much closer to the men than to management
2 Somewhat closer to the men than to management
3 About in the middle between the men and management
4 Somewhat closer to management than to the men
5 Much closer to management than to the men
-

The results of the above scaling process were compared with the perceptions of the distribution superintendents regarding the membership of their foremen in informal organization. This comparison yielded a +0.73 (r_s) correlation

between the two perceptions, and this correlation coefficient is significant at the 0.01 level. Thus, these two measures of the foremen's membership in the informal organizations were closely associated in this sample. The computations are shown in Appendix B TABLE B-6.

Similarity of the Above Correlations
to Other Research

The following study was found to support the use of the distribution superintendents' perceptions as representative of the "actual" situations. It demonstrates the high degree of accuracy shown by higher level managers in predicting group attitudes.

Browne and Shore, in a study conducted in a Detroit, Michigan manufacturing plant, studied department managers', foremen's and workers' abilities for "predictive abstracting."¹ "Predictive abstracting" was defined by the researchers as the ability to predict correctly the attitude of other individuals, and they felt that such ability was largely dependent on the extent to which an individual is able to select pertinent data from the environment and utilize such data as predictors.² The general hypothesis of the study was

¹C. G. Browne and Richard P. Shore, "Leadership and Predictive Abstracting," The Study of Leadership, C. G. Browne and Thomas S. Cohn, editors (Danville, Illinois: The Interstate Printers and Publishers, Inc., 1958), p. 279.

²Ibid., p. 276.

that the higher a person is in an organization (authority level), the greater his ability for "predictive abstracting" concerning his subordinates.

The results of the study indicated that the department managers were in a more focal position (i.e., higher echelon or authority position) and were able to predict the attitudes of workers more accurately than were the foremen. This led Browne and Shore to the conclusions that face-to-face relations were not necessary to being capable of predicting the attitudes of others correctly and that the department managers in the study were higher in their ability for predictive abstracting concerning the workers under them than the foremen.³

Although they did not offer any explanations for the accuracy of the perceptions of the department managers, it may be hypothesized that as individuals move up in an organization, they are able to perceive lower level situations more completely. Browne and Shore pointed out that the individuals in higher level positions may not be superior to individuals in lower level positions in "predictive abstracting," but they may be better informed as to all variables present.⁴ Thus foremen simply are not aware of as many variables affecting worker behavior

³Ibid., p. 279.

⁴Ibid.

as are the department managers and therefore cannot predict workers' attitudes as well as the department managers. It may also be hypothesized that being removed from a face-to-face situation may allow an individual more objectivity in appraising a situation. Thus higher level individuals base their situational assessments on factual data, whereas the foremen with face-to-face contact may have their judgments "colored" by personal considerations. Thus, being too "close" to a situation may lessen an individual's ability for objective assessment.

These hypotheses are presented as directives for future research. Awareness of the total group environment has already been shown to be related to leadership effectiveness, and the empirical testing of the above hypotheses would give insights into the reasons for leader's perceptual accuracy.

The distribution superintendents in the present study were responsible for assigning individuals to work groups, and this responsibility led them to state that they had to be aware of each individual's capabilities if they were to properly assign men to work groups that would perform effectively. Throughout the interviews they also showed a "feel" for the attitudes of different work groups with statements such as, "that's a close-knit bunch . . . used to be a separate division . . . not too happy in this division." Their

position gave them the perspective to perceive these variables, and this could conceivably improve their perceptions of the total group environments.

The high correlations noted between the perceptions of the work groups with over 50% of their members responding, the perceptions of the distribution superintendents, and the results of the Browne and Shore study validated the utilization of the distribution superintendents' observations as representative of the actual situation. The actual situation had been previously defined by the groups' composite indexes of cohesiveness. This study used the distribution superintendent's rankings of cohesiveness as representing the strength of the actual informal organization. Thus, the foremen's composite indexes of cohesiveness were compared to the distribution superintendents' rankings of cohesiveness instead of the work groups' indexes of cohesiveness in the statistical tests of the major hypothesis of this study.

Problems In Data Collection

Work Group Response

Only twelve of the thirty-six work groups in the original sample had at least 50% of their members responding to the questionnaire. Although, as previously shown, the work group responses were not used to directly test any of the hypotheses of this study, their responses and lack of

responses were part of the empirical evidence gathered for this study, and the implications and probable causes of both the responses and lack of responses should be investigated. No definitive answers can be given as to why the majority of the groups responded poorly to the questionnaires, but the factors in the situation can be analyzed to determine their probable effects on the groups' responses.

An important factor in the situation was the fact that contract negotiations between union and management were being conducted at the time of the study. The contract itself did not expire until two weeks after this study was completed. The interviews with the distribution superintendents following the distribution of the questionnaires indicated that the workers were concerned with the confidential nature of the questionnaires particularly during a time of union-management bargaining. As an example, the local union president in Division B stated to the distribution superintendent that he would be able to obtain specific results of this study from Michigan State University for a nominal fee. If only this were true. Although quite obviously he was misinformed, the lack of response suggests that he was able to influence many workers with his viewpoint.

This local union president was anti-company, and he made his position quite clear to the distribution superintendent by overtly sabotaging the study which he felt was company sponsored. The term anti-company was the term used to describe

this individual by the distribution superintendents and higher management. They felt that his antagonistic attitude was exemplified when he grew a beard in direct violation of company regulations. He also referred to the chief company negotiator as a "smelly beast." These examples indicate that union-management relations were far from harmonious, and this was felt to definitely affect the returns from the workers. The breakdown of negotiations finally led to an eighty-three day strike with some company property destroyed during the strike. Thus, this did not suggest an atmosphere free of suspicion and conducive to a cooperative effort in responding to questionnaires distributed with the permission of the management.

It was also noted that individuals simply do not like to fill out questionnaires particularly when they have been bombarded with too many questionnaires. The latter was not the case here as little research of this nature had been done prior to this study. It was hoped that the general reluctance to respond to any questionnaire would be overcome by offering the workers a chance to improve worker-management relations and by the brevity of the questionnaire. These points were not effective in overcoming either the general reluctance to fill out a questionnaire and/or the hostility directed at the company by not responding.

The sparse responses were not limited to Division B but also occurred equally in Division A which was described

as having "good" union-management relations. Division A, in the final analysis, failed to ratify the final contract that had been negotiated following the strike. This is significant, for it indicated that the company's management may have been utilizing an improper measure of union-management relations. The situation in Division A may have appeared harmonious on the surface, but the lack of response to a company sanctioned questionnaire and the failure to win contract ratification showed less rapport between union and management than was described to the researcher. Apparently there were problems which were producing only mild conflict at that time. However, these problems may generate into more disruptive factors if not effectively remedied, and they could lead to a hostile environment similar to Division B.

The closeness of the strike vote and the lack of response to this study indicated the need for renewed awareness on the part of management regarding worker attitudes. This awareness is needed now, for this is the only means to prevent disruptive future problems.

Foremen's Effectiveness Measures

The effectiveness of the foremen in this study was based on how they were evaluated by the formal organization. The formal evaluation process consisted of two methods. An evaluation form was utilized by the company, but it proved more a wage guide than an actual evaluator of performance

and indicator of potential for promotion. The evaluation form rated each individual on a five-point scale with level I being "unsatisfactory" and level V being "far above satisfactory." Level III was considered "satisfactory." Each level also designated minimum and maximum wages that an individual at that level could receive.

Due to budget constraints that faced each division, they were allowed only so many people at the IV and V levels. Most of the foremen were rated at the III level, not because of performance but rather because of the wage constraints. The IV and V ratings were reserved for positions above the foreman level. None of the foremen in this sample were rated below the III level, and only two were rated at the IV level.

Thus it was felt that this numerical evaluation was not representative of a foreman's effectiveness. One distribution superintendent expressed his feelings concerning the evaluation form by stating that he did not consider the rating important in evaluating his people, and he frankly admitted rating everyone at one III level to avoid "hard feelings" should one foreman be rated above another. He felt that if he could not rate all foreman who deserved it at the IV level then he would not rate anyone at that level, and he pointed out that the budget constraint kept him from rating all the foreman at the IV level that he felt should be so rated. This instrument did not discriminate significantly

between the foremen and therefore was not used to measure effectiveness in this study.

The measure that was used was an ordinal ranking of: excellent, satisfactory or unsatisfactory. This measure was obtained by asking the distribution superintendents to rank their foremen on a cardinal basis, that is, first, second, etc., based on the question "Who is your best foreman . . . next best, etc.?" Although it was intended that such a cardinal ranking would yield a cardinal scale of foremen effectiveness, it did not. The distribution superintendents had difficulty separating their foremen into tight, cardinal categories. They finally grouped their foremen into one of the above ordinal categories.

The difference between the first and second categories was more distinct than the difference between the second and third categories. The distribution superintendents were more comfortable distinguishing between the first and second categories than they were distinguishing between the second and third categories. There was a reluctance, noted during the interviews, to assign an individual to the third category. However, the proportion finally assigned this ranking was large enough to demonstrate that even with this reluctance, the scale did segment the foremen in terms of their effectiveness. These results are shown in Appendix B, TABLE B-1.

Future Research

Disparity Indexes

As previously stated, the conclusions in this study must be regarded as specific to the environment in which the study was conducted. However, since there was an association demonstrated between a low disparity index and a high degree of effectiveness, the next step in this area would be to set up a controlled experiment to determine whether a causal relationship exists between these two variables. The value of this type of future research is also indicated by previous studies that have attested to the importance of awareness of the total group environment, as shown in the last chapter.

Research that replicates the present study could be conducted by selecting foremen in similar work situations. These foremen would be segmented by their disparity indexes. Using those foremen with low disparity indexes, training programs could be established to improve the disparity indexes of one segment of these foremen. Changes in effectiveness could then be compared in the experimental and control groups to determine the effect of decreasing disparity indexes on formal effectiveness.

This type of study requires treating both sets of foremen similarly in all respects except the lowering of one set's disparity indexes. The study is longitudinal in

nature, but this is the direction that behavioral science must move if valid causal relationships are to be revealed.

Control of the Informal Organization

This study also demonstrates the need for future research in the area of the formal leaders' controls over the informal organization. This study showed that some control over the informal organization was retained by the "excellent" leaders. This suggests that a more precise instrument is needed to measure control so that more degrees of control may be specified. Then more precise information could be obtained regarding the amount of control separating excellent leaders from less effective leaders. A high degree of control may not be as important as an individual not allowing the informal organization to control him. This problem, that is, whether little perceived control over the informal organization led to a leader's behavior being strongly affected by the informal organization and thus making him a less effective leader, could be investigated.

Membership in the Informal Organization

In the majority of cases, the "excellent" leaders perceived themselves as members of the informal organization. Although they were members, they acted effectively toward company goals as evidenced by their excellent rankings as

formal leaders. The original hypothesis was based on the idea that any group member would automatically be subject to strict obedience to the group's norms. If these norms were not in accord with formal goals, he would be a less effective leader. However, there are degrees of group membership that were not investigated in this study. Apparently excellent formal leaders regard themselves as group members, but their degree of membership was determined by the correspondence between group norms and formal goals. Group norms were apparently followed when they did not seriously violate formal goals. More research is needed into the degree to which an excellent formal leader considers himself a group member as contrasted to the degrees of membership of less effective leaders.

Informal Leaders

The hypotheses concerning informal leaders have been previously mentioned as untestable due to results of the data that were collected in this area. The informal leader's identity was simply not clearly revealed in the data.

Zaleznik, in his study of a machine shop, apparently had little difficulty in identifying the informal leader. He felt that the informal leader performed a "big brother" role for the members of the informal organization.⁵ In the present study, foremen were asked to identify informal

⁵Zaleznik, op. cit., pp. 65, 99-101.

leaders as were the work groups and the distribution superintendents. The results were inconclusive. Very few individuals were identified by two of the above sources as the informal leader, and only one individual was identified by all three sources. The latter was a task specialists, and his role as the informal leader seemed dependent on this specialization.

Zaleznik's informal leader was task-role oriented, but the results of the present study show that informal leaders may have more than a task role and may be dependent on situations. Future research should be undertaken to identify informal leaders in the context of the leadership role that they perform. This will entail a more precise definition of the informal leader.

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APPENDICES

APPENDIX A

QUESTIONNAIRES AND LETTERS

TABLE A-1.--Cover Letter for All Questionnaires.

Your co-operation is requested in filling out the following questionnaire.

The questionnaire is part of a study concerning small groups and their leaders that is being conducted at the Michigan State Graduate School of Business. The goal of this study is to improve the relationship between workers and supervisors. Your co-operation is needed if this goal is to be achieved.

Since a 100% response is needed to complete this study, your foreman will check to see that you have completed and mailed your questionnaire. HE IS NOT TO COLLECT YOUR QUESTIONNAIRE. IT IS TO BE RETURNED DIRECTLY TO ME AS STATED IN THE INSTRUCTIONS.

Thank you,

A. Thomas Hallgren

Michigan State University

TABLE A-2.--Foreman Questionnaire.

The following questionnaire is part of a major study concerning small groups that is being conducted at the Michigan State Graduate School of Business Administration.

YOUR RESPONSES TO THIS QUESTIONNAIRE ARE STRICTLY CONFIDENTIAL. THE COMPLETED QUESTIONNAIRE SHOULD BE RETURNED DIRECTLY TO THIS INTERVIEWER IN THE STAMPED, ADDRESSED ENVELOPE SUPPLIED WITH THE QUESTIONNAIRE.

Your responses and your co-operation are vital to the success of this project.

Thank you,

A. Thomas Hollingsworth

PLEASE COMPLETE THE FOLLOWING:

NAME _____

HOW LONG HAVE YOU BEEN WITH CONSUMERS POWER?

_____ YEARS _____ MONTHS

YOUR AGE _____

NAME OF YOUR SUPERVISOR _____

NAME OF YOUR DEPARTMENT _____

YOUR JOB TITLE _____

HOW LONG HAVE YOU BEEN SUPERVISING YOUR PRESENT WORK GROUP?

_____ YEARS _____ MONTHS

HOW MANY MEMBERS ARE THERE IN THE WORK GROUP THAT YOU

SUPERVISE? _____

EDUCATION (CHECK ONE):

_____ EIGHTH GRADE OR LESS

_____ LEFT SCHOOL WHILE IN HIGH SCHOOL

_____ FINISHED HIGH SCHOOL

_____ HAVE SOME COLLEGE

_____ FINISHED COLLEGE

TABLE A-2.--Continued.

-
1. AS A MEMBER OF A GROUP, WHICH OF THE FOLLOWING ALTERNATIVES WOULD YOU PREFER? (CHECK ONE)
- ☐ TOP LEADERSHIP POSITION
☐ A LEADERSHIP POSITION
☐ IMPORTANT MEMBERSHIP RESPONSIBILITIES
☐ SIMPLY A MEMBER OF THE GROUP
☐ IT DOESN'T REALLY MAKE ANY DIFFERENCE
2. IN MY PRESENT POSITION, I FEEL THAT I HAVE: (CHECK ONE)
- ☐ TOO MUCH RESPONSIBILITY
☐ ABOUT THE RIGHT AMOUNT OF RESPONSIBILITY
☐ TOO LITTLE RESPONSIBILITY
3. IN THE FUTURE, I WOULD LIKE TO HOLD POSITIONS THAT: (CHECK ONE)
- ☐ HAVE MORE RESPONSIBILITY THAN MY PRESENT POSITION
☐ HAVE ABOUT THE SAME RESPONSIBILITY AS MY PRESENT POSITION
☐ HAVE LESS RESPONSIBILITY THAN MY PRESENT POSITION
4. I AM INTERESTED IN: (CHECK ONE)
- ☐ MOVING TO A HIGHER MANAGEMENT POSITION
☐ REMAINING IN MY PRESENT POSITION
☐ MOVING BACK INTO THE WORK GROUP
5. HOW IMPORTANT IS IT FOR YOU TO FEEL THAT YOU CAN RUN THE JOB WITHOUT DEPENDING ON OTHER PEOPLE? (CHECK ONE)
- ☐ NOT AT ALL
☐ SLIGHTLY
☐ SOMEWHAT
☐ VERY
☐ EXTREMELY
6. I LIKE SUPERVISORY WORK: (CHECK ONE)
- ☐ VERY MUCH
☐ PRETTY MUCH
☐ SOMEWHAT
☐ NOT VERY MUCH
☐ NOT AT ALL

TABLE A-2.--Continued.

IN THE FOLLOWING QUESTIONS, THE TERM "SOCIAL GROUP" REFERS TO THE INFORMAL GROUPS THAT PEOPLE SOMETIMES FORM, SUCH AS, PEOPLE WHO USUALLY EAT LUNCH TOGETHER, PEOPLE WHO USUALLY HAVE COFFEE TOGETHER, ETC. THE TERM WORK GROUP REFERS TO THE GROUP OF WORKERS THAT YOU PERSONALLY SUPERVISE. A SINGLE WORK GROUP MAY CONTAIN NO "SOCIAL GROUPS" OR IT MAY CONTAIN MANY "SOCIAL GROUPS".

7. I FIND THAT "SOCIAL GROUP(S)" IN MY WORK GROUP ARE:
(CHECK ONE)

_____ RARE
 _____ NOT VERY LONG-LIVED
 _____ ARE NOT UNUSUAL, BUT CHANGE OFTEN
 _____ NOT UNUSUAL AND ARE PART OF THE GROUP
 _____ STRONG DETERMINANTS OF THE GROUP'S ACTIONS

8. MY WORK GROUP IS BEST DESCRIBED AS CONSISTING OF:
(CHECK ONE)

_____ NO STABLE "SOCIAL GROUPS"
 _____ A SINGLE ALL ENCOMPASSING "SOCIAL GROUP"
 _____ A LARGE NUMBER OF "SOCIAL GROUPS"
 _____ A FEW "SOCIAL GROUPS"
 _____ MEMBERS THAT STICK TO THEMSELVES

9. MY WORK GROUP IS BEST CONTROLLED THROUGH THE USE OF:
(CHECK ONE)

_____ "SOCIAL GROUPS" AND THEIR LEADERS
 _____ "SOCIAL GROUPS" AND THE FORMAL RULES
 _____ FORMAL RULES REMEMBERING THE "SOCIAL GROUPS"
 _____ FORMAL RULES SINCE THERE ARE NO "SOCIAL GROUPS"
 _____ FORMAL RULES SINCE THE "SOCIAL GROUPS" ARE HARD
 _____ TO CONTROL

10. IN DECISIONS CONCERNING THE ASSIGNMENT OF WORK IN MY
WORK GROUP: (CHECK ONE)

_____ I ALWAYS CONSIDER THE "SOCIAL GROUPS"
 _____ I FREQUENTLY CONSIDER THE "SOCIAL GROUPS"
 _____ I RARELY CONSIDER THE "SOCIAL GROUPS"
 _____ I NEVER CONSIDER THE "SOCIAL GROUPS"

TABLE A-2.--Continued.

-
11. ARE YOU A MEMBER OF A "SOCIAL GROUP" THAT CONSISTS OF MEMBERS OF YOUR WORK GROUP? (CHECK ONE)

☐ YES, A STRONG MEMBER
☐ USUALLY I AM A MEMBER
☐ MOST TIMES I AM NOT A MEMBER
☐ NO, NEVER A MEMBER

12. LIST THE PEOPLE THAT YOU FEEL ARE THE LEADERS OF THE VARIOUS "SOCIAL GROUP(S)" THAT EXIST WITHIN YOUR WORK GROUP (INCLUDE YOURSELF AS A POSSIBLE LEADER OF A "SOCIAL GROUP"). IF NO "SOCIAL GROUPS" EXIST WITHIN YOUR WORK GROUP, PLEASE ANSWER NONE.

LEADER GROUP A _____

LEADER GROUP B _____

LEADER GROUP C _____

LEADER GROUP D _____

LEADER GROUP E _____

13. IF YOU ARE A MEMBER OF A "SOCIAL GROUP", TO WHICH OF THE ABOVE GROUPS DO YOU BELONG, THAT IS, GROUP A, GROUP B, ETC."

14. HOW WOULD YOU CLASSIFY YOUR RELATIONSHIP WITH THE LEADERS OF THE ABOVE GROUPS? (CHECK ONE FOR EACH GROUP)

GROUP A

☐ WARM AND FRIENDLY
☐ PLEASANT
☐ LIMITED STRICTLY TO THE JOB
☐ UNPLEASANT
☐ ANTAGONISTIC

GROUP B

☐ WARM AND FRIENDLY
☐ PLEASANT
☐ LIMITED STRICTLY TO THE JOB
☐ UNPLEASANT
☐ ANTAGONISTIC

TABLE A-2.--Continued.

GROUP C

☐ WARM AND FRIENDLY
☐ PLEASANT
☐ LIMITED STRICTLY TO THE JOB
☐ UNPLEASANT
☐ ANTAGONISTIC

GROUP D

☐ WARM AND FRIENDLY
☐ PLEASANT
☐ LIMITED STRICTLY TO THE JOB
☐ UNPLEASANT
☐ ANTAGONISTIC

GROUP E

☐ WARM AND FRIENDLY
☐ PLEASANT
☐ LIMITED STRICTLY TO THE JOB
☐ UNPLEASANT
☐ ANTAGONISTIC

15. THE "SOCIAL GROUP(S)" IN MY WORK GROUP (CHECK ONE)

☐ CAN ALWAYS BE MADE TO HELP GROUP PERFORMANCE
☐ CAN USUALLY BE MADE TO HELP GROUP PERFORMANCE
☐ CAN FREQUENTLY BE MADE TO HELP GROUP PERFORMANCE
☐ CAN RARELY BE MADE TO HELP GROUP PERFORMANCE
☐ CAN NEVER BE MADE TO HELP GROUP PERFORMANCE
☐ CANNOT HELP GROUP PERFORMANCE SINCE THEY DO NOT EXIST

16. THE MOST IMPORTANT "SOCIAL GROUP(S)" (THAT IS, GROUP A, GROUP B, ETC. AS DESCRIBED IN QUESTION #12) IN TERMS OF HELPING ME PERFORM MY JOB BETTER IS (ARE): (FILL IN)

17. I CONSIDER MYSELF TO BE INFLUENTIAL IN: (CHECK ONE)

☐ ALL ACTIONS OF THE "SOCIAL GROUPS" IN MY WORK GROUP
☐ MOST ACTIONS OF THE "SOCIAL GROUPS" IN MY WORK GROUP
☐ SOME ACTIONS OF THE "SOCIAL GROUPS" IN MY WORK GROUP

TABLE A-2.--Continued.

<input type="checkbox"/>	FEW ACTIONS OF THE "SOCIAL GROUPS" IN MY WORK GROUP
<input type="checkbox"/>	NONE OF THE ACTIONS OF THE "SOCIAL GROUPS" IN MY WORK GROUP

18. "SOCIAL GROUPS": (CHECK ONE)

<input type="checkbox"/>	ARE IMPORTANT TO THE WORK OF MY GROUP
<input type="checkbox"/>	AFFECT THE WORK OF MY GROUP
<input type="checkbox"/>	RARELY HAVE AN EFFECT ON THE WORK OF MY GROUP
<input type="checkbox"/>	ARE NOT IMPORTANT TO THE WORK OF MY GROUP
<input type="checkbox"/>	DO NOT EXIST WITHIN MY GROUP

TABLE A-3.--Worker Questionnaire.

The following questionnaire is part of a major study concerning small groups that is being conducted at the Michigan State Graduate School of Business Administration.

YOUR RESPONSES TO THIS QUESTIONNAIRE ARE STRICTLY CONFIDENTIAL. THE COMPLETED QUESTIONNAIRE SHOULD BE RETURNED DIRECTLY TO THIS INTERVIEWER IN THE STAMPED, ADDRESSED ENVELOPE SUPPLIED WITH THE QUESTIONNAIRE.

Your responses and your co-operation are vital to the success of this study.

Thank you,

A. Thomas Hollingsworth

PLEASE COMPLETE THE FOLLOWING:

NAME _____

HOW LONG HAVE YOU BEEN WITH CONSUMERS POWER?

_____ YEARS _____ MONTHS

YOUR AGE _____

NAME OF YOUR IMMEDIATE SUPERVISOR _____

NAME OF YOUR DEPARTMENT _____

YOUR JOB TITLE _____

HOW LONG HAVE YOU BEEN IN YOUR PRESENT WORK GROUP?

_____ YEARS _____ MONTHS

HOW MANY MEMBERS ARE THERE IN YOUR WORK GROUP? _____

ARE YOU A MEMBER OF THE UNION? _____ DO YOU HOLD A UNION OFFICE? _____

HOW LONG HAS YOUR PRESENT SUPERVISOR BEEN IN CHARGE OF YOUR WORK GROUP? _____ YEARS _____ MONTHS

EDUCATION: (CHECK ONE)

_____ EIGHTH GRADE OR LESS

_____ LEFT SCHOOL WHILE IN HIGH SCHOOL

_____ FINISHED HIGH SCHOOL

_____ HAVE SOME COLLEGE

_____ FINISHED COLLEGE

TABLE A-3.--Continued.

PLEASE ANSWER THE FOLLOWING QUESTIONS:

1. WHAT IS YOUR RELATIONSHIP TO YOUR SUPERVISOR? (CHECK ONE)

☐ WARM AND FRIENDLY
☐ PLEASANT
☐ LIMITED STRICTLY TO THE JOB
☐ UNPLEASANT
☐ ANTAGONISTIC

2. DO YOU CONSIDER YOUR SUPERVISOR PART OF YOUR GROUP, THAT IS, DOES HE GO TO COFFEE WITH MEMBERS OF THE GROUP, DOES HE HAVE LUNCH WITH THEM, DOES HE ASSOCIATE WITH THEM OFF THE JOB, ETC.? (CHECK ONE)

☐ VERY OFTEN HE IS PART OF THE GROUP
☐ FREQUENTLY HE IS PART OF THE GROUP
☐ ONCE IN A WHILE HE IS PART OF THE GROUP
☐ RARELY IS HE PART OF THE GROUP
☐ NEVER IS PART OF THE GROUP

3. HOW CLOSE IS YOUR SUPERVISOR TO THE MEN IN THE WORK GROUP? (CHECK ONE)

☐ MUCH CLOSER TO THE MEN THAN TO MANAGEMENT
☐ SOMEWHAT CLOSER TO THE MEN THAN TO MANAGEMENT
☐ ABOUT IN THE MIDDLE BETWEEN THE MEN AND MANAGEMENT
☐ SOMEWHAT CLOSER TO MANAGEMENT THAN TO THE MEN
☐ MUCH CLOSER TO MANAGEMENT THAN TO THE MEN

4. DO YOU FEEL THAT YOU ARE REALLY A PART OF YOUR WORK GROUP? (CHECK ONE)

☐ REALLY A PART OF THE WORK GROUP
☐ INCLUDED IN MOST WAYS
☐ INCLUDED IN SOME BUT NOT IN ALL WAYS
☐ DON'T FEEL THAT I REALLY BELONG

5. IF YOU HAD A CHANCE TO DO THE SAME TYPE OF WORK FOR THE SAME PAY IN ANOTHER WORK GROUP, HOW WOULD YOU FEEL ABOUT MOVING? (CHECK ONE)

☐ WOULD WANT VERY MUCH TO MOVE
☐ WOULD RATHER MOVE THAN STAY WHERE I AM
☐ WOULD NOT MAKE ANY DIFFERENCE
☐ WOULD RATHER STAY WHERE I AM THAN MOVE
☐ WOULD WANT VERY MUCH TO STAY WHERE I AM

TABLE A-3.--Continued.

6. HOW DOES YOUR WORK GROUP COMPARE WITH OTHER WORK GROUPS IN EACH OF THE FOLLOWING AREAS? (CHECK ONE FOR EACH AREA)

	BETTER THAN MOST	ABOUT THE SAME AS MOST	NOT AS GOOD AS MOST
THE WAY THE MEN GET ALONG TOGETHER			
THE WAY THE MEN STICK TOGETHER			
THE WAY THE MEN HELP EACH OTHER ON THE JOB			

7. ARE THERE ONE OR TWO MEMBERS OF YOUR WORK GROUP THAT TEND TO SET THE EXAMPLE FOR THE OTHERS? (INCLUDE YOURSELF IN ANSWERING) _____ YES _____ NO. IF YES, WHAT ARE THEIR NAMES?

8. WHAT INFLUENCE DO YOU HAVE IN YOUR WORK GROUP?
(CHECK ONE)

_____ MEMBERS ALWAYS FOLLOW MY EXAMPLE
 _____ MEMBERS FREQUENTLY ASK ME FOR ADVICE
 _____ SOMETIMES I SET THE EXAMPLE AND SOMETIMES I DON'T
 _____ I FREQUENTLY FOLLOW OTHERS IN THE GROUP
 _____ I ALWAYS WAIT FOR SOMEONE ELSE TO MAKE THE FIRST
 _____ MOVE

TABLE A-3.--Continued

9. WHICH MEMBERS OF YOUR WORK GROUP DO YOU WORK WITH MOST OFTEN? (LIST IN ORDER OF FREQUENT CONTACT, THAT IS, THE PERSON THAT YOU WORK WITH MOST OFTEN FIRST, ETC.)

(IF YOU REQUIRE MORE SPACE, PLEASE USE THE BACK OF THIS PAGE)

10. WHICH MEMBERS OF YOUR WORK GROUP DO YOU ASSOCIATE WITH MOST OFTEN OFF THE JOB? (LIST IN ORDER OF FREQUENT CONTACT)

11. MY WORK GROUP IS BEST DESCRIBED AS CONSISTING OF:

_____ MEMBERS THAT WORK AS A TEAM
 _____ MEMBERS THAT MOSTLY WORK AS A TEAM BUT
 _____ SOMETIMES WORK ALONE
 _____ MEMBERS THAT SOMETIMES WORK AS A TEAM
 _____ BUT MOSTLY WORK ALONE
 _____ MEMBERS THAT MOSTLY WORK ALONE

12. THE THING THAT I LIKE BEST ABOUT MY WORK GROUP IS:

_____ THE FEELING OF A TEAM SPIRIT
 _____ THAT THE GROUP WORKS WELL TOGETHER EXCEPT FOR
 _____ A FEW MEMBERS
 _____ THAT I DON'T HAVE TO DEPEND ON THE OTHERS TO
 _____ DO MY JOB
 _____ THAT I AM ABLE TO WORK ALONE

13. IF YOU HAD A CHOICE, WHICH MEMBER OF YOUR WORK GROUP WOULD YOU MOST LIKE TO SEE AS ITS LEADER?

TABLE A-3.--Continued.

14. HOW MANY GRIEVANCES HAVE YOU INITIATED DURING THE PAST SIX MONTHS?

_____	NONE
_____	1-2
_____	3-4
_____	5-10
_____	MORE THAN 10

TABLE A-4.--Follow-Up Letter.

MICHIGAN STATE UNIVERSITY East Lansing - Michigan 48823

Graduate School of Business Administration
Department of Management - Eppley Center

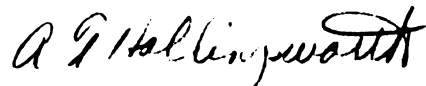
March 18, 1969

Recently you were given a questionnaire which is part of a study being conducted at the Michigan State Graduate School of Business.

I wish to thank all those who completed and returned the questionnaires. If you have not as yet returned the questionnaire, I would appreciate it if you would since the key to the success of this study is YOUR response.

You should return your questionnaire directly to me since your answers are strictly confidential.

Thanks again,



A. T. Hollingsworth
Instructor of Management

ATH:ljm

APPENDIX B

DATA AND COMPUTATIONS

TABLE B-1.--Original Sample, Effectiveness Ranking and Division.

Foremen	Effectiveness Ranking or Explanation	Division
A	1	B
B	1	B
C	1	B
D	1	B
E	1	B
F	1	B
G	1	A
H	1	A
I	2	A
J	2	B
K	2	A
L	2	B
M	2	A
N	2	A
O	2	A
P	2	B
Q	2	B
R	2	B
S	2	A
T	2	B
U	3	A
V	3	A
W	3	A
X	3	A
Y	3	A
Z	3	B
AA	3	B
AB	No response	B
AC	Unanswered Question- naire returned	B
AD	Unanswered Question- naire returned	A
AE	No response	A
AF	No response	A
AG	No response	A
AH	Temporary	A
AI	Temporary	A
AJ	Recently Promoted	A

TABLE B-2.--Background Data of Respondents.

Foremen	Age	Education* Level	Time with Company		Time in Charge of Group		Number of Members in Work Group
			Yrs.	Mos.	Yrs.	Mos.	
A	43	3	21	6	3	6	14
B	41	3	22		2	3	9
C	37	3	19	9	2	9	10
D	30	3	12	8		11	5
E	48	3	15	5		6	9
F	33	3	15	4	1	10	9
G	43	3	22	7	1	9	14
H	41	4	21		1	6	11
I	43	4	21	8	2	6	9
J	49	3	22		1		9
K	62	1			1	10	5
L	54	3	19	2	15		11
M	42	3	23		3		10
N	43	3	19	3	2	6	11
O	48	3	23	4	12		8
P	60	3	33	9	15	2	8
Q	58	4	32	8	21	10	9
R	43	3	22	7	1	9	9
S	37	3	18		2	10	8
T	39	3	22	8	1		9
U	45	3	23		1		8
V	48	3		8	2	1	8
W	60	1	39	8	25		12
X	47	2	16	7		8	6
Y	52	2	18	3	9	3	5
Z	52	4	23		18		6
AA	40	3	22	5	2	2	9

*1 = 8th grade or less; 2 = High School Dropout; 3 = High School Graduate;

4 = Some College; 5 = College Graduate

TABLE B-3.--Comparison of the Distribution Superintendents' Perceptions of the Work Groups' Cohesiveness With the Work Groups' Perceptions of Their Cohesiveness.

Foremen	Distribution Superintendents' Perceptions of Cohesiveness	U**	
		<u>raw data</u>	<u>scaled</u>
A	2	1.8	2
G	1	1.4	1
H	1	1.7	1
I	1	1.4	1
K	1	1.6	1
N	3	2.21	3
P	1	1.3	1
R	2	2.74	3
U	3	1.84	2
V	1	2.24	1***
X	3	2.10	3
Z	3	2.10	3

*All of these work groups had a majority of their members responding to the questionnaires.

$$**U = \frac{\sum \text{Items } 4, 5, 6I, 6II, 6III, 12}{N = 6}$$

***For group V, U showed no cohesiveness, however, there was a highly cohesive four-man clique in this eight-man work group. Therefore, U was given a value of one.

<u>Scaled Values of u</u>		
U	Interpretation	Scaled for Comparison with Distribution Superintendents' Responses
1.00-1.75	Highly cohesive	1
1.76-2.00	Moderately cohesive	2
2.01 --	Little or no cohesion	3

TABLE B-4.--Correlation (r_s) Between the Distribution Superintendents' Perceptions of The Work Groups' Cohesiveness and the Work Groups' Perceptions of Their Cohesiveness.

	\bar{X}		\bar{Y}		$X-Y=di$		di^2
Foremen	Distribution Superintendents' Perceptions of Cohesiveness raw data	corrected for ties	Work Group's Perception of Cohesiveness scaled data	corrected for ties			
G	1	3.5	1	3.5	0	0	0
H	1	3.5	1	3.5	0	0	0
I	1	3.5	1	3.5	0	0	0
K	1	3.5	1	3.5	0	0	0
P	1	3.5	1	3.5	0	0	0
V	1	3.5	1	3.5	0	0	0
A	2	7.5	2	7.5	0	0	0
R	2	7.5	3	10.5	3.0	9.0	9.0
N	3	10.5	3	10.5	0	0	0
U	3	10.5	2	7.5	3.0	9.0	9.0
X	3	10.5	3	10.5	0	0	0
Z	3	10.5	3	10.5	0	0	0
					$\Sigma di^2 =$		18

Numerical Ranking of Variables for Statistical Analysis

Distribution Superintendents' Perceptions of Cohesiveness

- 1 = highly cohesive
- 2 = moderately cohesive
- 3 = little or no cohesion

Work Groups' Perceptions of Cohesiveness

- 1 = highly cohesive
- 2 = moderately cohesive
- 3 = little or no cohesion

Ranking Corrected for Ties

- 1 = 3.5
- 2 = 7.5
- 3 = 10.5

Ranking Corrected for Ties

- 1 = 3.5
- 2 = 7.5
- 3 = 10.5

$$r_s = \frac{\sum X^2 + \sum Y^2 - \sum d^2}{2 \sqrt{(\sum X^2)(\sum Y^2)}}$$

$$r_s = 0.94$$

$$N = 12$$

TABLE B-5.--Comparison of the Distribution Superintendents' Perceptions of the Foremen's Membership in the Informal Organization with the Work Groups' Perceptions of the Foremen's Membership.

Foremen	Distribution Superintendent Perception of Foremen's Membership	Work Groups'*Perceptions of Foremen's Membership		
		<u>raw data</u>	<u>X**</u>	<u>scaled</u>
A	2-No	4.2		2-No
G	1-Yes	2.92		1-Yes
H	1-Yes	2.61		1-Yes
I	1-Yes	2.28		1-Yes
K	1-Yes	2.25		1-Yes
N	2-No	3.12		2-No
P	1-Yes	2.75		1-Yes
R	1-Yes	3.49		2-No
U	1-Yes	3.62		2-No
V	2-No	3.57		2-No
X	2-No	3.25		2-No
Z	1-Yes	2.4		1-Yes

*All of these work groups had a majority of their members responding to the questionnaires.

$$**X = \frac{\sum \text{Items 2 and 3}}{N = 2}$$

Scaled Values of X

X	Interpretation	Scaled for Comparison With Distribution Superintendents' Responses
1.0-3.0	Foreman is perceived as a member of the informal organization	1.0-Yes
3.1-5.0	Foreman is not perceived as a member of the informal organization	2.0-No

TABLE B-6.--Correlation (r_s) Between the Distribution Superintendents' Perceptions of the Foremen's Membership in the Informal Organization and the Work Groups' Perceptions of the Foremen's Membership.

Foremen	<u>X</u>		<u>Y</u>		Σd	Σd ²	Σd ³
	Distribution Superintendents' Perceptions of Membership raw data	corrected for ties	Work Groups' Perceptions of Membership raw data	corrected for ties			
G	1	4.0	1	3.5	0.5	0.25	0.125
H	1	4.0	1	3.5	0.5	0.25	0.125
I	1	4.0	1	3.5	0.5	0.25	0.125
K	1	4.0	1	3.5	0.5	0.25	0.125
P	1	4.0	1	3.5	0.5	0.25	0.125
R	1	4.0	2	9.5	-5.5	30.25	-166.875
U	1	4.0	2	9.5	-5.5	30.25	-166.875
Z	1	4.0	1	3.5	0.5	0.25	0.125
A	2	10.5	2	9.5	1.0	1.0	1.0
N	2	10.5	2	9.5	1.0	1.0	1.0
V	2	10.5	2	9.5	1.0	1.0	1.0
X	2	10.5	2	9.5	1.0	1.0	1.0
					Σd ² =	66.0	

Numerical Ranking of Variables for Statistical Analysis

Distribution Superintendents' Perceptions of Foremen's Membership	Work Groups' Perceptions of Foremen's Membership
---	--

yes = 1
no = 2

yes = 1
no = 2

Ranking Corrected for Ties

1 = 4.0
2 = 10.5

Ranking Corrected for Ties

1 = 3.5
2 = 9.5

$$r_s = \frac{\sum X^2 + \sum Y^2 - \sum d^2}{2 \sqrt{(\sum X^2)(\sum Y^2)}}$$

$r_s = 0.73$

N = 12

TABLE B-7.--Disparity Indexes.

Foremen	D	C*	Foremen's Rankings of Group Cohesiveness		D-C
			raw data	scaled	
A	2		2.2	2	0
B	3		3.8	3	0
C	1		5.0	3	-2
D	1		1.2	1	0
E	2		4.2	3	-1
F	1		2.0	1	0
G	1		2.4	2	-1
H	1		2.0	1	0
I	1		3.25	2	-1
J	1		2.2	2	-1
K	1		3.0	2	-1
L	1		3.0	2	-1
M	1		2.6	2	-1
N	3		3.0	2	1
O	3		3.2	2	1
P	1		2.6	2	-1
Q	1		2.3	2	-1
R	2		2.4	2	0
S	3		5.0	3	0
T	1		2.2	2	-1
U	3		1.6	1	2
V	1		3.6	3	-2
W	1		2.5	2	-1
X	3		5.0	3	0
Y	3		4.0	3	0
Z	3		2.7	2	1
AA	2		4.67	3	-1

*C = Σ Items 7, 8, 9, 15, 18
 N = 5

<u>Scaled Values of C</u>		
<u>C</u>	Interpretation	Scaled for Comparison With Distribution Superintendents' Responses
1.0-2.0	Highly cohesive	1
2.1-3.4	Moderately cohesive	2
3.5 --	Little or no cohesion	3

TABLE B-8.--Correlation (r_s) Between a Foreman's Effectiveness Ranking and His Disparity Index.

	X	Y	X-Y=di	di ²
Foremen	Effectiveness Ranking Cor- rected for ties	Disparity Index Corrected for ties		
A	4.5	5	- .5	.25
B	4.5	5	- .5	.25
C	4.5	5	- .5	.25
D	4.5	5	- .5	.25
E	4.5	5	- .5	.25
F	4.5	17	-12.5	156.25
G	4.5	17	-12.5	156.25
H	4.5	26	21.5	462.25
I	14.5	5	9.5	90.25
J	14.5	5	9.5	90.25
K	14.5	17	- 2.5	6.25
L	14.5	17	- 2.5	6.25
M	14.5	17	- 2.5	6.25
N	14.5	17	- 2.5	6.25
O	14.5	17	- 2.5	6.25
P	14.5	17	- 2.5	6.25
Q	14.5	17	- 2.5	6.25
R	14.5	17	- 2.5	6.25
S	14.5	17	- 2.5	6.25
T	14.5	17	- 2.5	6.25
U	24	5	19	361
V	24	5	19	361
W	24	17	7	49
X	24	17	7	49
Y	24	17	7	49
Z	24	26	- 2	4
AA	24	26	- 2	4
			$\Sigma di^2 =$	1896.00

TABLE B-8.--Continued.

Numerical Ranking of Variables for Statistical Analysis			
Disparity Index Ranking		Effectiveness Ranking of Foremen	
<hr/> 0 = 1 1 = 2 2 = 3		<hr/> 1 = 1 2 = 2 3 = 3	
Ranking Corrected for ties		Ranking Corrected for ties	
<hr/> 1 = 5 2 = 17 3 = 26		<hr/> 1 = 4.5 2 = 14.5 3 = 24	
$r_s = \frac{\sum X^2 + \sum Y^2 - \sum d_i^2}{2 \sqrt{(\sum X^2) (\sum Y^2)}}$			
$r_s = 0.302$			
$t = r_s \sqrt{\frac{N-2}{1-r_s^2}}$			
$t = 1.576$			
$p = 0.1-0.05$			
<u>Goodman and Kruskal's Tau</u>			
Selection errors - disparity index unknown			17.5
Selection errors - disparity index known			14.0
Percent decrease in selection errors			20%

TABLE B-9.--Measurement of the Control Variable as Perceived by the Foremen

Foremen	Z*	
	raw data	scaled
A	1.5	1
B	No perception**	-
C	No perception	-
D	2.25	2
E	No perception	-
F	2.25	2
G	2.75	3
H	2.25	2
I	3.0	3
J	2.5	2
K	4.34	3
L	3.5	3
M	2.0	1
N	2.25	2
O	3.5	3
P	No response	-
Q	No response	-
R	3.25	3
S	No perception	-
T	1.1	1
U	1.25	1
V	No perception	3
W	3.34	3
X	No perception	-
Y	No perception	-
Z	No response	-
AA	No perception	-

$$*Z = \frac{\sum \text{Items } 9, 10, 15, 17}{N = 4}$$

**No perception refers to the fact that this foreman did not perceive an informal organization operative within his work group.

Scaled Values of Z

<u>Z</u>	<u>Interpretation</u>	<u>Scale</u>
1.0-2.0	Strong control	1
2.1-2.5	Moderate control	2
2.6 --	No control	3

TABLE B-10.--Correlation (r_s) Between a Foreman's Effectiveness Ranking and His Perceived Degree of Control over the Informal Organization.

	X	Y	X-Y=di	di ²
Foremen	Effectiveness Ranking Corrected for ties	Perceived Degree of Control Corrected for ties		
A	3	2.5	0.5	0.25
D	3	7.0	- 4	16.0
F	3	7.0	- 4	16.0
G	3	7.0	- 4	16.0
H	3	13.0	-10	100.0
I	10	2.5	7.5	56.25
J	10	2.5	7.5	56.25
K	10	7.0	3	9.0
L	10	7.0	3	9.0
M	10	13.0	- 3	9.0
N	10	13.0	- 3	9.0
O	10	13.0	- 3	9.0
R	10	13.0	- 3	9.0
T	10	13.0	- 3	9.0
V	15.5	2.5	13	169.0
W	15.5	13.0	2.5	6.25
$\Sigma di^2 =$				499.0

Numerical Ranking of Variables
for Statistical Analysis

Degree of Control
Ranking

High = 1
Moderate = 2
Low = 3

Effectiveness Ranking
of Foremen

1 = 1
2 = 2
3 = 3

Ranking Corrected
for ties

High = 2.5
Moderate = 7.0
Low = 13.0

Ranking Corrected for
ties

1 = 3.0
2 = 10.0
3 = 15.5

TABLE B-10.--Continued.

$$r_s = \frac{\sum X^2 + \sum Y^2 - \sum d^2}{2 \sqrt{(\sum X^2)(\sum Y^2)}}$$

$$r_s = 0.119$$

$$t = r_s \sqrt{\frac{N-2}{1-r_s^2}}$$

$$t = 0.452$$

$$z = \frac{r_s - 0}{1 / \sqrt{N-1}}$$

$$z = 0.460$$

$$p = 0.32$$

Goodman and Kruskal's Tau

Selection errors - perceived degree of control unknown	9.125
Selection errors - perceived degree of control known	8.04
Percent decrease in selection errors	11%

TABLE B-11.--Foremen's Perceived Membership in the Informal Organization.

Foremen	Membership in the Informal Organization
A	Yes
B	No perception*
C	No perception
D	No
E	No perception
F	Yes
G	Yes
H	Yes
I	Yes
J	No
K	No
L	No
M	Yes
N	No
O	No
P	No
Q	Yes
R	Yes
S	No perception
T	Yes
U	Yes
V	No perception
W	No
X	No perception
Y	No perception
Z	Yes
AA	No perception

*No perception refers to the fact that this foreman did not perceive an informal organization operative within his work group.

TABLE B-12.--Correlation (r_s) Between a Foreman's Effectiveness Ranking and His Perceived Membership in the Informal Organization.

	X	Y	X-Y=d _i	d _i ²
Foremen	Effectiveness Ranking Corrected for ties	Perceived Membership Corrected for ties		
A	3	14	-11	121.0
D	3	14	-11	121.0
F	3	14	-11	121.0
G	3	14	-11	121.0
H	3	4.5	- 1.5	2.25
I	11	14	- 3	9.0
J	11	14	- 3	9.0
K	11	14	- 3	9.0
L	11	14	- 3	9.0
M	11	14	- 3	9.0
N	11	4.5	6.5	42.25
O	11	4.5	6.5	42.25
P	11	4.5	6.5	42.25
Q	11	4.5	6.5	42.25
R	11	4.5	6.5	42.25
T	11	4.5	6.5	42.25
U	18	14	6.5	16.0
W	18	14	4	16.0
Z	18	4.5	13.5	182.25
			$\Sigma d_i^2 =$	999.0

Numerical Ranking of Variables
for Statistical Analysis

Foremen's Perceived
Membership in the
Informal Organization

Effectiveness Ranking
of Foremen

No - 1
Yes - 2

1 = 1
2 = 2
3 = 3

TABLE B-12.--Continued.

Ranking Corrected for Ties	Ranking Corrected for Ties
No = 1 = 4.5	1 = 3.0
Yes = 2 = 14.0	2 = 11.0
	3 = 18.0

$$r_s = \frac{\sum X^2 + \sum Y^2 - \sum d_i^2}{2 \sqrt{(\sum X^2)(\sum Y^2)}}$$

$$r_s = -0.149$$

$$t = r_s \sqrt{\frac{N-2}{1-r_s^2}}$$

$$t = 0.621$$

$$z = \frac{r_s - 0}{1 / \sqrt{N-1}}$$

$$z = 0.632$$

$$p = 0.26$$

Goodman and Kruskal's Tau

Selection errors - perceived membership unknown	10.8
Selection errors - perceived membership known	10.15
Percent decrease in selection errors	6%

TABLE B-13.---Correlation (r_s) Between Item 12 and the Groups' Composite Indexes of Cohesiveness.

U		Composite Group Cohesiveness Index*		Responses to Item 12		X-Y=di	di ²
scale	corrected for ties	X		raw data	Y		
		corrected for ties	corrected for ties		scaled	corrected for ties	
1	3.0			1.0	1	2.5	0.25
1	3.0			2.0	2	7.0	16.0
1	3.0			1.2	1	2.5	0.25
1	3.0			2.0	2	7.0	16.0
1	3.0			1.67	1	2.5	0.25
2	6.5			3.0	3	11.0	20.25
2	6.5			1.5	1	2.5	16.0
3	10.0			2.75	3	11.0	1.0
3	10.0			2.0	2	7.0	9.0
3	10.0			2.34	2	7.0	9.0
3	10.0			2.8	3	11.0	1.0
3	10.0			1.8	2	7.0	9.0
$\Sigma di^2 =$							98.0

$$* U = \frac{\Sigma \text{Items } 4, 5, 6I, 6II, 6III, 12}{N = 6}$$

$$r_s = \frac{\Sigma X^2 + \Sigma Y^2 - \Sigma di^2}{2 \sqrt{(\Sigma X^2) (\Sigma Y^2)}}$$

$$r_s = 0.667$$

$$p = 0.05$$

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